



Nonpoint Source
PROGRAM

Louisiana Nonpoint Source
Annual Report

Federal Fiscal Year (FFY) 2017



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1.0 Executive Summary

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Executive Summary

The State of Louisiana's federal fiscal year (FFY) 2017 Nonpoint Source (NPS) Annual Report has been prepared in compliance with Section 319 of the Clean Water Act (CWA). The purpose of this report is to provide an overview of progress made in reducing NPS pollution and improving water quality within the State of Louisiana. Sources of NPS pollution include agricultural production, forestry, sand and gravel mining, urban storm water runoff, construction, and onsite disposal systems (OSDS). Although the NPS program in Louisiana is administered by the Louisiana Department of Environmental Quality (LDEQ), other agencies and organizations, including Louisiana Department of Agriculture and Forestry (LDAF), partner to implement the statewide program intended to improve water quality. Activities of 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.

During FFY 2017, the State of Louisiana has continued to make progress in implementing the NPS Management Plan. LDEQ has been in the process of updating the tasks and milestones in the plan to describe the types of activities that LDEQ and its partners will be conducting through 2022.

In addition to updating the milestones in the NPS Management Plan, LDEQ published success stories for the following watersheds: Natalbany River, Selsers Creek, and Bayou Queue de Tortue. These stories can be accessed at United States Environmental Protection Agency (USEPA's) national website. Watershed restoration resulted from partners collaborating on efforts to reduce pollution from OSDS and agricultural lands in each watershed.

Furthermore, LDEQ continues to focus on water quality problems associated with OSDS. Several partners have played an active role in educating homeowners on the importance of protecting Louisiana's waterways by properly maintaining sewage systems. Partners involved in this effort include Capital Resource Conservation & Development Council (RC&D), Louisiana Rural Water Association (LRWA), Lake Pontchartrain Basin Foundation (LPBF), Bayou Vermilion District (BVD) and Barataria-Terrebonne National Estuary Program (BTNEP).

Numerous areas of Louisiana have experienced rapid growth and development, therefore emphasis has been placed on working with these parishes to establish a drinking water protection ordinance that protects their source water from NPS pollutants. The Source Water Protection Program (SWPP) has collaborated with the NPS Program to educate the public on the importance of preventing NPS pollution and maintaining OSDSs. LDEQ's SWPP employees produced a video which demonstrated helpful tips to maintain OSDS. The video can be viewed using the following link: <https://youtu.be/1v3JMnlevuo>.

LDEQ, LDAF and United States Department of Agriculture – National Resources Conservation Service (USDA-NRCS) continue to work together to improve the process of restoring and protecting watersheds. Quarterly interagency committee meetings with LDEQ, LDAF, USDA-NRCS, LDNR, and Louisiana Department of Health (LDH) have begun in order to keep everyone abreast of activities occurring in priority watersheds, as well as future plans in new or existing watersheds.

The NPS program has made significant progress in reducing NPS pollution, improving water quality, and therefore, will continue to target additional watersheds in need of restoration. The success of the program is largely accredited to proficient collaboration of federal, state, and local governments partnering with universities, non-profit organizations, and the public. These partnerships will continue to be the basis for watershed and statewide efforts during 2018.

In 2017, the NPS Program and its partners were immensely involved in watershed restoration activities across the state. 2017 NPS Program highlights are as follows:

NPS Program Highlights

- LDEQ participated in 27 outreach and educational events;
- LDEQ published success stories for Bayou Queue de Tortue, Natalbany River, and Selsers Creek which were approved by the United States Environmental Protection Agency (USEPA) as qualifying for three (3) WQ-10 measures;
- LDEQ and LDAF managed approximately \$4.2 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 two watershed coordinators (WSCs) and two watershed groups that are located in various parts of the state;
- LDEQ revised and drafted 6 watershed implementation plans (WIPs) within 2 Basins;
- LDEQ submitted Bayou Mallet watershed plan to USEPA and it has been accepted as meeting the nine key elements of a watershed based plan;
- LDEQ, LDAF and 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 10 watersheds; several partners provided water quality sampling for the NPS program in 7 watersheds.
- Louisiana continues to focus on watershed planning, assessment, monitoring and implementation in 29 watersheds;
- In partnership with Louisiana Department of Natural Resources (LDNR), LDEQ responded to comments from USEPA and National Oceanographic and Atmospheric Administration (NOAA) on Louisiana's Coastal Nonpoint Pollution Control Program (CNPCP); specifically the OSDS measure which was updated;
- LDEQ's Drinking Water Protection Program (DWPP) implemented activities in Rapides, Sabine, Vernon, Winn and Union parishes ;
- LDEQ published monitoring data in EQUIS and USEPA's 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.

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, which is prioritized to fund projects in coordination with USDA's Farm Bill, to implement its water quality goals and objectives. LDEQ continued partnering with WSCs in monitoring, OSDS inspections, and assistance with developing the WIPs and LDAF and USDA-NRCS in implementing WIPs for NPS pollution impaired priority watersheds.

LDEQ expended approximately \$1.85 million in CWA Section 319 funds for NPS and 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)
2011	
2012	\$335,200.00
2013	\$308,738.00
2014	\$369,700.00
2014 Special Award	\$ 87,544.00
2015	\$365,890.00
2016	\$378,200.00
TOTAL	\$1,845,272

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 \$2.35 million on watershed implementation within multiple watersheds around the state. Implementation was conducted on approximately 50,007 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, Pontchartrain and Vermilion-Teche Basins.

Grant Year	LDEQ (Federal)
2011	\$99,659.75
2012	\$282,506.34
2013	\$640,329.05
2014	\$480,048.00
2014 Special Award	\$180,283.63
2015	\$566,581.74
2016	\$101,516.58
TOTAL	\$ 2,350,925.09

Table 2. LDEQ Section 319 Grant Expenditures

3.0 Water Quality Monitoring and Implementation

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Water Quality Monitoring and Implementation

3.1 LDEQ Nonpoint Source

In FFY 2017, water quality monitoring continued in 17 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
Middle Comite River	040102	
Natalbany River	040503	
Bayou Mallet	050103	Mermentau River
Bayou des Cannes	050101	
Bayou Queue de Tortue	050501	
Bayou Chene	050603	
Lake Fausse Pointe	060702	Vermilion-Teche River
Vermilion River	060801	
Boston Canal	060910	
Tunica Bayou	070505	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 Folse	120305	

Table 3. Watersheds in which water quality monitoring was conducted in FFY2017

LDEQ's NPS staff developed the following WIPs below. 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
Hemphill Creek (Accepted)	081609	Ouachita River
Bayou Mallet (Accepted)	050103	Mermentau

Table 4. WIPs submitted in FFY2017

In FFY 2018, LDEQ-NPS will be drafting/revising the following WIPs to USEPA R6 for review:

Watershed	Subsegment	River Basin
Bayou Chene	050603	Mermentau River
Bayou des Cannes (Accepted)	050101	Mermentau River
Bayou Lafourche	080904	Ouachita River
Bayou Gross Tete	120104	Terrebonne
Bayou du Portage	060703	Vermillion-Teche
Big Creek (North)	080903	Ouachita River
Hemphill Creek (Accepted)	081609	Ouachita River
Vermilion River	060801/060802	Vermillion-Teche

Table 5. Draft WIPs to be submitted to USEPA in FFY2018

3.2 Louisiana Department of Agriculture and Forestry

LDAF provided technical assistance and BMP implementation on 50,006.66 acres in nine watersheds, see below.

Watershed	Acres Implemented	Basin
Natalbany River	148.1	Lake Pontchartrain
Bayou Queue De Tortue	18,430.7	Mermentau River
Bayou Des Cannes	14,739.1	Mermentau River
Bayou Chene	3,933.8	Mermentau River
Boston Canal	5.22	Vermillion Tech
Bayou Mallet	8,520.8	Mermentau River
Big Creek (South)	3,150	Lake Pontchartrain
Big Creek (North)	537.32	Ouachita River
Bayou Lafourche	541.62	Ouachita River
TOTAL	50,006.66	

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 SWCD. These local SWCDs included Acadia, Vermilion, Jefferson Davis, Morehouse, St. Landry, Tangipahoa-St Helena, Catahoula, Evangeline, and Tensas-Concordia. 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 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 logistical assistance to ensure maximum effectiveness for our collective efforts in restoring water quality in agricultural settings.

