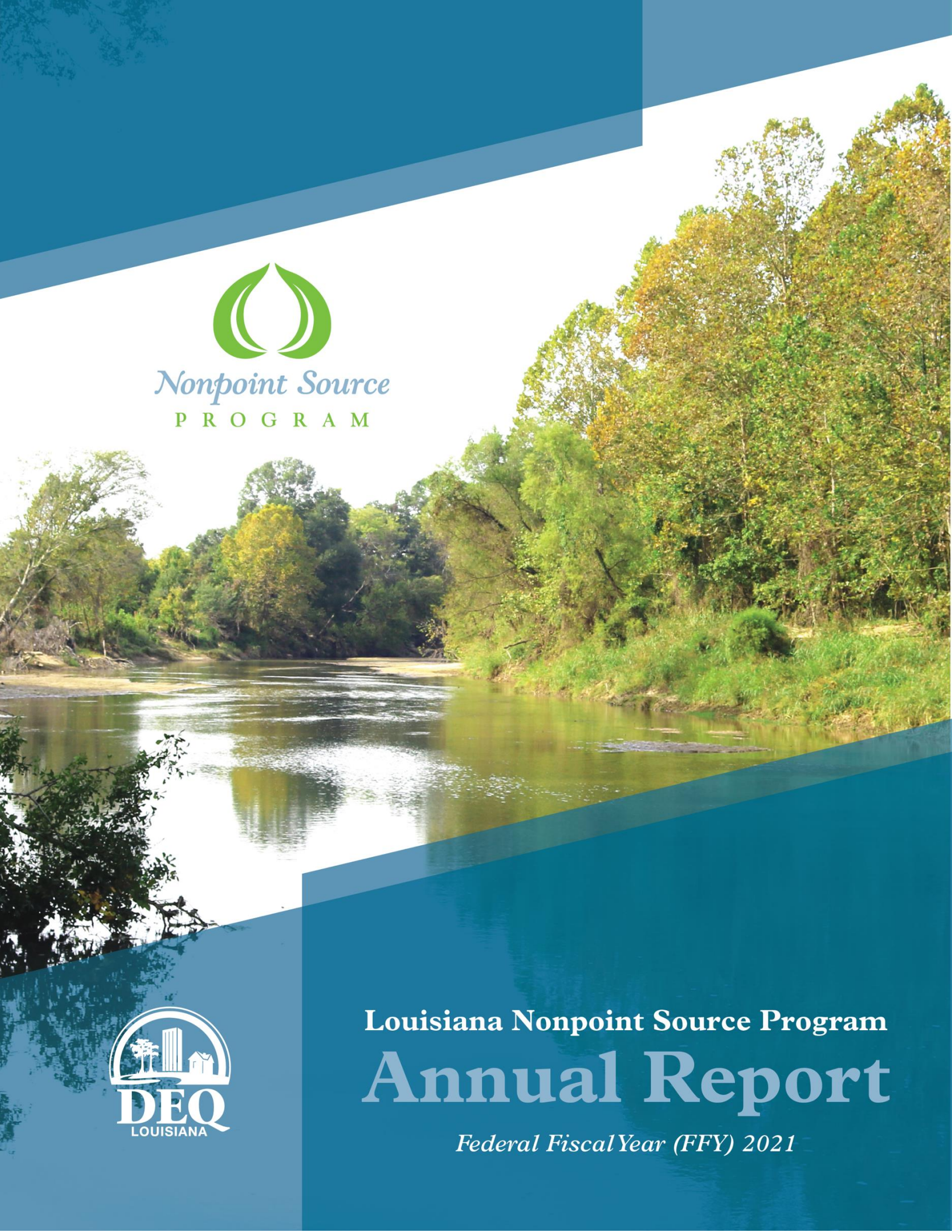

Nonpoint Source
PROGRAM

DEQ
LOUISIANA

Louisiana Nonpoint Source Program

Annual Report

Federal Fiscal Year (FFY) 2021

TABLE OF CONTENTS

1.0 EXECUTIVE SUMMARY

The Louisiana Department of Environmental Quality (LDEQ) administers Louisiana's Nonpoint Source (NPS) Program and collaborates with the Louisiana Department of Agriculture and Forestry (LDAF) and other agencies and organizations to implement the statewide program to improve water quality across the state. Activities undertaken through these partnerships include prioritization of watershed planning and implementation 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) 2021 NPS Annual Report has been prepared in compliance with Section 319 of the Clean Water Act (CWA). This report outlines progress made in reducing NPS pollution and improving water quality within Louisiana. Sources of NPS pollution include agricultural production, forestry, sand and gravel mining, urban storm water runoff, construction, and onsite disposal systems (OSDS).

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

In 2021, the NPS Program and its partners participated in watershed restoration activities and education and outreach across the state. These activities led to substantial progress in reducing NPS pollution, improving water quality, and therefore, will continue to be implemented in watersheds in need of restoration. 2021 NPS Program highlights are as follows:

- LDEQ participated in 12 outreach and educational events;
- LDEQ and LDAF managed approximately $2.8 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 two watershed implementation plans (WIPs) within the Terrebonne Basin;
- 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 12 watersheds; several partners provided water quality sampling for the NPS program in four watersheds.
- Louisiana continues to focus on watershed planning, assessment, monitoring and implementation in 19 watersheds;
- LDEQ's Drinking Water Protection Program (DWPP) implemented activities in Vermilion-Teche, the Lake Pontchartrain Basin, the Mississippi River Basin and the Pearl River Basin;

- LDEQ published monitoring data in EQUIS and the United States Environmental Protection Agency (EPA) WQX 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 (SWP) activities in various parishes, which included educating local businesses identified as potential sources of contamination to drinking water sources, conducting public community meetings and school presentations, developing contingency plans with water systems, as well as updating source water assessment data.

LDEQ, LDAF, and the USDA-NRCS continue to work together to improve the process of restoring and protecting watersheds. The success of LDEQ's NPS program is attributed to proficient collaboration of federal, state, and local governments, collaborating with universities, non-profit organizations, and the public. These alliances will continue to be the basis for watershed and statewide efforts during 2022.

2.0 SECTION 319 FUNDING

2.1 LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY NONPOINT SOURCE

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

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

Grant Year	LDEQ (Federal)
FFY16	$378,200.00
FFY17	$391,200.00
FFY18	$386,500.00
FFY19	$382,700.00
FFY20	$398,900.00
TOTAL	**$1,937,500.00**

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 $867,987 on watershed implementation within multiple watersheds around the state. Implementation, planning and/or technical assistance was conducted on approximately 18,334.89 acres of private farm land in an effort to restore or partially restore surface water quality in eight priority watersheds within the Ouachita River, Mermentau River, and Vermilion-Teche Basins. Table 2 illustrates LDAF Section 319 grant expenditures.

Grant Year	LDAF (Federal)
2015	$242,658.23
2016	$250,461.01
2017	$7,507.50
2018	$288,268.01
2019	$79,093.17
TOTAL	**$867,987.92**

Table 2. LDAF Section 319 Grant Expenditures

3.0 WATER QUALITY MONITORING AND IMPLEMENTATION

3.1 LDEQ NONPOINT SOURCE

In FFY 2021, 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	Basin
Comite River	040103	**Lake Pontchartrain**
Middle Amite River	040302	
Yellow Water River	040504	
Bayou des Cannes	050101	**Mermentau River**
Bayou Mallet	050103	
Bayou Queue de Tortue	050501	
Bayou Chene	050603	
Bayou du Portage	060703	**Vermilion-Teche River**
Vermilion River	060801	
Thompson Creek	070502	**Mississippi River**
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 FFY2021

LDEQ's NPS staff developed 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
Vermilion River	**060801/060802**	**Vermillion-Teche**

Table 4. Draft WIPs accepted by EPA in FFY2021

In FFY 2022, LDEQ–NPS will complete WIPS to be submitted to EPA R6 for review. Watersheds are indicated in Table 5.