4.0 Coordination with Partners

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Coordination with Partners

4.1 LDEQ Water Surveys

LDEQ Water Surveys is an intricate component of NPS in completing our mission towards 319 sampling activity goals. Utilizing Water Surveys has been extremely cost effective for the program, and has eliminated the need for expensive contractors. The Water Surveys group consists of approximately nine Environmental Scientists (ES), two ES Supervisors and one ES Manager. The group is currently conducting sampling in approximately 10 watersheds with an estimated four additional in the near future. For continued success of Water Surveys it is important to ensure the group is adequately equipped for all water quality sampling activities. The FFY12 319 grant allowed for the purchase and/or the replacement of crucial equipment/inventory.

In addition to Water Surveys support of NPS, they are collaboratively working with the LDEQ Water Permits Division and the TMDL group under the long-term vision projects for assessment, restoration and protection under the CWA Section 303 (d) Program.

Current watersheds:

- Bayou des Cannes (050101)
- Boston Canal (060910)
- Queue de Tortue (050501)
- Bayou Lafourche (080904)
- Lower Comite River (040103)
- Lake Fausse Pointe (060702) (terminated May 2017)
- Vermilion River (060801)
- Lake Providence (081101)
- Hemphill Creek (081609)
- Big Creek (080903)
- Bayou Chene (050603)

Proposed future watersheds:

- Bayou Maringouin (120111)
- Bayou Grosse Tete (120104)
- New River (040404) New Vision
- Blind River (040402) New Vision

4.1.1 Featured Priority Watersheds

4.1.1.1 Lake Providence (081101)

Lake Providence, subsegment, 081101 is located in East Carroll Parish near the Mississippi state line, adjacent to and north of the town of Lake Providence and falls in the Ouachita River Basin.

The 2016 Integrated Report (IR) indicates Lake Providence is not meeting its FWP designated use due to high concentrations of TDS and further states the suspected source of the impairment is agricultural activity.

The Lake Providence sampling plan was approved March 21, 2017. These sampling efforts will support agricultural BMPs implemented by the United State Department of Agriculture/Natural Resources Conservation Service (USDA/NRCS). Lake Providence is one of NRCS's Mississippi River Basin Healthy Watershed Initiative watersheds. LDEQ Water Surveys kicked off the first sampling event for the 11 designated sites on May 9, 2017.

The cabin boat and motor was an EPA approved purchase with Section 319 funds in September 2017. This vessel can be utilized on all nonpoint projects throughout the state which require the use of a boat to access sampling sites.



Figure 1. Randy Wiggins, Team Leader, sampling from cabin boat at Site 4776 (Lake Providence at mouth of Bayou Providence).



Figure 2. Site 4778 (Lake Providence south-southwest of Bayou Providence mouth)

4.1.1.2 Bayou Chene (050603)



Figure 3. Downstream at site 0658 on Bayou Chene at Highway 99 where flow is collected

Louisiana's 2010 IR indicated Bayou Chene was not meeting its FWP designated use due to increased concentrations of fipronil, mercury in fish tissue, lead, and low DO concentrations. The suspected sources of impairment include atmospheric deposition, unknown sources, and irrigated and non-irrigated crop production. To improve water quality in the subsegment, the USDA began to implement BMPs in the watershed under the Mississippi River Basin Initiative (MRBI). The University of Louisiana at Lafayette (ULL) began sampling in June 2012 and concluded under the MRBI project on June 14, 2015. LDEQ continued to contract with ULL to conduct sampling to support continued BMPs implemented by LDAF.

Though BMPs have been implemented in Bayou Chene's three 12-digit Hydrologic Unit Codes (HUCs), the 2016 IR indicates the waterbody is not meeting its designated uses of PCR due to increased concentrations of fecal coliform. Suspected sources of impairment include drought related impacts, runoff from forest/grassland/parkland, and rural (residential areas). The waterbody is not meeting its designated use of FWP due to increased concentrations of mercury. The suspected sources of impairment include atmospheric deposition, unknown sources, and agriculture. ULL concluded their sampling efforts in July 2017 and LDEQ WS began conducting sampling activity effective August 2017 to continue to track changes in water quality following implementation conducted by LDAF.

DO concentrations were below 5 mg/L, except during the winter months (December–February), additional implementation of BMPs is necessary for water quality improvement in this watershed. Due to elevated sediment, nutrient, and turbidity concentrations at the uppermost sampling site, special consideration for future BMP implementation in the upstream sections of Bayou Chene is essential. Implementation is anticipated to continue through September 2022 and LDEQ will conclude water quality monitoring September 2023.

4.1.1.3 Vermilion River (060801)

The Vermilion River is located in southern Louisiana in Lafayette Parish. Vermilion River is impaired for PCR due to high concentrations of fecal coliform bacteria. LDEQ-NPS and Bayou Vermilion District (BVD) met in Lafayette on January 26, 2017, to kick-off activity under the new contract for the "Nonpoint Source Pollution Reduction through On-Site Sewer System Inspections, Education and Outreach in Vermilion River". The USEPA FFY14 C9-00F93501 319 special grant will support this project through September 30, 2019.

To address the fecal coliform impairment, BVD initiated OSDS inspections in HUC-12 080801030106, and developed a public education and awareness campaign addressing the importance of inspection and maintenance of the sewage systems. This will allow for the improvement of water quality of Vermilion River within the urbanized and rural areas of Lafayette Parish by reducing or eliminating the potential for microbial contamination of the area waterways from individual OSDs.

Restoration efforts will consist of inspecting an estimated 944 existing OSDs in HUC-12 080801030106, and educating home and business owners on the need for proper operation and routine maintenance.

The overall project began with the USEPA-approved sampling plan on April 29, 2016. WS initiated sampling efforts in Vermilion River June 2016 at 23 sites, sampling twice a month. Sampling activity will continue

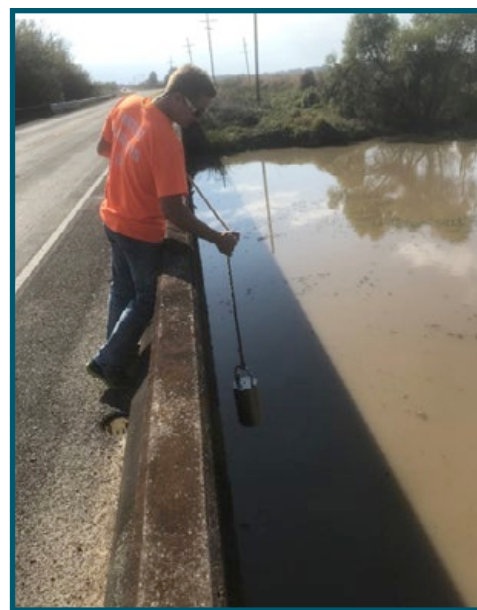


Figure 4. Derek Borne, Environmental Scientist sampling at site 0658.

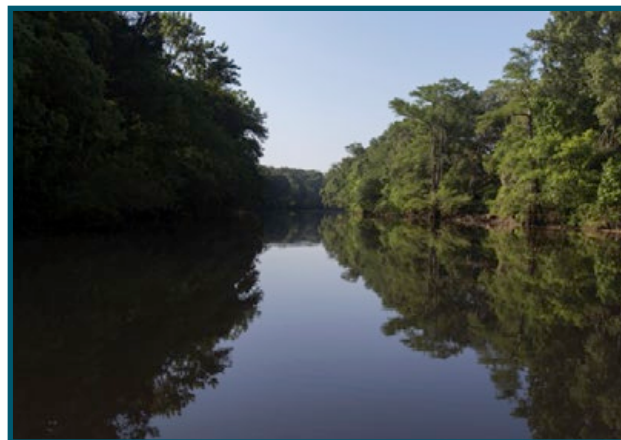


Figure 5. Vermilion River, subsegment 060801

for approximately one year, allowing for the baseline to be established and long-term sites to be selected. Activity under this contract will allow for the education and outreach campaign to begin immediately and allow BVD to set up their OSDS inspections, which began in June 2017.

4.2 USDA-NRCS Initiatives

During FFY2017, LDEQ, LDAF and USDA-NRCS continued partnering in watersheds prioritized through USDA’s NWQI (see tables 7-10). Through the USDA Farm Bill and 319 funds 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 to provide 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.

4.2.1 Mississippi River Basin Initiative

LDEQ has completed long-term sampling (FFY 2011 through FFY 2015) on the first MRBI’s in Louisiana. These projects included a baseline study, BMP targeted implementation and long-term monitoring to determine changes in water quality due to BMPs implemented.

Watershed	Subsegment	Watershed Basin	12-Digit HUC Name	12-Digit HUC
Bayou Lafourche	080904	Ouachita River	Crew Lake	080500011304
			Steep Bayou	080500011308
			Halfway Bayou	080500011401
Turkey Creek	080906	Ouachita River	Turkey Creek	080500011007
			Little Turkey Creek	080500011502
			West Turkey Creek	080500011503
			Turkey Creek Lake	080500011504
Bayou Chene	050603	Mermentau River	Bayou Chene	080802020205
Bayou Lacassine	050601	Mermentau River	East Bayou Lacassine	080802020202
			West Bayou Lacassine	080802020204
			Thornwell Drainage Canal	080802020206
All four projects have ended. Final reports have been approved. Bayou Chene project has been extended with BMPs being funded through LDAF Section 319 funding.				

Table 7. USDA – FFY2011-2015 Mississippi River Basin Initiative

As Louisiana’s first MRBI projects come to an end six new MRBI projects were chosen in FFY2015 and projects began in FFY2016. These projects will receive USDA Farm Bill funding over a three year life span totaling \$3,689,966. These MRBI watersheds are located in the northeastern part of the state within the Ouachita River Basin as a priority area in the Louisiana Nutrient Management Strategy.

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 will assist producers in improving nutrient management techniques above their current level to increase nutrient utilization. NRCS, Soil and

Water Conservation Districts (SWCD) and other partners will develop targeted outreach plans to reach every producer within the watershed. Conservation planning and technical assistance will be offered at no charge to help producers address the watershed goals and improve water quality.

Watershed	Subsegment	Acres	Parish	12-Digit HUC Name	12-Digit HUC
Bayou Macon	081001	21,058	West Carroll	Alligator Bayou	080500020503
Big Creek	080903	22,030	Richland	Little Creek	080500011001
Lake Providence	081101	34,953	East Carroll	Lake Providence-Tensas Bayou	080500030101
Tensas River	081201				
Tensas River	081201	51,777	Tensas	Lake Bruin	080500030503
Lake Bruin	081203			Van Buren Bayou	080500030501
Tensas River	081201	28,952	Madison	Little Tensas Bayou – Bull Bayou	080500030105
Deer Creek	081003	26,671	Franklin	Upper Deer Creek	080500011601

Table 8. USDA – FFY2016 Mississippi River Basin Initiative

In FFY 2017, LDEQ continued to sample in Big Creek. LDEQ began sampling in Lake Providence in April 2017 and sampling in Lake Joseph ceased in FFY 2016.

Watershed	Subsegment	Parish	12-Digit HUC Name	12-Digit HUC
Bayou Macon	081001	West Carroll	Alligator Bayou	080500020503
Big Creek	080903	Richland	Cane Bayou	080500011010
Big Creek	080903	Richland	Little Creek	080500011001
Lake St. Joseph	081202	Tensas	Lake St. Joseph-Clark Bayou	080500030406
Lake Providence	081101	East Carroll	Lake Providence-Tensas Bayou	080500030101
Tensas River ¹	081201			
Tensas River	081201	Tensas	Lake Bruin	080500030503
Lake Bruin	081203		Van Buren Bayou	080500030501
Tensas River	081201	Madison	Little Tensas Bayou – Bull Bayou	080500030105
Deer Creek	081003	Franklin	Upper Deer Creek	080500011601

Table 9. USDA – FFY 2017 Mississippi River Basin Initiative

4.2.2 National Water Quality Initiative (NWQI)

LDEQ has completed long-term sampling (FFY 2011 through FFY 2015) on the first MRBI's in Louisiana. These projects included a baseline study, BMP targeted implementation and long-term monitoring to determine changes in water quality due to BMPs implemented.

Watershed	Subsegment	Watershed Basin	12-Digit HUC Name	12-Digit HUC
Bayou Grand Marais	050501	Mermentau River	Bayou Grand Marais	080802020103
Lake Louis Bayou du Portage	080203	Ouachita River Mermentau River	Bayou Louis	080402070303
	060703		Indian Bayou	08081020801
LDEQ continues to sample in Lake Louis and Bayou Grand Marais. Sampling began in Bayou du Portage in October 2017.				

Table 10. USDA - National Water Quality Initiative

4.3 Water Standards and Assessment

The Louisiana Nutrient Management Strategy developed through interagency collaboration of the Coastal Protection and Restoration Authority (CPRA) of Louisiana, LDAF, LDEQ, and LDNR was released in 2014. This statewide strategy addresses nutrient management in both point and NPS and through coastal restoration and protection activities. Strategies to address nutrients include:

- agricultural BMPs;
- advanced wastewater treatment technologies;
- coastal programs and restoration activities focused on managing nutrient levels while meeting regulatory requirements under the CWA; and
- incentive-based approaches for participation of all stakeholders within the watershed community.

The state's Nutrient Management Strategy was developed as one component of a multi-state initiative through the Hypoxia Task Force intended to manage and reduce nutrients entering Gulf of Mexico waters. In addition to the state agencies involved in developing the strategy, many other partners are conducting implementation activities essential to successful nutrient management including USDA-NRCS, LSU AgCenter, The Nature Conservancy, and the Louisiana Water Synergy Project.

In 2017, the Louisiana Nutrient Management strategy team focused on implementation. Among the many implementation activities, the strategy team began to develop draft guidance for development of a water quality credit trading program in Louisiana that would consider voluntary participation of both point and nonpoint sources. Strategy team members participated in Hypoxia Task Force Coordinating Committee monthly conference calls and discussed progress on the states' strategies at the Hypoxia Task Force Coordinating Committee fall workshop in Biloxi, Mississippi. More information on the state strategy can be found at <http://deq.louisiana.gov/page/nutrient-management-strategy>.

4.4 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 Total Maximum Daily Loads (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 USEPA 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 USEPA and states to better manage the program to achieve water quality goals. USEPA 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 has 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 2018. LDEQ initiated monitoring, outreach and engagement, and watershed investigations in Subsegment 040504 Yellow Water River. Outreach and engagement, integration, data analysis and assessment, watershed investigations, and the development of monitoring strategies were initiated in the remaining 5 priority watersheds.

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.

4.5 Watershed Coordinators and Watershed Groups

LDEQ WSCs continue to serve as valuable partners in implementing Louisiana's NPS program. In FFY2017, LDEQ partnered with Capital RC&D, Trailblazer RC&D, BTNEP, LRWA, and BVD. This partnership accomplishes several goals listed in Louisiana's 2012 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 WSCs are dedicated to restoring and preserving the water quality in the areas where they live and serve.



4.5.1 Capital RC&D

To address water quality impairments in Ponchatoula Creek, Yellow Water River, Big Creek, Comite River, Middle Comite River, Upper Amite River, Middle Amite River, Selsers Creek, Tunica Bayou, and Bayou Sara, Capital RC&D continues to conduct OSDS inspections in the watersheds. The low income initiative began October 2016, and inspectors have been encouraged to look for opportunities where the program will help citizens in need.

In addition, the RC&D continues to collect water quality samples in Tunica Bayou and Middle Comite River, to track water quality changes due to the inspections. These watersheds are listed on Louisiana’s 2016 IR as not supporting its designated uses of PCR, FWP, and outstanding natural resources (ONR) due to low concentrations of DO and increased concentrations of fecal coliform, turbidity, TDS, and nutrients.

Capital RC&D employees spent countless hours meeting and coordinating with East Baton Rouge, Pointe Coupee, West Baton Rouge, Washington, St. Tammany, Lafayette, St. Martin, West Feliciana, East Feliciana, and Tangipahoa Parish inspectors’ to acquire updates on each watershed’s progress of inspections, management of technical assistance, and reviewing maps to gauge additional locations requiring assistance. Capital RC&D has also made contact with various stakeholders, such as Land Trust, Keep Hammond Beautiful, East Baton Rouge, West Feliciana, and East



Figure 6. Donny Latiolais and Melanie Nunez, of Capital RC&D, collecting water quality samples in Tunica Bayou.



Figure 7. LDEQ quality assurance/quality control visits in West Feliciana Parish.

West Feliciana Public Works, Tangi Clean, Evangeline SWCD, City of Hammond, and DHH parish offices. OSDS inspector training was provided to Vermillion District employees.

The RC&D also remains dedicated to focusing a portion of it’s time to education and outreach which includes the Tangi Clean Spring Trash Bash, Trash Clean-up at Lee’s Landing, Manchac Clean-up, Hazardous Household Waste Recycling Day, aiding in the coordination of work in flooded areas as homeowners return to their residences, the Ponchatoula Creek and Yellow Water River watershed improvement events, and developing plans to prevent stormwater pollution prevention on small residential construction sites, due to NPS pollution.

4.5.2 Trailblazer RC&D

LDEQ continued its partnership with the Trailblazer RC&D and long-time Watershed Coordinator Olivia Ward. Trailblazer is located in Ruston, LA and typically works in an eight-parish (Bossier, Webster, Bienville, Claiborne, Lincoln, Union, Jackson, and Winn) area.