Watershed	Subsegment	Basin
Bayou Grosse Tete	**120104**	**Terrebonne**
Bayou Maringouin	**120111**	**Terrebonne**

Table 5. Draft WIPs to be submitted to EPA in FFY2022

3.2 LOUISIANA DEPARTMENT OF AGRICULTURE AND FORESTRY

LDAF provided technical assistance and BMP implementation on 18,334.89 acres in eight watersheds, see Table 6.

Watershed	Acres Implemented	Basin
Bayou Queue De Tortue	1,470.5	Mermentau River
Bayou Des Cannes	2,175.5	Mermentau River
Bayou Chene	1,572.67	Mermentau River
Bayou Mallet	5,718	Mermentau River
Hemphill Creek	465	Ouachita River
Big Creek (North)	3,482	Ouachita River
Bayou Du Portage	151.6	Vermilion Teche
Bayou Lafourche	3,299.62	Ouachita River
TOTAL	**18,334.89**	

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 Districts (SWCDs). 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 water quality objectives, an array of proven conservation practices such as grade stabilization, conservation, prescribed grazing, heavy use area protection, critical area planting, irrigation land leveling, tillage and residue management and others were cost-shared through this program. Participants are required to implement a total 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, planning, 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

4.1 LDEQ WATER SURVEYS

The Louisiana Department of Environmental Quality (LDEQ) Water Surveys (WS) staff fundamentally serves the Department as an intrinsic element of sampling efforts. WS successfully monitored 12 NPS watersheds [refer to Table 7] supporting the effort of restoring water quality in Louisiana waters. The data collected helps establish current water quality conditions in the watersheds; identifying geographic areas for targeting best management practices (BMP) and on-site wastewater disposal systems (OSDS) inspection locations; and tracks changes in water quality over time from BMP implementation and OSDS inspections in the watersheds.

WS also collaborates with the LDEQ Water Permits Division, Standards and Assessment, and the Total Maximum Daily Loads (TMDL) group under the New Vision Initiative projects for assessment, restoration and protection under the Clean Water Action Section 303 (d) Program.

Basin	Waterbody	Activities Supported
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 BMPs
	Vermilion River (060801)	OSDS Inspections/LDAF BMPs WIP EPA-accepted 5/12/21
Ouachita River Basin	Big Creek (North) (080903)	LDAF BMPs
	Upper Bayou Lafourche (080904)	LDAF BMPs
	Lake Providence (081101)	USDA/NRCS BMPs 1-year post monitoring concluded 9/30/21
	Hemphill Creek (081609)	LDAF BMPs
Terrebonne Basin	Bayou Grosse Tete (120104)	LDAF BMPs TBD upon WIP-acceptance
	Bayou Maringouin (120111)	LDAF BMPs TBD upon WIP-acceptance
New Vision Initiative: Water Planning and Assessment Division / TMDLS	Natalbany River (040503) Monitoring	NPS OSDS Inspections

Table 7

WS brings a multifaceted and qualitative approach to characterizing these watersheds, an integral component of watershed planning. This characterization, along with the quantitative research through sampling data analysis, can help determine the causes and sources of pollutants in a watershed along with determining water quality response to BMP implementation and OSDS inspections.

WS continued to be challenged into 2021 as the hurricane season threatened residents and businesses still recovering from flooding and power outages from prior storms (e.g., Tropical Storm Cristobal and Hurricane Laura) and other weather challenges noted below. These events impacted monitoring activity as safety and caution take precedence when planning reconnaissance and monitoring activities.

- Hurricane Delta made landfall (15 miles east of where Hurricane Laura made landfall) as a Category 2 storm on October 9, 2020, with maximum sustained winds of 100 mph near Creole, LA.
- Hurricane Zeta made landfall as a Category 2 storm on October 28, 2020, in southern Louisiana bringing life-threatening surge and maximum sustained winds between 110 mph near Cocodrie, LA
- Severe ice conditions that hit Louisiana in February 2021 led to watershed sampling events being cancelled or rescheduled.
- Severe thunderstorms in May 2021 impacted monitoring.
- In August 2021 Hurricane Ida struck as a Category 4 storm with 150 mph winds making it the 5th strongest storm to make land fall in the contiguous U.S.
- In September 2021 Hurricane Nicholas struck as a Category 1 storm hitting Texas but leaving up to 20 inches of rain across central and southern Louisiana.

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:

- Continued maintenance and updates of the LEAU Web Portal to facilitate public access to water quality data (https://waterdata.deq.louisiana.gov);
- Continued maintenance of a Fishing Consumption and Swimming Advisories web map and application for smartphones (www.deq.louisiana.gov/page/fishing-consumption-and-swimming-advisories);

- Development of an online interactive map of assessments for the 2020 Water Quality Integrated Report (IR) and application for smartphones (www.deq.louisiana.gov/page/louisiana-water-quality-integrated-report);
- Collection of nutrients, water quality, and biological data to detect nutrient thresholds in lakes in the inland ecoregions of South Central Plains Flatwoods (SCPF), South Central Plains Tertiary Uplands (SCPTU), South Central Plains Southern Tertiary Uplands (SCPSTU), and the Upper Mississippi River Alluvial Plains (UMRAP) ecoregions;
- Analysis and synthesis of existing data to inform development of numeric translators for narrative nutrient criteria in inland rivers and streams (SCPF, SCPTU, SCPSTU, UMRAP, and the Terrace Uplands (TU) ecoregions);
- Collection of water quality data to establish appropriate dissolved oxygen (DO) criteria in the Southern Plains Terrace and Flatwoods (SPTF) ecoregion;
- Review of coastal DO criteria and consideration of secondary data components for development of revised DO criteria in three coastal subsegments;
- Expansion of Coastal Dissolved Oxygen Study to include profile data in routine Ambient Water Quality Monitoring for 3 coastal subsegments;
- Coordination with US Geological Survey (USGS) on a toxicity study to inform future minerals water quality criteria revision efforts;
- Review of existing data and supporting information and determine methods for developing appropriate numeric turbidity criteria for select waterbodies in Louisiana;
- 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 through the Coordinating Committee;
- Participation with the Coastal Protection and Restoration Authority (CPRA), Louisiana Department of Agriculture (LDAF), Louisiana Department of Natural Resources (LDNR), Louisiana State University Agricultural Center, and Governor's Office of Coastal Activities (GOCA) for coordination and support of EPA Hypoxia Task Force and the Louisiana Nutrient Reduction and Management Strategy;
- Completion of five-year review of the Louisiana Nutrient Reduction and Management Strategy;
- Development of Louisiana Nutrient Reduction and Management Strategy 2020 Annual Report;
- Participation in the American Fisheries Society Annual Meeting virtually;
- Participation in the Association of Clean Water Administrators (ACWA) on the Executive Committee; Monitoring, Standards, and Assessment Committee; Watersheds Committee; EPA Planning, Program Guidance, and Metrics Committee; Nutrients Policy Committee; Regional Nutrients Working Group; Water Quality Modeling Workshop and the Nutrient Permitting Workshop;
- Continuation of Coastal Transect Study with CPRA through an EPA grant to Hypoxia Task Force states in support of nutrient management strategies and presentation on study via GOMA Water Resources Team;
- Management of LDEQ contract for Pontchartrain Conservancy water quality monitoring around Lake Pontchartrain (2020-2021);
- Participation in the Louisiana Master Farmer Partners Group;
- Participation in the Lake Providence Watershed Council;

- Participation in the EPA Water Quality Reporting Workgroup;
- Participation in USGS National Hydrography Dataset (NHD) Update Tool Training;
- Participation in the Mississippi River Sampling Network;
- Conducted Harmful Algal Bloom (cyanobacteria) investigation, pilot study implementation, and inclusion of algal pigment data collection for select studies;
- Participation in Harmful Algal Bloom training and workshops;
- Participation in satellite imagery training, and conducted internal processing and sharing of cyanobacteria bloom imagery to applicable agencies;
- Promulgation of rule WQ097 for Triennial Review for State Surface Water Quality Standards;
- Promulgation of rule WQ108 for Post-WQ097 Cleanup;
- Promulgation of rule WQ109 for Water Quality Trading Program revision;
- Initiated next cycle of Triennial Review with public notice;
- Participation in the Lower Mississippi River Conservation Committee;
- Participation in 2020 Bays and Bayous Symposium virtually;
- Final submittal and approval of 2020 Water Quality Integrated Report (IR) to EPA Region 6;
- Began development of the 2022 Water Quality Integrated Report (IR);
- Submitted updates to the Water Monitoring Strategy to EPA;
- Participation in the 2020 North American Lake Management Symposium virtually including workshop on Collection, Identification, Ecology and Control of Freshwater Algae;
- Participation in the 2021 North American Lake Management Society 12th National Monitoring Conference: Working Together, Virtually, for Clean Water;
- Participation in the 2021 EPA National Recreational Water Quality Workshop;
- Participation in the 2021 EPA National CWA 303(d) Training Workshop and National Water Quality Data Management Training Workshop;
- Participation in the EPA Costs/Benefits Study of Water Quality Trading;
- Review of 196 Solicitation of View documents for water quality concerns;
- Participation in virtual BTNEP Water Quality Action Team Meeting; and
- Review of 316(b) (cooling water intake structure studies and reports) for Water Permits Division.

4.3 TOTAL MAXIMUM DAILY LOAD SECTION: A STATE PLAN FOR PRIORITIZING WATERSHEDS FOR RESTORATION AND PROTECTION IN LOUISIANA

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

The EPA worked together with states to develop the new vision and six goal statements to help coordinate and focus efforts in advancing the effectiveness of the program. The vision and goals are neither regulation nor policy guidance but provide a mechanism for EPA and states to better manage the program to achieve water quality goals. EPA encouraged each state to embrace the vision concept and develop a

strategy that outlines a comprehensive, integrated, and iterative approach to addressing the challenge of achieving and communicating water quality improvements.

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

EPA accepted the final restoration plan for the first priority watershed, Tunica Bayou, on October 5, 2020. LDEQ completed 19 months of monitoring in Yellow Water River by September 2019. Except for one site being monitored to guide restoration activities, monitoring for the Natalbany River was completed in March 2021. Watershed investigations of point and nonpoint sources as well as outreach and engagement activities are ongoing for both watersheds. A draft plan for Yellow Water River is currently under development. Watershed investigations for Bayou Sara were conducted in 2017 and 2018 and a draft plan is currently under development. LDEQ began monitoring New River in July 2021. LDEQ plans to initiate monitoring activities in Blind River in the spring of 2022.

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 to ensure strategic use of available resources to achieve water quality goals.

4.4 USDA-NRCS INITIATIVES

During FFY 2021, LDEQ, LDAF and USDA-NRCS continued to coordinate efforts in watersheds prioritized through USDA's Mississippi River Basin Initiative (MRBI), NWQI and Gulf Spill Restoration Nutrient Reduction Projects (see Tables 8 – 10). Through the funding acquired from the USDA Farm Bill and Section 319, USDA and LDAF work with land owners and producers to implement agricultural BMPs through cost share agreements. LDEQ utilizes Section 319 grant funds for several contracts to aid in monitoring and assistance from partners. WS performs watershed assessment and characterization, pre-BMP sampling to collect baseline data used to determine critical areas for BMP implementation, and post-BMP sampling to determine the changes in water quality.

4.4.1 Mississippi River Basin Initiative

The overall goals of the MRBI include reducing fall tillage and keeping the soil covered by increasing the use of cover crops and/or increasing residue to reduce soil loss. NRCS assists producers in improving nutrient management techniques above their current level to increase nutrient utilization. NRCS, SWCDs, and other partners develop targeted outreach plans to reach every producer within the watershed. Conservation planning and technical assistance are offered at no charge to help producers address the watershed goals and to improve water quality. In FY 2021, $950,691 dollars were obligated on 5,589.6 acres for MRBI in Louisiana. These watersheds will have a 5-year project life.

Watershed	12-Digit HUC	FY21 Funds Obligated	FY21 Acres Obligated
Wildhorse Bayou Tensas River	**8050030402**	**$773,358**	**5,182.60**
Tiger Bayou	**80402070301**	**$177,333**	**407**

Table 8. USDA – FFY2021 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.

Louisiana implemented the NWQI project in the 2 watersheds below: (Table 9)

Watershed	12-Digit HUC Name	FY21 Funds Obligated2	FY21 Acres Obligated
Bayou Plaquemine Brule-Estherwood	80802010206	$228,735.01	459.1
Bayou Blanc-Bayou Plaquemine Brule	80802010208	$480,682.86	1271.9

Table 9. USDA -Watersheds Approved for FY2021 Implementation

Louisiana was approved to begin the planning phase for the following watersheds in Morehouse parish:

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

Table 10. FFY 2021 USDA – National Water Quality Initiative Watersheds Approved for Planning Phase

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

Louisiana NRCS was awarded four Nutrient Reduction Projects from the Gulf Spill Restoration funding. The primary goal of these project themes is to improve water quality through nutrient reduction on agricultural lands. This includes targeting efforts for measurable impact by clustering projects at the HUC 12 watershed scale that directly impact coastal wetlands.
Landowners will participate on a voluntary basis in developing and implementing conservation plans to reduce nutrient and sediment runoff to improve water quality. Participants will receive technical and financial assistance to implement conservation practices according to NRCS standards and specifications. A monitoring and adaptive management plan will be implemented to document the relationship between implementation and load reduction.

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

4.5 WATERSHED COORDINATORS AND WATERSHED GROUPS

LDEQ WSCs continue to serve as valuable partners in implementing Louisiana's NPS program. In FFY 2021, LDEQ continued to collaborate with Capital RC&D, BTNEP, LRWA, and BVD. These partnerships accomplish several goals listed in Louisiana's NPS Management Plan including:

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

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

4.5.1 Capital RC&D

Capital RC&D completed its "Nonpoint Source (NPS) Pollution Reduction through Enhancement of the On-Site Wastewater Disposal Systems (OSDS) Inspection, Educational Outreach, and Sampling" project in September 2021. The project targeted seven watersheds: Yellow Water River, Comite River, Bayou Sara, Thompson Creek, Upper Amite River, Middle Amite River, and Natalbany River. These watersheds were listed on Louisiana's IRs as not supporting one or more designated uses of primary contact recreation

(PCR), secondary contact recreation (SCR), fish and wildlife propagation (FWP), or Outstanding Natural Resource (ONR).