Education and outreach was the focus of Trailblazer's work this year. From October 2016 through September 2017, the WSC participated in 50 educational workshops, presentations, and events; approximately 1,700 people learned about the importance of preventing NPS pollution.

Forestry is Louisiana's most valuable agricultural commodity, and it is a significant part of north Louisiana's economy. Trailblazer continued its work with the forestry industry by assisting with Forestry BMP workshops. These workshops help reduce NPS issues related to the forestry industry, such as high levels of sedimentation, increased water temperature, and high turbidity.

The WSC expanded activities into the Monroe, LA area, where she visited schools and libraries and networked with a local group – the "Green Team". The group met once per month to discuss measures that could be taken to promote and educate the public about environmental issues, including water quality.

Much of Trailblazer's outreach and education work occurred at schools and libraries; participants ranged in age from children to senior citizens. Details about NPS pollution were emphasized, often through presentations and games.



Figure 8. Forestry BMP Workshop in Springhill, LA (March 31, 2017)



Figure 9. Pine Grove Elementary School Water Quality Presentation in Bastrop, LA (April 20, 2017)

4.5.3 Barataria-Terrebonne National Estuary Program



This year LDEQ partnered with the BTNEP to address water quality impairments in the Bayou Folsé area (subsegment 120302). Both PCR and FWP uses are impaired due to NPS pollution. During the last year, BTNEP has sampled water quality parameters at 10 locations throughout the subsegment to identify areas with high concentrations of sediment, nutrients, and bacteria.

BTNEP participated in more than 20 education and outreach events during the year, giving presentations and demonstrations to school children, families, organizations, fellow scientists, local government leaders,

and other stakeholders. Groups included the Lafourche Parish Game and Fish Commission, the Nicholls State University A+ scholar group, garden clubs, student and teacher groups, and science camps, among others. BTNEP created a Bayou Folse webpage to provide information to the public on reducing NPS pollution in the watershed and restoration efforts. Staff also participated as guests on local radio shows discussing the importance of maintaining OSDs. These outreach efforts help inform stakeholders about the impairments in the watershed, sampling results as they become available, sources of pollution, and generate support for future efforts to stem pollution entering waterbodies.

Together, BTNEP and LDEQ have worked to characterize the hydrology of the watershed, which will help hone in on areas contributing the most pollutant loading. Bayou Folse is a hydrologically-modified watershed that experiences gravity and wind driven tidal influences, which cause reverse flow during certain times of the day, month, and year. This reverse flow can bring loading from “downstream” areas. High loading occurs from “upstream” areas during rainfall and stormwater pumping from leveed areas. Through a better understanding of the hydrologic regime in Bayou Folse, and with results from water quality monitoring throughout the subsegment, activities and geographic areas contributing high loading can be identified and efforts to reduce loading can be better targeted.

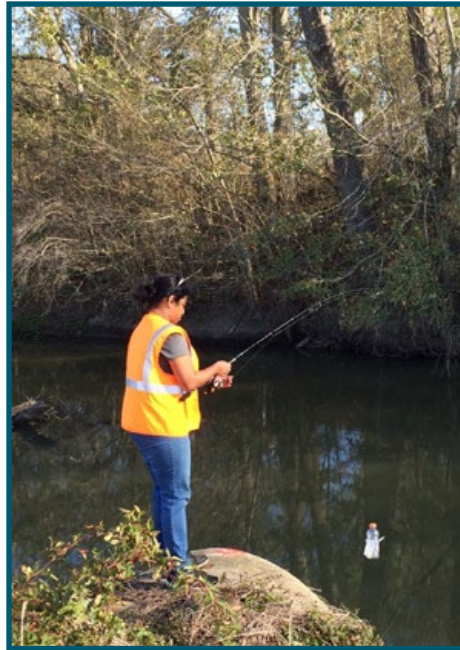


Figure 10. BTNEP staff collecting water quality samples on Bayou Folse



Figure 11. Bayou Folse field visit with BTNEP, EPA, LDEQ and LDAF

Partnerships will augment this effort. The Barataria-Terrebonne Estuary Foundation has been pre-awarded more than \$426,000 in funding through a grant from EPA’s Gulf of Mexico Program and has existing funds within the foundation to cost-share with homeowners to repair or upgrade poorly functioning home sewage treatment systems. Repairing these systems is an important step toward stemming one source of bacteria and oxygen demand loading. Furthermore, NRCS has named Bayou Folse a 2018 NWQI pilot watershed. This formalizes NRCS work with local partners to target and implement on-farm conservation practices to reduce pollutant loading from agricultural areas. These partnerships form a critical combination of expertise and actions necessary to restore water quality and use support in Bayou Folse.

4.5.4 Bayou Vermilion District



The LDEQ quality has partnered with the USEPA and the BVD to improve water quality in the Vermilion River (subsegment 060801). It is identified as a priority watershed in the Louisiana's NPS Management Plan. According to the draft 2016 IR, Vermilion River is impaired for PCR designated use due to high concentrations of fecal coliform bacteria. The IR indicates the suspected sources of water quality impairment are due to OSDSs, package plant or other permitted small flow discharges and agriculture.

BVD has implemented several demonstration projects with 319 funding over the years in the Vermilion-Teche river basin including a rain garden, pervious pavement, retention ponds, and even rain barrels. The goal of the current project is to increase education and awareness through OSDS inspections. Emile Anslet, Lauren Carter and Chris Holland attended the Onsite Wastewater Installers Workshop through the University of Louisiana Lafayette March 24, 2017 and also participated in training with Calcasieu parish inspectors April 12, 2017. They began conducting inspections July 25, 2017.

Through inspections, they found that individuals were simply uninformed on how their systems work and had no knowledge that the systems required maintenance. BVD inspectors have distributed educational brochures in the inspection areas on how OSDSs work as well as how to maintain the systems. A total of 117 systems have been inspected. 34 systems passed and 83 systems failed initial inspections. Of those failed systems, 55 have been re-inspected and 21 additional have passed. BVD inspectors are confident that through continued education and outreach, citizens will be more inclined to repair and maintain their systems.



Figure 12. EPA visits Vermilionville during quarterly site visit

4.5.5 Louisiana Rural Water Association



The LRWA partnered with the LDEQ to conduct OSDS inspections and workshops to improve water quality and restore designated uses to impaired watersheds in the 6217 Management area in Coastal Louisiana. LRWA performed inspections in 11 parishes (Assumption, St. James, St. Mary, Cameron, Iberia, Jefferson, Jefferson Davis,

St. Mary, Tangipahoa, St. Helena, and Vermilion) and hosted five workshops. Results of this project include educating more than 500 local residents on maintaining their sewage systems as well as raising awareness of the dangers and negative effects malfunctioning systems can have on local waterways. Going forward, LRWA plans to continue the inspection program, implement follow-up inspections, and host post-inspection town hall meetings for sharing results.



Figure 13. Louisiana Rural Water Association workshop

5.0 Meeting NPS Milestones

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Meeting NPS Milestones

Louisiana's NPS Management Plan includes annual milestones. In FFY2017, Louisiana's NPS program continued its focus on watershed planning, assessment, monitoring and implementation, in 29 waterbodies.

BASIN	WATERBODY	P	A	M	I	SUBSEGMENT	WIP	Success Story
Lake Pontchartrain	Middle Comite River	✓	✓	✓	✓	040102		
	Comite River	✓	✓	✓	✓	040103		
	Upper Amite River	✓	✓			040301		
	Middle Amite River	✓	✓			040302		
	Natalbany River			✓	✓	040503		Approved 2017
	Yellow Water River	✓	✓		✓	040504		Approved 2015
	Ponchatoula Creek/ Ponchatoula River				✓	040505		
	Selsers Creek	✓	✓		✓	040603		Approved 2017
	Big Creek				✓	040703	Approved 2013	Approved 2016
Mermentau River	Bayou Des Cannes	✓	✓	✓	✓	050101	Approved 2017	
	Bayou Mallet	✓	✓	✓	✓	050103	Approved 2017	Approved 2016
	Bayou Queue de Tortue (GoMI)	✓	✓	✓	✓	050501	Approved 2013	
	Bayou Chene	✓	✓	✓	✓	050603	In progress	
Vermilion – Teche	Lake Fausse Pointe	✓	✓	✓		060702		
	Bayou du Portage	✓	✓			060703	In progress	
	Vermilion River	✓	✓	✓		060801/060802		
	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	In progress	
	Upper Bayou Lafourche	✓	✓	✓	✓	080904	In progress	
	Lake Providence	✓	✓	✓		081101		
	Lake St. Joseph				✓	081202		Approved 2016
	Hemphill Creek	✓	✓	✓		081609	Approved 2017	
Terrebonne	Bayou Folse	✓	✓	✓		120305		
	Bayou Grosse Tete	✓				120104	In progress	
	Bayou Maringouin	✓				120111	In progress	

Table 11. Waterbodies included planning (P), assessment (A), monitoring (M) and implementation

Statewide Milestones for Water Quality Improvement	2017
<p>Number of waterbodies identified in 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.</p>	3
<p>Number of NPS impairments removed from LA's IR: Annually review state IR for NPS impairments (DO, fecal coliform bacteria, TSS, etc.) removed as a result of NPS activities and include information in NPS annual report. Compare the previous IR to the current IR.</p> <p>Number is based on the 2017 IR.</p>	5
<p>Progress in reducing unliquidated obligations (ULO): Percentage of ULO funds anticipated yearly for LDEQ (total remaining funds/total awarded = percentage ULO).</p>	32.4%

Table 12. Statewide milestones for water quality improvement, based on LDEQ's 2017 IR

5.1 Water Quality Improvements

Louisiana's NPS Program has made significant progress in partially or fully restoring NPS impaired watersheds. Louisiana's NPS Management Plan milestones include USEPA 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.