The goal of this project was to reduce NPS pollution with the objectives of improving surface water quality and restoring support for CWA designated uses, and maintaining healthy waters. This goal was accomplished by monitoring water quality to determine critical areas with high fecal coliform (FC) concentrations in the watersheds. These areas then became the focus of OSDS inspections to ensure properly functioning systems. Both Capital RC&D and partners worked together to accomplish the goals of the project. At the conclusion of the project, 2,856 OSDS had been inspected. Of the 2,856 OSDS inspected, 801 were found to be not working and 549 OSDS were repaired/replaced. Capital RC&D estimated that a total load reduction of 10,431,000 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).

Fig 1. Ditch in front of home polluted due to home waste system not working

Fig 2. Sewage overflowing from an improperly managed home waste system

Fig 3. Home waste tank needing to be pumped out due to aerator not working for several years

4.5.2 Barataria-Terrebonne National Estuary Program

BTNEP continues to partner with LDEQ on watershed restoration through the project "Water Quality Sampling, On-Site Waste Disposal Systems (OSDS) Inspections and Educational Outreach in the Barataria-Terrebonne Basins". This fiscal year, BTNEP continued working in the Bayou Folse watershed with LDEQ, NRCS, and other federal, state, and local partners. COVID-19 safety measures have shifted many education and outreach activities to primarily online/virtual platforms. Additionally, Hurricane Ida impacted the region near the end of this fiscal year, and although BTNEP staff were displaced and lost electricity and internet for several weeks, work under this project was completed.

Impaired uses in Bayou Folse are primary contact recreation and fish and wildlife propagation, due to bacteria, low dissolved oxygen (DO), nutrients, and sediment. The watershed implementation plan calls for addressing loading from malfunctioning home sewage treatment systems, and from runoff from agricultural land uses.

Water quality monitoring continues at 10 locations along a transect in the subsegment. In FFY 2021, BTNEP conducted 18 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 depth, tape-down, nitrate-nitrite, total phosphorous, fecal coliform bacteria, among others.

BTNEP's water quality and NPS education and outreach in the watershed is ongoing. This year BTNEP participated in or conducted 30 education and outreach events, many virtual, to stakeholders on the Management Conference, the general public, and to K-12 students; and used other media to disseminate water quality information.

In addition to general NPS and water quality education, BTNEP outreach informs homeowners in the region about the importance of repairing malfunctioning home sewage treatment systems. Through local partners such as the Bayou Lafourche Fresh Water District, BTNEP has inspected 223 home treatment systems and re-inspected 80 to determine operational status, need for repairs, and conduct homeowner education. Additionally, BTNEP received and has been implementing a Gulf of Mexico Program grant to cost-share necessary repairs with homeowners. Data shows bacteria levels are improving. While a few sites indicate continued bacteria issues, concentrations are decreasing at other sites, including the ambient monitoring location.

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

4.5.3 Bayou Vermilion District

BVD continued their OSDS inspections/re-inspections in the Lafayette area. Through their continued efforts, they have educated many residents on the dangers of malfunctioning systems through inspections, and follow-up inspections. This year BVD has worked on training new employees including wastewater operator certification, HAZMAT technician, and wastewater classes.

Bayou Vermilion District Educational Inspection Program Progress Year 2021							
Month	**Total for Month:**	**Total Initial:**	**Initial Passed:**	**Initial Failed:**	**Total Follow-Up:**	**Follow-Up Passed**	**Follow-Up Failed**
Jan 21	0	0	0	0	0	0	0
Feb 21	73	73	30	43	0	0	0
Mar 21	86	50	27	23	36	13	23
Apr 21	89	66	30	36	23	13	10
May 21	59	34	23	11	25	8	17
Jun 21	123	88	54	34	35	13	22
Jul 21	89	54	36	18	35	14	21
Aug 21	88	51	33	18	37	16	21
Sep 21	83	47	30	17	36	16	20
Oct 21	33	29	21	8	4	4	0
Grand Totals	**723**	**492**	**284**	**208**	**231**	**97**	**134**

Table 11. BVD's inspections from January 1, 2021 through October 30, 2021

BVD conducted 723 new inspections as of October 2021. Of those, 284 passed the initial inspection and 208 failed. There were 231 follow-up inspections conducted. Of the follow ups 97 passed and 134 failed. This is equivalent to 58 percent of systems passing and 42 percent failing the initial inspection. Of the systems that received follow up inspections 42 percent passed and 58 percent failed. BVD continues to work with other agencies and environmental groups to raise awareness for increasing water quality in the Vermilion River watershed. BVD plans to work with LDH and the Office of Community Development to begin a pumpout cost share program.

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 Iberia Parish and started OSDS inspections in Terrebonne Parish.

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

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

Results of this project include 2,615 inspections conducted, and educating 9,969 of the 10,646 residents on maintaining sewer systems as well as raising awareness of the dangers and negative effects malfunctioning systems can have on local waterways.

Iberia and Terrebonne Parish Inspection Results		
10,646	**Total Homeowners to Visit**	
2,631	**Contacted/Spoke with Homeowners**	
	2,615	*sewer inspections conducted*
	0	*homeowners connected to city sewer*
	16	*homeowners refused in inspection*
2,615	**Inspections conducted**	
	2,478	*systems in good condition*
	137	*systems not operating or in decent/poor condition*
8,015	**No contact made with Homeowners**	
	7,338	*no one home/distributed flyers*
	0	*homes vacant or abandoned*
	0	*homes with private roads or gated*
	677	*businesses/churches - not required to visit*
	0	*unable to locate*
9,969	**Total Flyers Distributed**	
	7,338	*no one home*
	2,615	*sewer inspections conducted*
	16	*homeowners refused in inspection*

Table 12. LRWA inspections from September 1, 2020– August 31, 2021

5.0 MEETING NPS MILESTONES

Louisiana's NPS Management Plan includes annual milestones. In FFY 2021, Louisiana's NPS program continued its focus on watershed planning, assessment, monitoring and implementation, in 19 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	Approved 2019
	Bayou Mallet			✓	✓	050103	Approved 2017	Approved 2016
	Bayou Queue de Tortue			✓	✓	050501	Approved 2013	
	Bayou Chene			✓	✓	050603	Approved 2020	
Vermilion-Teche River	Bayou du Portage			✓	✓	060703	Approved 2019	
	Vermilion River	✓	✓	✓	✓	060801/060802	Approved 2021	
	Bayou Sara				✓	070501		Approved 2018
	Thompson Creek			✓	✓	070502		
	Big Creek (North)			✓	✓	080903	Approved 2019	
	Upper Bayou Lafourche			✓	✓	080904		
	Lake Providence			✓	✓	081101		Approved 2020
	Hemphill Creek			✓	✓	081609	Approved 2017	
Terrebonne	Bayou Folse			✓	✓	120305	Approved 2018	
	Bayou Grosse Tete	✓	✓	✓		120104	In progress	
	Bayou Maringouin	✓	✓	✓		120111	In progress	

Table 13. Activity in watersheds: planning (P), assessment (A), monitoring (M) and implementation (I) in FFY2021

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 measure WQ-10 for water quality improvements. Measure WQ-10 requests states to report on the number of watersheds identified in 2000 or subsequent years as primarily impaired by NPS pollutants that have been partially or fully restored.