5.2 Success Stories

Success stories for Bayou Queue de Tortue, Natalbany River, and Selsers Creek were written and submitted to USEPA Headquarters in Washington D.C. for approval. They can be found on USEPA's NPS Success Story Website at: <https://www.epa.gov/nps/nonpoint-source-success-stories>.

5.2.1 Bayou Queue de Tortue

Bayou Queue de Tortue is 56 miles long and flows from the City of Duson to the Mermentau River in Riceville. The bayou receives much of its flow from agricultural runoff from rice and soybean production, and is heavily hydromodified in the upper and middle reaches. Dredging has caused a reduction in flow velocity and eroding spoil banks have increased the amount of solids found in the water column contributing to high turbidity and total dissolved solids (TDS). LDEQ partnered with LDAF and the NRCS to implement BMPs to improve the health of the waterbody. As far back as 2002, the LDEQ IR has indicated TDS, TSS,

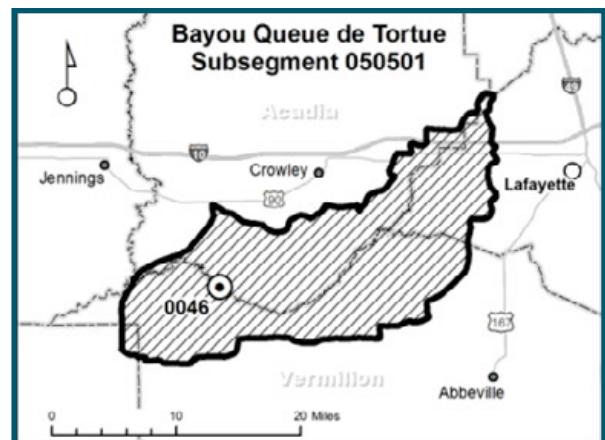


Figure 14. Bayou Queue de Tortue

sedimentation/siltation and turbidity as impairments to fish and wildlife propagation (FWP) use support. In 2014, TSS sedimentation/siltation and turbidity were combined and listed simply as turbidity. The 2014 IR shows that FWP is no longer impaired due to TDS; however, the waterbody remains impaired for turbidity.

5.2.2 Selsers Creek

In 2002, Selsers Creek was not fully supporting its designated uses of PCR, due to high levels of fecal coliform bacteria. The suspected sources of impairment for fecal coliform stemmed from unknown sources; therefore, the Capital (RC&D) staff began collecting water quality grab samples in February 2012 to locate possible fecal coliform hot spots throughout the watershed. It was determined that a possible source of fecal pollution in Selsers Creek was considered to be OSDS, with an estimate of 3000 located in Tangipahoa Parish. From October 2011 through December 2016, the RC&D WSC, along with the Tangipahoa Parish Department of Health and Hospitals (DHH) participated in hundreds of hours of education and outreach and took on the job of inspecting individual OSDSs to assess and address NPS microbial pollution. As a result, fecal coliform bacteria counts have been reduced and Selsers Creek is now meeting PCR use support according to the 2016 IR.

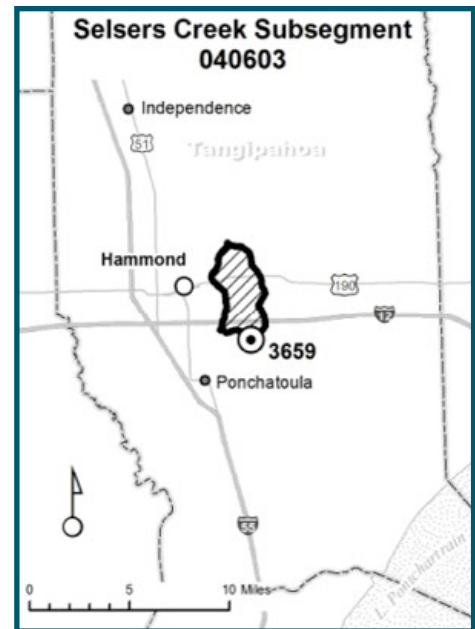


Figure 15. Selsers Creek

5.2.3 Natalbany River

Sewage leaking from improperly managed OSDSs led to the fecal coliform bacteria impairment in the Natalbany River. LDEQ listed the waterbody in the state's 2002 CWA section 305(b) report for not supporting its PCR designated use due to high bacteria levels. Beginning in 2005, LDEQ and its partners, USEPA, LDEQ, LPBF, CRC&D, and Tangipahoa Department of Health implemented a series of initiatives such as pollution source tracking, education and intensive water quality monitoring. Recent data indicate that the river no longer exceeds the fecal coliform standard for PCR; as a result, LDEQ removed the waterbody's PCR bacteria impairment listing from the state's 2016 IR.

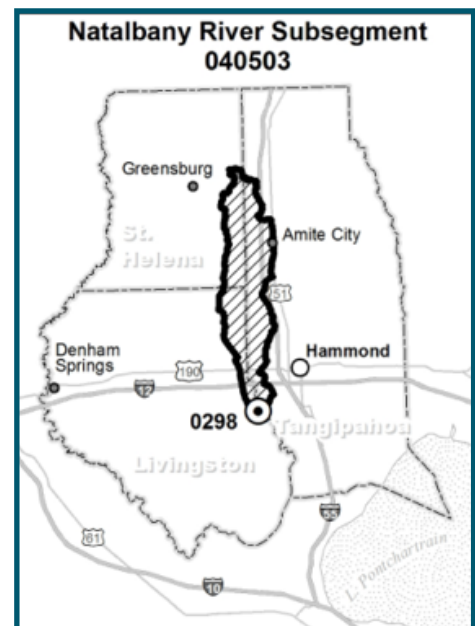


Figure 16. Natalbany River

6.0 Statewide Programs

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Statewide Programs

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 for potential adverse impacts to local hydrology. Pursuant to La. RS 49:214.27.B and C., OCM uses the Coastal Use Guidelines, found in LAC Title 43, Part I, Chapter 7, Subpart B, §701- 719, OCM reviews each potential project in the Louisiana coastal zone for compliance with these guidelines. 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 P20170937 went through such a review and analysis. The project is for drainage improvements to Riverwood and Country Club Estates in St. Tammany Parish. Through the use of the HMIA, OCM was able to ensure that adequate review and assessment had been completed as part of the design process while also improving the overall drainage of these areas. The HMIA review is available online for review at <http://sfrxprod.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=5993973>.

6.1.1 LSU AgCenter discusses irrigation project

LSU AgCenter faculty members spoke about their projects on improving irrigation efficiency and water quality at the Louisiana Groundwater, Surface Water and Water Resources Symposium in April 2017. Water quality specialists, discussed research that has demonstrated that one way to improve water quality through constructed wetlands similar to the AgCenter Red River Research Station in Bossier City. The AgCenter Red River Research Station consists of two constructed ponds that provide a simple and effective nonpoint source pollution treatment. Additionally, the water collected in the wetland can be recycled for subsequent irrigation use, which conserves groundwater.

Also at the meeting, Louisiana Master Farmer Program coordinator Ernest Girouard spoke about a project in which he and his team are monitoring the effects of water quality on a Vermilion Parish rice and soybean farm. The farm is being viewed as an experiment in that it reuses runoff collected in a reservoir. As the water circulates through the system, nutrients also get reused, reducing pollution in nearby waterways. "It's important that we make sure we're not contaminating the soil with elements we're going to regret in the future," Girouard said.

6.2 Drinking Water Protection Program

Drinking Water Protection Program (DWPP) staff gave presentations for nine educational events/meetings/conferences and worked booths at four educational events/conferences. Combined with the sewage education in St. Tammany parish the approximate total number of people reached was over 1500 for this reporting period.