Statewide Milestones for Water Quality Improvement	2021
Number of waterbodies identified 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; review NPS related activities in watershed where water body was restored; write NPS success story; and identify activities to maintain water quality.	1
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.	14,865.14
Estimated annual reductions in pounds of phosphorus from NPS to waterbodies (from Section 319 funded projects) (WQ-9b): Annually review information from LDAF, USDA, watershed coordinators, NPS staff and stakeholders for NPS load reductions of phosphorus: and include information in NPS annual report.	3,153.76
Estimated annual reductions in tons of sediment from NPS to waterbodies (from Section 319 funded projects) (WQ-9c): Annually review information from LDAF, USDA, watershed coordinators, NPS staff and stakeholders for NPS load reductions of sediment: include information in NPS annual report.	488.38
Number of NPS impairments removed from LA's IR: Annually review state IR for NPS impairments (DO, FC, TSS, etc.) removed as a result of NPS activities and include information in NPS annual report. Compare the previous IR to the current IR. Number is based on the 2016 IR.	1
Progress in reducing unliquidated obligations (ULO): Percentage of ULO funds anticipated yearly for LDEQ (total remaining funds/total awarded = percentage ULO).	31.13 %

Note: *Watershed-scale reductions estimated based on STEP-L and BMP acreages"

Table 14. Statewide milestones for water quality improvement, based on LDEQ's 2020 IR

5.2 SUCCESS STORIES

A success story for Upper Amite River was written and submitted to USEPA Headquarters in Washington D.C. for approval.

Bacteria from improperly maintained septic systems led to a fecal coliform bacteria impairment in the Amite River (subsegment 040301 – From Mississippi state line to LA-37). The Louisiana Department of Environmental Quality indicated the waterbody in the state's 2016 Clean Water Act (CWA) section 305(b) assessment as not supporting its secondary contact recreation (SCR) designated use because of high bacteria levels. Beginning in 2018, the LDEQ contracted with Capital RC&D to implement a series of initiatives such as home septic system inspections, education, and water quality monitoring in the Amite River subsegment. Recent data indicate that the river no longer exceeds the fecal coliform standard for SCR; as a result, LDEQ removed the waterbody's SCR bacteria impairment listing from the state's 2020 305(b) water quality assessment (Appendix A of the LDEQ Integrated Report of Water Quality in Louisiana).

6.0 STATEWIDE PROGRAMS

6.1 COASTAL NONPOINT POLLUTION CONTROL PROGRAM

Hydrologic Modification Impact Analysis Success Story

As part of the review process of proposed projects located within the Coastal Zone of Louisiana, the Office of Coastal Management (OCM) evaluates potential impacts to the local hydrology. OCM utilizes the Hydrologic Modification Impact Assessment (HMIA) as a tool to evaluate if a proposed use would negatively modify the existing conditions, including the runoff flow volume and distribution, and the quality of water in the immediate and downstream areas of a project's location. During this review cycle component, a certified on-staff hydrologist determines, on a per-project basis, the amount of hydrological information required in order to substantiate the project's purpose, and the change in local hydrology, if any. This reporting period, the Iberia Parish government proposed water control structures on the Rodere Canal to reduce damages and alleviate potential water surge upstream flooding. HMIA review uncovered an engineering concern that the structures design could result in a reduction of dissolved oxygen in the adjacent waterways. OCM staff worked with the parish to resolve the issue and upon implementation would result in no negative impact to the local hydrology and water quality.

Reducing Flood Risk through Stormwater Projects

The Recreation and Park Commission for the parish of East Baton Rouge (BREC) was awarded a $4.7 million grant from the Louisiana Watershed Initiative, and plans to implement several watershed management features to its park system, Designed features include: expanding water bodies, adjusting waterway slopes, adding native plants and creating permeable parking lots to increase stormwater capacity. "Looking at everything as a sponge, all of these things will add up and provide benefits," Reed Richard, BREC's assistant superintendent of system planning says. "Combining this with the conventional gray infrastructure will provide a much more high-performing mitigation system for floodwater."

Neighborhoods and communities in New Orleans are collaborating with local groups to plan and implements green infrastructure to combat severe flooding and negative impacts of a changing climate. "Stormwater management remains not only one of the biggest challenges we face, but it also presents one of the biggest opportunities," said State Representative Royce Duplessis, who represents the Treme neighborhood and a portion of the 7th Ward. A proposed new stormwater management park at the intersection of North Claiborne and St. Bernard Avenue has the capacity to hold 30,000 gallons of rainwater to mitigate for and help communities recover faster after a hard rain.

Louisiana Master Farmer Program 2021

The Louisiana Master Farmer Program is a Louisiana State University AgCenter-led initiative that teaches about conservation, resource management, and publishes best management practices on coastal non-point pollution. The program graduated its 2020 class in January 2021. Five new Master Farmer certifications and 14 recertifications were awarded during a virtual meeting of the Louisiana Association of Conservation Districts. Additionally the program celebrated its 20th anniversary, and plans to continue

its goal to lessen the environmental footprint left by agricultural operations, and ensure opportunities for future generations.

To become a Master Farmer, participants must attend educational sessions about environmental stewardship and develop plans for implementing conservation practices on their farms. To maintain the Master Farmer designation, they must meet continuing education requirements and periodically be recertified.

"Even in these trying times of COVID-19 restrictions and economic instability, each of these producers worked hard to address all of the environmentally-related concerns on their farm and should be proud of this," said Donna Gentry, coordinator of the Louisiana Master Farmer Program.

The 2020 recipients join the 351 that have been certified or recertified since 2006.

Outreach and Education

OCM representatives regularly participate in the many educational outreach events throughout the year; however, as a result of the COVID-19 pandemic, these events were either canceled, or transitioned to a virtual presence. The OCM continues to support, and commit resources and personnel for educational outreach in Louisiana, and looks forward to participating in future outreach activities.

BTNEP

The OCM sits on the management conference for the BTNEP. The BTNEP became recognized in 1990 as one of 28 National Estuary Programs through the United States, and it works to protect and preserve the culture and land located between the Mississippi and Atchafalaya Rivers in Southeast Louisiana. The management conference originally convened in 1990 to develop the Comprehensive Conservation and Management Plan (CCMP), and it evolved to become an arena for producing open and frank discussions about some of the most critical coastal management issues. During this review cycle, BTNEP has developed a number of program and outreach efforts, such as: the Summer Environmental Education Workshop Series, and a number of local and federal discussions on Congress' continued support and commitment to the National Estuary Program.

Pollution Reduction in Rivers and Streams

Tangipahoa Parish entered a grant-funded partnership with the Osprey Initiative to install three Litter Getters in the parish waterways on Ponchatoula Creek, Selsers' Creek and on the Yellow Water River, with the intention of installing more. These devices, which are checked twice a month and after major rainstorms, connect to the banks by lines of bouys that guide floating trash into a floating cage. Two tons of garbage has already been gathered.

6.2 DRINKING WATER PROTECTION PROGRAM

Background

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

The DWPP uses the State fiscal year (July 1 through June 30) for its calendar of assessment and protection activities and in all previous state fiscal years the DWPP targeted protection activities by the state's parish jurisdictional boundaries. However, in July 2020, the DWPP began prioritizing target areas by watershed drainage basins. Federal fiscal year 2020 was a transition period that included protection activities in both the targeted parishes and from targeted watershed drainage basins. Protection activities implemented in targeted watersheds are comparable to parish-based activities and are outlined under Program Element 2 of Louisiana's FFY 2020 319 CWA Nonpoint Source Work Plan.

Drinking Water Protection Activities

Target areas for this reporting period were the Lake Pontchartrain Basin, the Mississippi River Basin and the Pearl River Basin. Protection activities include, but are not limited to, updating source water assessment information, contingency planning, introduction of a model ordinance, public education and addressing specific issues. These activities may also occur outside of targeted basins shown in the map below if an opportunity to do so presents itself or if the need arises.