Presentations on the DWPP were given to elementary, middle, and high school students and teachers in four parishes. Public education is one of the main elements of the DWPP; therefore DWPP staff utilizes various opportunities to inform students and educators about drinking water source protection. Abita Springs, located in St. Tammany parish, has a community sewage system; however, not all properties

within the town's jurisdiction are located within the sewage system's service area. In an effort to mitigate degradation of water quality in the Abita River and the town's local drainage system an ordinance enabling the Town of Abita Springs to ensure the proper maintenance of OSDSs within their jurisdiction was developed. DWPP staff gave a presentation to the Abita Springs Town Council supporting the passage of this ordinance, which was subsequently passed. The ordinance gives the town authority to inspect OSDSs and requires maintenance and, if necessary, repair or replacement of malfunctioning systems.

As part of LDEQ's continuing efforts to address NPS pollution from malfunctioning OSDS, the LRWA was contracted with LDEQ through a 319 contract to conduct classes on OSDS system maintenance. LDEQ selected waterbodies not meeting their designated uses due to pollutant discharges from onsite systems for the LRWA to target. The LRWA set up each class and advertised within each targeted area. At the classes DWPP staff explained how OSDSs maintenance relates to public health and the environment and the LRWA educated attendees on the different types of systems and how to maintain them.

DWPP staff also gave presentations to water operators at a LRWA training session and at the LRWA Annual Conference. DWPP staff also had a booth at the LRWA Annual Conference as well as at the LA Conference on Water Supply, Sewerage and Industrial Waste. Additionally, DWPP staff presented at the Sparta Aquifer Commission's annual Sparta Water Festival and at a meeting of the Lafayette Geological Society.

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

6.2.1 Target Parish Activities

St. Tammany Parish	
DWPP Initiation	The program was initiated in July 2016.
Public Supply Water System(s)	There are 104 systems in St. Tammany parish.
Source Water Assessment Data	GPS data was obtained for six new public supply wells and 136 potential sources of contamination.
Groundwater Protection Ordinance	An ordinance was adopted by the Town of Abita Springs, the Town of Madisonville, and the City of Slidell.
Educational visits	Three hundred eighty-four educational visits were made to owners and operators of businesses/facilities identified as potential sources of contamination. An additional 108 business/facilities were visited and identified as either closed, not accessible, or no longer a potential source of contamination.
Community and Committee Meeting(s)	Two community meetings were held in St. Tammany parish.
Non-Routine Activities	The Louisiana Rural Water Association (LRWA), which coordinates with LDEQ on DWPP implementation, received the EPA Training and Technical Assistance for On-Site/Decentralized Wastewater Systems to Improve Water Quality Training Program, grant, which required LRWA to provide technical training to operators of small community sewage treatment systems and owners of onsite sewage treatment systems. Because there was a need for such training in St. Tammany Parish, LRWA coordinated with DWPP staff to conduct training there. Three classes were conducted on February 7th, 8th, and 9th, which covered the health and environmental impacts of improperly treated sewage and explained the various types of sewage treatment systems, their regulation, and proper maintenance. DWPP staff presented at two classes focused on homeowners and onsite sewage treatment systems to explain how sewage treatment system maintenance relates to public health and the environment. DWPP staff also assisted LRWA in conducting a field demonstration on February 9th where attendees were shown the parts of an actual onsite sewage treatment system and instructed on its maintenance.

Winn Parish	
DWPP Initiation	The program was initiated in January 2017.
Public Supply Water System(s)	There are 13 systems in Winn parish.
Source Water Assessment Data	GPS data was obtained for five new public supply wells and one new potential source of contamination.
Educational visits	Thirty-three educational visits were made to owners and operators of businesses/facilities identified as potential sources of contamination and one additional business/facility was visited and identified as closed.
Community and Committee meeting(s)	One community meeting and two committee meetings were held in Winn parish.

Sabine Parish	
DWPP Initiation	The program was initiated in August 2017.
Public Supply Water System(s)	There are 17 systems in Sabine parish.
Source Water Assessment Data	GPS data was obtained for five new public supply wells and five potential sources of contamination.
Community and Committee meeting(s)	One community meeting and one committee meeting were held in Sabine parish.

Table 13. Target parish activities

6.2.2 Non-Target Parish Activities

Union Parish	
DWP Program Initiation	The program was initiated in July 2016
Public Water Supply System(s)	There are 22 systems in Union parish.
Source Water Assessment Data	GPS data was obtained for one new public supply well in Union parish.

Rapides Parish	
DWP Program Initiation	The program was initiated in January 2007
Public Water Supply System(s)	There are 20 systems in Rapides parish.
Source Water Assessment Data	GPS data was obtained for one new public supply well in Rapides parish.

Vernon Parish	
DWP Program Initiation	The program was initiated in January 2009
Public Water Supply System(s)	There are 16 systems in Vernon parish.
Source Water Assessment Data	GPS data was obtained for nine new potential sources of contamination in Vernon parish.

Table 14. 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 USEPA through the Grant Reporting and Tracking System (GRTS).

In 2017, utilizing SWAP Mobile, new source water assessment data was collected in three DWP program target parishes and three non-target parishes. In addition, utilizing the functionality of SWAP Calculator

allowed over 80 source water assessment reports to get generated. These new reports and the data used to generate them are used by DWP 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 fecal coliform bacteria. The state’s numerical criteria for fecal coliform bacteria 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 15. The State’s numerical criteria for fecal coliform bacteria for designated uses

LDEQ, WSCs, and WSC Support Groups 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.

In FFY2017, the following OSDS inspection projects were:

Watershed	Project Summary
Tunica Bayou (070505)	In FFY2017, Capital RC&D continued to conduct monitoring and individual home sewage inspections initiated in FFY2015.
Comite River (040103)	In FFY2017, Capital RC&D continued to conduct individual home sewage inspections initiated in FFY2015. Comite River is currently being monitored by LDEQ Water Surveys.
Middle Comite River (040102)	In FFY2017, Capital RC&D continued to conduct monitoring and individual home sewage inspections initiated in October 2015 and concluded September 30, 2017.
Big Creek (040703)	In FFY2017, Capital RC&D continued to conduct individual home sewage inspections initiated in April 2015 and concluded September 30, 2017.
Selsers Creek, Ponchatoula Creek and Yellow Water River	In FFY2017, Capital RC&D continued to conduct individual home sewage inspections initiated in September 2014. Selsers Creek concluded December 13, 2016. Ponchatoula Creek concluded September 30, 2017. Yellow Water River inspections are currently on-going.
Vermilion River (060801)	In FFY2017, special funds were redirected from Indian Bayou to Vermilion River. A cooperative agreement with Bayou Vermilion District began January 1, 2017, to initiate home sewage inspections. Inspections were initiated July 2017. LDEQ Water Survey’s currently conducting monitoring.

Bayou Folsé (120302)	In FFY2017, LDEQ-NPS initiated a partnership with the BTNEP and has a cooperative agreement in place beginning October 2016 through September 30, 2018). BTNEP began monitoring Bayou Folsé and is still pursuing local government approval to initiate home sewage inspections.
6217 Coastal Management Area in Coastal Louisiana	In FFY2017, LDEQ-NPS continued its partnership with LRWA conducting inspections and workshops initiated September 2016.

Table 16. FFY2017 OSDS inspection projects

The above mentioned projects require support and involvement from local governments to be successful. Inspectors must coordinate inspection activity and approval with the LDH, parish and/or local government in order to conduct inspections on private property. A list of permitted systems is provided by LDH. A map including the permitted systems is generated to assist the inspector. An inspection is conducted at each site. Once contact has been made with the homeowner he/she is notified about the inspection. The inspection includes the following: location of system, type of system, determination of motor function, and inspection of aeration tank to determine if the motor is introducing air. The clarifier is accessed to conduct a sludge test and a tag is left notifying the homeowner of the results (green tag for passed, yellow tag indicating system could not be found and a red tag for failed). The home sewage system inspectors are funded by Section 319 funds. These projects require support and involvement from local governments to be successful.

In FFY2016, LDEQ began partnering with LRWA. LRWA developed a workshop which will focus on educating participants about the nitrogen-limited waters in the coastal zone and the need to update individual home sewage treatment systems with denitrification systems. LRWA has also developed the project targeted workshop which will educate participants about current ongoing LDEQ-NPS projects (impairments, suspected sources, suspected causes), discuss water quality data results, and actions needed to improve the water quality and restore the designated uses to the watershed. LRWA will provide education and awareness to both urban and rural areas statewide through these workshops. The workshops will be funded by Section 319 funds. A cooperative agreement with LRWA began September 2016.