Target Watersheds

All source water protection information for public water supplies in the targeted watersheds will be updated according to the schedule in Table 15 below. The table also shows the number of wells and intakes scheduled for source water assessments. Source water assessment information is confirmed with the public water systems and updated contingency plans are prepared for each water system serving a population of 3,300 or fewer. Water systems serving populations exceeding 3,300 are required to develop or update risk assessments and emergency response plans under the American Water Infrastructure Act of 2018 and must certify completion to EPA. The actual numbers for the source water assessment work accomplished within the watersheds for this reporting period are included under the Source Water Assessments section below. No contingency plans were updated during this reporting period due to the Covid-19 pandemic. As this work continues, if a specific issue involving public water sources needs to be addressed or if any public education opportunities arise, the DWPP staff will respond as needed.

Louisiana Source Water Protection Area Watershed Basin Plan				
Fiscal Years	**Basin**	**Number Of: Wells**	**Intakes**	**Drinking Water Bodies**
2021 - 2025	Pontchartrain	623	0	N/A
	Pearl	101	0	N/A
	Mississippi	92	0	N/A
TOTAL	**3**	**816**	**0**	**N/A**
2025 - 2028	Vermilion-Teche	555	3	Bayou Teche & Grand Lake
TOTAL	**4**	**1,371**	**3**	

Table 15. Louisiana Source Water Protection Area Watershed Basin Plan

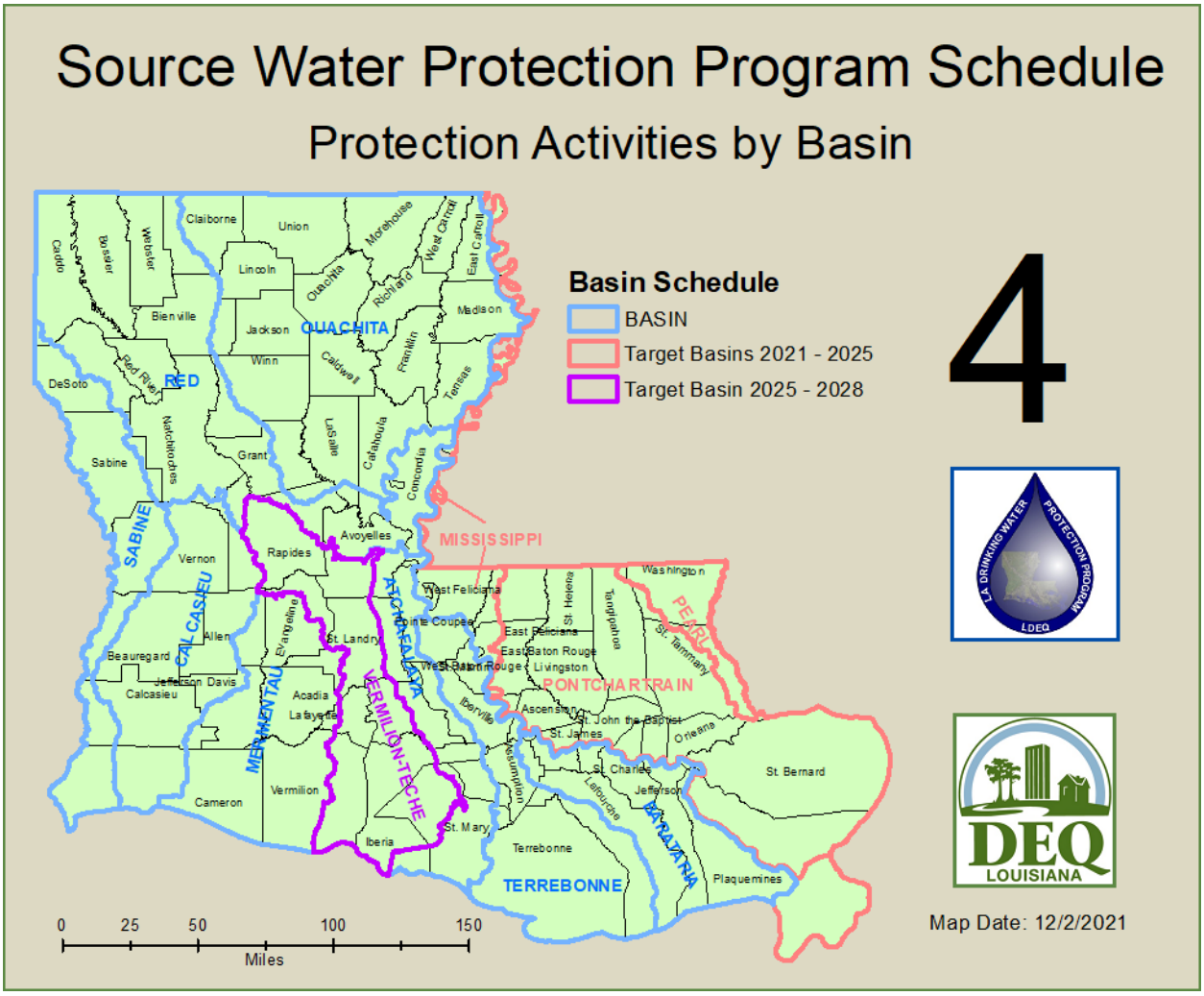

Figure 4. Source Water Protection Program Schedule

Source Water Assessments

During implementation of the DWPP source water assessment data are updated. The staff obtains GPS coordinates for new water wells and intakes and well photographs are taken for ease of identification. A protection area is delineated for the well or intake and GPS coordinates are obtained for all SPSOCs identified within the protection area. Additionally, protection areas for wells and intakes already in the SWAP database are resurveyed to update SPSOC information and new photographs of wells are taken. Wells or intakes that are no longer in service are removed from the inventory along with their corresponding protection areas and SPSOCs. Applications developed to capture the data via mobile devices are used to update the database in real time.

During this reporting period, source water assessment data were collected for 346 public water sources and 1,102 SPSOCs. Some of these numbers reflect hurricane response work described below. Updating this data is important because LDEQ and other agencies use it for pollution prevention, emergency response, and environmental investigations. The data are also used to generate source water assessment reports for public water supply systems. The Safe Drinking Water Act Consumer Confidence Report rule requires that all public water supply systems have a copy of their source water assessment report available for review by the public.

The SWAP Calculator program generates new source water assessment reports based on existing data and new data collected with mobile data collection applications. The reports contain basic well/intake information such as age, depth, aquifer/water body, delineated protection areas, SPSOCs, and a risk ranking for the water system.

Recent database and software upgrades impacted the functionality of the SWAP Calculator and during the last year the program was completely redeveloped. The new SWAP Calculator program not only generates SWAP reports but also significantly improves the functionality of the program by automating data collection and report generation processes. During this reporting period 19 source water assessment reports were generated.

Public Education

Public education is one of the main elements of the DWPP and there were various opportunities to inform citizens about drinking water source protection in both targeted and non-targeted areas. DWPP staff gave both remote and in-person presentations or worked booths at the following locations/events; LRWA USDA/FSA SWAP Workshop, LRWA Annual Conference, LRWA Mini-Conference, SWAP States Meeting, BTNEP Symposium, Bains Elementary, Centenary Currents: Striving for a Sustainable Future, and the LSU Ag Center in Manusura. Despite the Covid-19 restrictions, DWPP staff were still able to reach more than 1,600 people during this reporting period.