In addition, LDEQ and LDH are partnering to develop an OSDS system inventory database for efficiently managing and tracking inspections, upgrades and permits. LDH will grant LDEQ-NPS and inspectors contracted by Section 319 projects access to their permitting and inspection database. In FFY2015 LDEQ-NPS and LDH-Sanitarian Services collaborated to upgrade and modify the database and develop digital field datasheets. In FFY2016 LDEQ-NPS and LDH-Sanitarian Services continue to collaborate on upgrading and modifying the database and developing digital field datasheets. LDEQ-NPS will provide each inspector with a hand held computer funded by Section 319 funds for field inspections with the ability to populate the digital field datasheets, which will transmit into LDH's database in real time. The update is expected to be completed in early to mid-2018 when LDH completes the testing phase (i.e. applications, permitting and final approvals).

Table 17 includes a summary on Capital RC&D's inspection projects in several watersheds:

Inspections	Ponchatoula Creek	Yellow Water River	Selsers Creek	Big Creek	Comite River	Middle Comite River	Upper Amite River	Middle Amite River	Tunica Bayou	Bayou Sara
Inspected	274	379	126	886	593	635	96	225	79	101
Non-functional	95	98	50	233	210	204	28	75	11	9
Re-inspections	n/a	n/a	n/a	n/a	41	82	n/a	28	8	n/a
Repaired/ Replaced	85	98	50	233	93	111	1	30	0	3
Approximate fecal coliform reduction (cfu)	1,615,000	1,862,000	950,000	4,427,000	1,767,000	2,109,000	19,000	570,000	0	57,000

Table 17. Capital RC&D's inspection projects

There has been an approximate total reduction of 13,376,000 in fecal coliform between the ten watersheds.



Figure 17. LDEQ Geologist Jesse Means discusses onsite disposal systems

The 2016 IR indicates Middle Comite is fully supporting its designated use of PCR; therefore, inspections ceased as of September 30, 2017; however, post demonstration monitoring will continue through September 30, 2018.

The 2016 IR indicates Ponchatoula Creek is no longer listed for PCR and the waterbody fully supports its designated uses of PCR and SCR. Inspections in Ponchatoula Creek were discontinued on September 30, 2017.

The 2016 IR shows Big Creek fully meets both designated uses of PCR and SCR; therefore, LDEQ-NPS halted water quality sampling and inspections as of September 30, 2016.

The 2016 IR lists Selsers Creek as fully supporting its designated use of PCR; therefore, the waterbody now fully meets both uses of PCR and SCR. All activity in Selsers Creek ceased as of December 2016. A success story for Selsers Creek was submitted to EPA in 2017, for meeting its use of PCR use.

Evaluation of continuing inspections in the remaining 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.

7.0 Outreach and Education Activities

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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 attended 27 outreach and educational events across the state this fiscal year. These events were geared to people of all ages, and activities included hands-on demonstrations (often using our Enviroscope and Walnut Bayou models) as well as lectures on NPS pollution prevention. The Enviroscope model gives students a visual of how water moves through an array of landscapes, illustrating the interconnectedness of our waterways and the transportation of NPS pollution. Walnut Bayou is a model developed by a LDEQ Senior Scientist; it 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 2017, LDEQ reached approximately 7,300 adults and students through the following events:

October 25, 2016

LDEQ Job Shadowing – LDEQ personnel presented the NPS Unit mission and some of their duties to a group of approximately 10 local high school students on October 25, 2016. They used a Power Point presentation and the Enviroscope NPS model to give students a better understanding of NPS pollution.

October 25, 2016

Louisiana Science Teachers Association/Louisiana Association of Math Teachers Joint Conference was held in Baton Rouge and was attended by approximately 1000 teachers. The conference promoted professional development as well as various demonstrations and teaching tools to assist in the classroom. Water quality information was provided as well as an opportunity to sign up for demonstration of the models in their classrooms.

October 28, 2016

Audubon Elementary School Science – The entire school, approximately 600 Pre-K through 5th Grade, participated in the event. Students experienced hands on interactive demonstrations on water quality.

January 23, 2017

Cedarcrest Southmoor Elementary Science Fair – LDEQ personnel attended this event held for third through fifth grade science students and served as judges for approximately 50 science fair projects.

January 24, 2017

Master Farmer University – LDEQ personnel gave a Power Point presentation to a group of approximately 30 agricultural producers and citizens in Bossier City, LA on January 24, 2017. Information about NPS pollution and how LDEQ works to restore impaired waterbodies was presented.

January 27, 2017

Region 8 Science Fair – LDEQ personnel attended the Region 8 Science Fair in Hammond and educated approximately 200 students about water quality. The region consists of the following parishes: Livingston, St. Helena, St. Tammany, Tangipahoa, and Washington Parishes. Science-savvy students are a great audience for water quality education!

February 3-4, 2017

Louisiana Environmental Education Symposium was held in Baton Rouge. It is a two (2)-day professional development event hosted each year by the Louisiana Environmental Education Commission and the Louisiana Environmental Education Association and was attended by 220 science teachers. LDEQ personnel provided water quality information to these attendees. The symposium is a forum where professionals are taught to support and promote environmental education through facilitating communication, coordination and professional development among an array of environmental education programs throughout the state.

February 7, 2017

STEM Job Shadowing – LDEQ personnel presented the duties of the NPS and AEP Units to a group of approximately 9 local high school students. They used a Power Point presentation, the Enviroscape NPS model and the Aquifer model to give students a better understanding of NPS pollution and groundwater protection.

March 18, 2017

Girl Scouts – LDEQ personnel presented water quality information to 60 members of a Girl Scout troop in Gonzales.

March 24, 2017

Louisiana Green Schools Youth Summit – Approximately 300 students converged at Audubon Zoo to attend the Louisiana Green Schools Youth Summit where LDEQ personnel shared pollution prevention information using the Enviroscape model.

March 29, 2017

Wetland Watchers – Staff from LDEQ’s Aquifer Evaluation and Protection Program volunteered at the annual Wetland Watchers event, held at Wetland Watchers Park in Norco, LA. The event is an annual showcase of educational activities focusing on Louisiana’s wetlands where more than 1,000 elementary and junior high students participated in a hands-on learning opportunity. Rotating through several exhibits, demonstration booths and a nature trail, the students learned about soil science, ecology, water flow and permeability, geology, animal life, water quality and various environmental protection endeavors.



Figure 18. LDEQ Geologists Jesse Means and Mary Gentry demonstrate how water flows through aquifers.

March 31, 2017

Jefferson Parish 17th Annual Storm Water Poster and Essay Contest – The winners of the “Nonpoint Source Storm Water Pollution and Solutions” poster and essay contest were announced at the 17th Annual Storm Water Poster and Essay Awards Ceremony on at the Kenner City Park Pavilion in Kenner. The contest and banquet, hosted by the Jefferson Parish Department of Environmental Affairs and funded this year by a generous donation from Cornerstone Chemical Company, was developed to raise public awareness of non-point source pollution, such as leakage of automotive fluids, fertilizers and pesticides, pet wastes, green waste, and construction runoff.

The annual contest is open to all Jefferson Parish students in grades 3 through 8. The 3rd through 6th graders submitted posters, and the 7th and 8th graders submitted essays. The students depicted or described at least one source of non-point source pollution and presented potential solutions. The Hon. Ben Zahn, Mayor of Kenner; the Hon. Dominick Impastato, Kenner Councilman – District 5 and



Figure 19. Winners of the “Nonpoint Source Storm Water Pollution and Solutions” poster and essay contest

the Hon. Jack Rizzuto, Jefferson Parish Councilman – District 4 – expressed their support for the winning students, their schools, and their families in opening remarks for the banquet. Mr. Thom Smith, this year’s banquet guest speaker from Waggoner and Ball Architects, brought a comprehensive focus on sustainability, resilience, and larger scale site design, and described how Low Impact Development and Green Infrastructure projects can be used to provide important services for our communities such as protecting them against flooding, and improving water quality. Trophies were presented to first, second and third place winners in the poster and essay categories, and certificates of honorable mention were also awarded in each category. Winning posters and essays will be displayed at the Jefferson Parish East Bank Regional Library.



Figure 20. Rhyshima Parmes-Green, Linda Hardy and Marissa Jimenez from LDEQ staff LDEQ’s Earth Day/Party for the Planet booth.

April 1, 2017

Envirothon – The Louisiana Envirothon is an environmental problem-solving competition for students in grades 6-12. Teams train and compete by demonstrating their knowledge of environmental science and natural resource management. The competition focuses on five natural resource areas: soils and land use, aquatic resources, forestry, wildlife, and a current environmental issue. LDEQ staff assisted with the event and provided water quality education to approximately 25 students.

April 22, 2017

Louisiana Earth Day : Party for the Planet is an annual event that is held in Baton Rouge. It is one of the largest community-based Earth Day events in the country. One of the purposes of this event was to educate the community about the importance of environmental issues in Louisiana and the idea that each individual can make a difference. This event had over 300 attendees browsing through the various demonstrations and exhibits set up at the Baton Rouge Zoo.



Figure 21. India Ambeau, LDEQ staff demonstrates the Enviroscape at Bayou Vermilion Earth Day.

April 23, 2017

Bayou Vermilion Earth Day is an annual event that is held by the Bayou Vermilion District in Lafayette at the Vermilionville Park. The goal was to raise awareness and inspire appreciation for our planet Earth. Approximately 75 people stopped by the LDEQ water quality table.

April 28, 2017

Pontchartrain Elementary Earth & Science Day – Approximately 200 elementary students experienced an outside science education event presented by approximately 12 exhibitors. LDEQ personnel demonstrated the Enviroscape Model to students in groups of 15-20 at intervals during the day.

May 1, 2017

EnvironMentors Science Fair – Employees from LDEQ served as judges at the EnvironMentors Science Fair at Scotlandville Magnet High School. Exhibits were graded on the effective use of the scientific method, inclusion of experiments and exhibits, how well data was presented and overall originality/creativity.

May 8, 2017

Jefferson Parish Earth Day at the Park – Approximately 250-275 students from six schools in Jefferson Parish participated in Earth Day at LaSalle Park in Metairie. LDEQ personnel presented the Enviroscape nonpoint source pollution model. The students were presented with reminders to keep them thinking about “BEEEEEE the Solution!”

May 9, 2017

Copper Mill Elementary “Kids to Park” Day – Using Enviroscape, LDEQ staff demonstrated a variety of scenarios involving nonpoint source pollution to fifth and sixth grade students from Copper Mill Elementary School in Zachary, LA. The school was awarded a “Kids to Park” grant through a nationwide contest administered by the National Park Trust. The grant awards schools with funding to promote student interest in exploring history, nature and science at their neighborhood parks. Classes can receive funding for a “Kids to Park” event to be held in their community, and students are responsible for the research and writing of the proposal with encouragement and support from teachers and local park staff. Seventy schools across the United States in grades kindergarten through 12 were winners in the contest. Copper Mill Elementary was the only school in Louisiana to receive the grant.

May 11, 2017

Park Elementary Science Fair – At Park Elementary, the LDEQ judges were assisted by representatives from ExxonMobil in the grading of 12 projects, planned and designed by students in grades K through five. Projects included demonstrations on the floatation of an egg in saltwater, photosynthesis and its relationship to plant life and an experiment on the probability and accuracy in successfully shooting basketballs into a hoop using three test groups.

May 12, 2017

Kenilworth STEM Expo – Team Sportsplex served as the venue for Kenilworth’s STEM Expo. Approximately 100 different students’ projects and 27 exhibitors were on display by a multitude of “STEM” companies for students, parents, and teachers to explore. Over 600 students visited the expo during field trips.

May 20, 2017

Greenville Park Leadership STEM Festival – Greenville Park Leadership Academy in Hammond hosted the STEM Festival for approximately 200 students, teachers and parents. LDEQ personnel were among 15 exhibitors, showcasing environmental demonstrations to engage students.

July 6, 2017

Camp Soar – Approximately 95 students participated in this summer program. LDEQ personnel were invited to demonstrate the Enviroscape model.

July 11, 2017

Big Buddies – LDEQ personnel piqued an interest in STEM programs with discussions about environmental careers to approximately 20 students participating in the Big Buddies Program. The NPS interactive Enviroscape model and Kitchen Chemistry were demonstrated after the presentations.

July 12, 2017

Town Hall Meeting – LDEQ personnel presented the duties of the NPS and AEP Units, respectively, to a group of citizens in New Roads, LA. The purpose of the meeting was to update citizens on the False River Drawdown project. Approximately 15 people stopped by the table to learn more about the NPS and Aquifer Evaluation Protection (AEP)/SWPP Units and how they protect water quality.

October 24, 2017

Dairy Workshop – The workshop took place at the LSU College of Agriculture Southeast Research Station. EPA Region 6 and its Office of research and Development (ORD) officials, NRCS, LSU Extension Service, LDAF, LDEQ, the farmers/producers, and the Neptune facilitators all met to use Structured Decision Making to reach an agreement between Louisiana dairy and water quality standards required by the EPA. The purposes of the workshop were to identify objectives and measures with possible Options for the producers with the Decision Analysis for a Sustainable Environment, Economy & Society (DASEES) tool.

October 24, 2017

Ocean Commotion – Coastal Nonpoint Pollution Control Program and LDEQ-NPS employees were exhibitors at the 20th Annual Ocean Commotion The Louisiana Sea Grant College Program hosted Ocean Commotion at Louisiana State University (LSU). Ocean Commotion provides students with an educational field trip destination to learn about our coast and efforts to protect and conserve the environment. The event gives these students the opportunity to learn about and touch the products of the sea and coast, the aquatic animals, water quality, plants, and minerals, upon which Louisiana's citizens are so dependent. This year there were over 70 exhibitors and over 2,500 attendees.

8.0 Training

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

Hydrology training (October, 2016) – Training also held in March, April, and August of 2017.

Former USGS and LDEQ hydrologist (retired) presented LDEQ staff with a series of customized training modules on hydrologic principles and methods directly related to agency work. Topics included calculating cross-sectional area, flow estimation, statistics, reaeration and time of travel.

Hydrolab training (October 2016)

LDEQ senior scientist in Water Surveys routinely trains staff and partners on proper use of field equipment - in this case the Hydrolab probe used to measure dissolved oxygen, salinity, temperature, pH, and conductivity. This training includes proper operation and calibration techniques required for QAPP compliance.

National NPS Training Workshop (October 31-November 3, 2016)

This national workshop provides updates on tools and methods used in other EPA regions and states. It provides updates on the national EPA NPS program objectives and achievements. Sessions included BMP methods, GRTS updates, program introduction for new staff, and watershed planning, among others.

Model My Watershed: A Tool for Resource Management (March 2017)

This 2-hour EPA Watershed Academy webcast provided a demonstration of a web-based tool enabling users to examine water quality impacts of planning scenarios and conservation practices by integrating several models. Presenters discussed ways the tool could be used for NPS reduction planning and TMDL development.

210 CenSARA Technical Writing (March 2017)

LDEQ hosted a 2-day training workshop on improving technical writing skills. The lessons incorporated accepted professional writing styles and LDEQ conventions into a set of lectures and hands-on practices. Examples from LDEQ documents were used for instruction.

Louisiana Remote Sensing/GIS Workshop (April 2017)

This statewide workshop provided attendees with presentations on the latest (Geographic Information System) GIS tools and spatial analysis methods, statewide and local datasets, mapping applications using GIS in environmental and coastal studies, and hands-on training with GIS tools in a computer lab. The workshop included 2 days of ArcGIS Python training, certified by Environmental Systems Research Institute (ESRI). Python is a scripting language used in ArcGIS for customizing tools, performing iterative tasks, accessing spatial data and performing functions. Another online Python training was held in July 2017.

USGS flow estimation drogue method (May 2017)

A hands-on training in the field demonstrated one USGS method of flow estimation using a drogue and cross sectional area. A former USGS and LDEQ hydrologist (retired) instructed LDEQ staff and partners on the method in Bayou Folsé watershed.

EPA Success Story Database Introduction (June 2017)

This online training introduced LDEQ NPS staff to EPA's GRTS interface for entering success story data and narrative information. EPA now requires states to document success stories using the new interface. NPDES Program CWA Series (June 2017)

This brief webinar explained requirements of the Clean Water Act as applied to National Pollutant Discharge Elimination System (NPDES) permitting.

Watershed Implementation Plan workshop (June 2017)

EPA-led hands-on watershed implementation plan workshop featured Region 6 program staff providing classroom-style review of LDEQ draft WIPs, providing all staff with practical guidance on real documents to meet the 9 key elements of an EPA-approved WIP. The training allowed for Q&A by staff, and discussion of innovative approaches.

WQX/STORET Training (September 2017)

LDEQ Senior Scientist in Compliance provided classroom training for NPS staff on entering monitoring data into EPA's database system. The training was an introduction for new staff, and a review and Q&A for staff with WQX/STORET experience.

To Fence or Not to Fence (September 2017)

NRCS webinar presented current NRCS and university research on fencing of grazing animals to prevent stream access: what works and doesn't work, and why other methods may be preferable in some cases.



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