Bayou Lafourche

Work to mitigate improperly treated sewage flowing into Bayou Lafourche from individual sewage treatment systems continued during this reporting period on a limited basis. DEQ coordinated with LSU Ag Center economist Dr. Krishna Paudel to develop a pilot project to assess local willingness to develop a community sewerage system in the Lockport area, specifically Nolan Toups Subdivision. The Barataria-

Terrebonne National Estuary Program contracted with Dr. Paudel to provide funding for the pilot. Partners plan to survey the target area by going door to door, with mail outs, and through social media. Classes on home sewage treatment system maintenance will be conducted locally where attendees will have the opportunity to express their opinions on how to best handle the sewage problem in their neighborhood. It is hoped that this pilot project will prove to be a useful litmus test on how to handle the sewage issue in other areas along Bayou Lafourche.

Hurricane Assessments

DWPP staff routinely participates in LDEQ's environmental damage assessment response to catastrophic storms in areas impacted by storm surge. DWPP staff conducted damage assessments in source water protection areas impacted by the four major hurricanes that struck Louisiana in 2020 and 2021 to insure any releases were promptly addressed. The team assessed each significant potential source of contamination (SPSOC) previously identified under the SWAP that, if damaged, could have an environmental impact or negatively affect a public water source. Anything else that was observed, such as orphaned drums that could have an environmental impact, was assessed as well.

These assessments were provided to DEQ's Incident Command so that the proper personnel could respond to any required follow up work. This was a major undertaking that began during the last reporting period (FFY2021) after hurricane Laura and continued in the current reporting period with hurricanes Delta, Zeta, and Ida. DWPP staff assessed 267 SPSOCs (96 in FFY21 and 171 during this period) and 61 SPSOCs were assessed twice (once in FFY21 and once during this period) because two storms, Laura and Delta, impacted the same areas just six weeks apart. Eleven of these SPSOCs had an environmental impact that needed to be addressed (eight in FFY21 and three during this period). Sixteen orphan above ground storage tanks were identified (eleven in FFY21 and five during this period), seven of which had to be reported for follow up work due to spills (three in FFY 21 and four during this period). Two orphan 55-gallon drums were identified near two public water wells during this period. There was a sheen in a nearby ditch and a VOC odor indicating a potential release. Nineteen public wells, one surface water intake and one domestic well were assessed (six in FFY21 and 16 during this period).

In addition to environmental damage assessments, the DWPP staff also assesses surface water quality in sources of drinking water impacted by hurricanes. The DWPP staff was chosen for this task because it is the only unit in the state that is tasked with water quality protection of sources of potable water, i.e. the aquifers and surface water sources. For example, following hurricane Gustav in 2008, the water quality in Bayou Lafourche was affected by low dissolved oxygen levels resulting from decaying debris in the bayou. The low dissolved oxygen caused fish kills and turned the water a dark color. Additionally, debris and downed trees clogged the bayou and prevented the flow of fresh water from the Mississippi River pump station in Donaldsonville. To prevent flooding in the upper reaches of the bayou pumping was suspended for a period of time after the hurricane hit. As a result, the public water systems utilizing Bayou Lafourche had difficulty treating the water for taste, odor, and color. There was also a concern about spills.

The DWPP staff collected samples for volatile organic compounds (VOC) and semi-volatile organic compounds (SVOC) and field measurements were taken for dissolved oxygen, temperature, specific conductance, and pH. Dissolved oxygen was very low and toluene was detected in several samples below the MCL. Subsequent sampling events showed improvement in water quality. This data was critical for

public water systems utilizing the bayou to prepare for fluctuations in water quality and possible additional treatment, as well as providing information to the public. Following hurricane Ida, the executive director of the Bayou Lafourche Freshwater District contacted the DWPP staff to take samples to determine the impacts of the storm on the bayou. As expected, dissolved oxygen was low but no VOCs or SVOCs were detected.

Figure 5. Geologist Jesse Means inspecting a potential release from an orphan drum in Esther, LA (Vermilion parish)

Hurricanes Making Landfall in Louisiana 2020-2021 by the Numbers				
	Laura	**Delta**	**Zeta**	**Ida**
Category at Landfall	4	2	3	4
Landfall Date/Time	August 27, 2020 @ 1:00 am	October 9, 2020 @ 6:00 PM	October 28, 2020 @ 4:00 PM	August 29, 2021 @ 11:55 am
Landfall Location	Cameron, LA	Creole, LA	Cocodrie, LA	Port Fourchon, LA
Max Sustained Winds	150 mph*	100 mph	115 mph	150 mph*
Minimum Central Pressure	938 mb	970 mb	970 mb	929 mb
Peak Surge	17.2 feet	9.3 feet	10 feet	10.3 feet
Peak Rainfall	17.02 inches	17.57 inches	6 inches	13.65 inches
Movement and Speed	N at 15 mph	NNE at 14 mph	NNE at 25 mph	NW at 13 mph
Intensifying at Landfall	Yes	No	Yes	Yes
Hurricane Force Wind Field	60 miles	40 miles	35 miles	50 miles
Tropical Storm Force Wind Field	205 miles	160 miles	150 miles	150 miles

Source: NOAA National Hurricane Center

** Louisiana is the first state to record back-to-back years with hurricanes having wind speeds of at least 150 mph.*

Table 16. Hurricanes Making Landfall in Louisiana 2020-2021 by the Numbers

6.3 STATEWIDE ONSITE DISPOSAL SYSTEM PROGRAM

Many of Louisiana's watershed impairments are caused by high concentrations of FC. The state's numerical criteria for FC for designated uses can be found in Table 17.

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

Table 17. The State's numerical criteria for FC for designated uses

LDEQ, WSCs, and WSC support groups continued to partner with LDH and the parish and/or local governments in developing education and outreach programs and assist in inspecting OSDSs located in priority watersheds. Table (18) depicts the watersheds and partners involved in OSDS inspection projects.

Watershed	Project Summary
Comite River (040103)	In FFY2021, Capital RC&D conducted individual home sewage inspections. Monitoring was conducted by LDEQ Water Surveys personnel. Monitoring and inspections will continue into 2022.
Yellow Water River (040504)	In FFY2021, Capital RC&D conducted monitoring and individual home sewage inspections. Monitoring and inspections will continue into 2022.
Middle Amite River (040302)	In FFY2021, Capital RC&D conducted monitoring and individual home sewage inspections. Monitoring and inspections will continue into 2022.
Upper Amite River (040301)	In FFY2021, Capital RC&D conducted individual home sewage inspections which ended in December 2020.
Thompson Creek (070502)	In FFY2021, Capital RC&D conducted monitoring and individual home sewage inspections. Monitoring and inspections will continue into 2022.
Bayou Sara (070501)	In FFY2021, Capital RC&D conducted individual home sewage inspections. Inspections ended December 2020.
Vermilion River (060801)	In FFY 2021, BVD and LDAF conducted home sewage inspections. LDEQ Water Survey's continues conducting monitoring.
Bayou Folse (120302)	In 2021, BTNEP continued water quality monitoring and education-outreach. Through local partnership, in August 2020 BTNEP began inspecting home sewage treatment systems to assure proper functioning. This effort will continue into 2022.
6217 Coastal Management Area in Coastal Louisiana	In FFY2021, LDEQ-NPS continued its partnership with LRWA and conducted OSDS inspections; and utilized focused/project-targeted workshops on an as-needed basis. This effort will continue into 2022.

Table 18. 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.

7.0 OUTREACH AND EDUCATION ACTIVITIES

LDEQ, partners, and WSCs, all worked together to conduct education and outreach across the state. Each department realizes the importance of sharing our findings and continued education of the public to promote watershed restoration. LDEQ participated in 12 outreach and educational events across the state this fiscal year. These events targeted people of all ages. The Enviroscape model/video allows viewers 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. In FFY 2021, LDEQ reached over 7,225 adults and students through the following events:

October 26, 2020

Nonpoint Source Pollution Enviroscape video – was posted on YouTube and has been viewed over 4,500 since posted on in October. The video can be viewed here***: Nonpoint Source Pollution – Featuring Enviroscape***

June 10, 2021

Enviroschool – event was virtual and 8 people attended. LDEQ NPS staff gave a presentation on Nonpoint Source Pollution and how the NPS unit operates and works to protect and restore waterbodies.

June 29, 2021

Master Farmer – event was held in Crowley. Two people attended and LDEQ NPS staff gave a presentation on Nonpoint Source Pollution.

July 19-22, 2021

Louisiana Rural Water Association Annual Conference – event was held in Lafayette at the Cajundome. Approximately 1,100 attendees and over 150 vendors participated in the conference, promoting various demonstrations, equipment and training. LDEQ personnel provided water quality information to attendees.

September 30, 2021

Master Farmer – event was held in Bossier. Three people attended and LDEQ NPS staff gave a presentation on Nonpoint Source Pollution.

October 11, 2021

Master Cattleman – event was held in Lafayette. 10 people attended and LDEQ NPS staff gave a presentation on Nonpoint Source Pollution.

October 14, 2021

Master Farmer – event was held in Alexandria. Two people attended and LDEQ NPS staff gave a presentation on Nonpoint Source Pollution.

Additional outreach included the following: DWPP staff gave both remote and in-person presentations or worked booths at the following locations/events; LRWA USDA/FSA SWAP Workshop, LRWA Mini-Conference, SWAP States Meeting, BTNEP Symposium, Bains Elementary, and Centenary Currents reaching over 1,600 people.

8.0 TRAINING

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

NONPOINT SOURCE POLLUTION TRAINING

Oct 7, 2020

STEP-L webinar – EPA's technical support contractor, Tetra Tech, provided an overview of the Spreadsheet Tool to Estimate Pollutant Loads (STEPL), its features, and how to use it. STEPL is a planning-level spreadsheet model intended to facilitate the estimation of nutrient and sediment load reductions associated with Clean Water Act Section 319 projects at a HUC-12 watershed scale.

Oct 14, 2020

"**Mandatory State Nutrient Management Programs" nutrient management webinar**

Oct 22, 2020

EQuIS dashboards demonstration – EarthSoft presented Enterprise dashboard functionality, new items available.

Oct 27, 2020

Data Quality webinar – The Relationship of the Field Sampler & The Lab, Part 2. "An overview of the information which needs to be coordinated between the field sampler(s) and an environmental testing laboratory to successfully execute a project. It provides information on type of field quality control samples which can be collected, process for Chain of Custody completion, review of bottle types, preservations and holding times as well as packing instructions for coolers and shipping".

Nov 10, 2020

Practical Stats – Nondetects & Data Analysis (NADA) Course: Sections 8-11

- Comparing Two Groups
- Comparing Three or More Groups
- Correlation Methods
- Regression and Logistic Regression

Dec 22, 2020

Practical Stats: Nondetects & Data Analysis (NADA) Course: Sections 12-13

- Trend Analysis
- Multivariate Methods (optional)

Nov 11, 2020 – Nov 19, 2020

2020 National Nonpoint Source Training Workshop (Virtual) live sessions – presentations from states and tribal nations, poster session showing innovative tools, communication, hazard mitigation pilots, ask the expert sessions with subject matter experts on NPS topics, training sessions, info on: BMP success stories, watershed plans, natural hazard mitigation, SRF, protecting healthy watersheds, innovative tools, etc.

Dec 10, 2020

Hazard Mitigation – *Why Now?* Webinar – "Mitigating disaster impacts is a natural next step after completing the risk assessments and emergency response plans required under the America's Water Infrastructure Act (AWIA) of 2018. On December 10, the Water Security Division and other partners conducted a 1.5-hour webinar on hazard mitigation with a goal of increasing funding for the water sector to mitigate the damage from natural disasters.

- EPA will use analyses of FEMA funding data to provide data-driven advice and insights for utilities to apply for funding.
- EPA will also feature how EPA's Hazard Mitigation Guide for Water and Wastewater Utilities can help utilities develop mitigation projects and get FEMA funding.
- A State Hazard Mitigation Officer (SHMO) will discuss FEMA's new funding under the Building Resilient Infrastructure and Communities (BRIC) program and how utilities can benefit.
- A water utility speaker and SHMO staff will discuss how they worked together to successfully obtain mitigation funding for emergency generators to address past flooding and power outage issues.
- EPA will present how EPA's newly revised federal funding tool (Fed FUNDs) can help utilities get mitigation funding from a variety of federal agencies".

Dec 17, 2020

Louisiana Watershed Initiative Nature Based Solutions Capacity Building Presentation – Natural Channel Design (NCD) – A Nature Based Solution for Floodplain Management and Watershed Resiliency. SWCA will be providing an overview of Natural Channel Design methods and some example projects where they have applied NCD-based channel designs to manage, stabilize, and restore flood control channels and their tributaries.

May 12, 2021

EPA Sanitary Survey App for Marine and Fresh Waters webinar – Recently, EPA announced the release of its improved Sanitary Survey App for Marine and Fresh Waters. Anyone can easily use the App to collect and share data on potential sources of fecal pollution and information on potential harmful algal bloom events in local surface waters, including recreational waters. EPA is conducting virtual training sessions on how to use the App and access the saved data from the sanitary surveys.

May 13, 2021

Louisiana Rural Water Association USDA/FSA Source Water Program Workshop – Introductions & Overview of USDA/FSA Source Water Protect Robbins, LRWA/USDA FSA Source Water Protection Specialist LDH and Source Water Protection: Barbara Featherston P.E., LDH Louisiana Strategy on Source Water Protection

Program updates: Jesse Means, LA DEQ Aquifer Assessment Discussion and Prioritization of Source Water Protection Needs for Louisiana in 2021-2022 Program Year: Susan Robbins, LRWA

June 10, 2021

Louisiana Hurricane Season Geospatial Data Mining Workshop

June 17, 2021

Linking Data to the Wider Hydrographic Network. Description - Linking data to the wider hydrographic network is a key component of making water data more discoverable and more easily accessible. Dave Blodgett, a hydro informatics specialist at USGS, described how the Hydro Network-Linked Data Index (NLDI) connects data to the National Hydrography Dataset so that relationships between single monitoring locations and the broader water world can be revealed.

June 23, 2021

Meeting the Challenge of Microplastic Management to Protect Human Health and the Environment - Discussions involved the initial steps being taken toward managing microplastics in California, as well as the challenges and barriers to regulating microplastics under traditional regulatory paradigms. Discussions also included potential changes in approach to better regulate contaminants like microplastics for the protection of human health and the environment.

June 23, 2021

EPA Grants Reporting and Tracking System (GRTS) Training [Region 6] - GRTS101, GRTS Data Entry, Intro to Oracle Business Intelligence Reporting

July 12-15, 2021

ESRI virtual user conference

Aug 11-12, 2021

Soil Health: Enriching Soil, Enhancing Life - an online virtual meeting designed to connect the science of soil health with the information requested by farmers and the environmental benefits that follow. - Farmers' Experiences with Adopting Soil Health Systems.

- Business Case for Regenerative Soil Health Systems
- Agricultural Input Impacts on Soil Health
- Climate Change Mitigation and Adaptation through Soil Health
- Establishing Soil Health Interpretations for Farmers and Conservation Planners
- Understanding and Managing the Soil Microbiome

Nonpoint Source
PROGRAM

DEQ
LOUISIANA