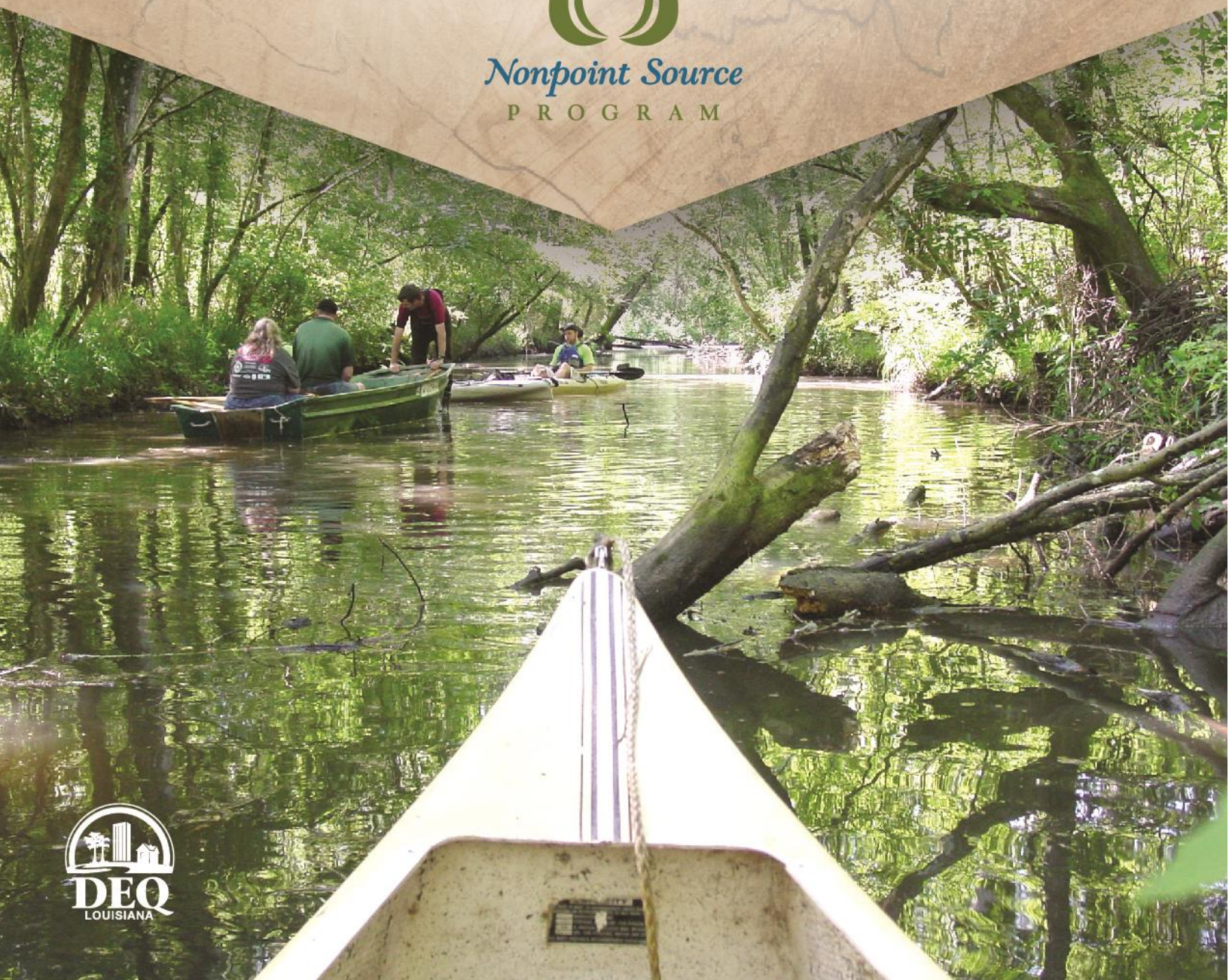
FFY 2023-2027

Louisiana's Nonpoint Source Pollution Program

Management Plan

Nonpoint Source
PROGRAM



DEQ
LOUISIANA

i. EXECUTIVE SUMMARY

The history and culture of Louisiana are closely tied to its waters and wetlands. The State is committed to protecting and improving its water resources, including surface and ground waters, for present and future generations. Louisiana's coastal and inland waters are utilized for recreational and commercial fisheries, oil and gas production, transportation, forestry and agriculture.

The mission of the Nonpoint Source (NPS) Program is to restore use support in waters identified as impaired by nonpoint sources in The Louisiana Department of Environmental Quality's (LDEQ) Integrated Report. The Program goals are to implement statewide and watershed programs that result in implementation of best management practices (BMPs) to increase dissolved oxygen (DO) concentrations and reduce the concentration of fecal coliform (FC) bacteria, sediment, and nutrients that contribute to water quality problems in state waters.

Management of the state's natural resources relies on many partners, who benefit from Louisiana's healthy environment. Though water is an integral component of life and valued by the people who live in Louisiana, the goals of the Clean Water Act (CWA) are not being fully met. Although significant progress has been made in meeting these goals, the NPS Management Plan describes tasks and milestones to fully restore impaired waters and protect healthy waters.

Louisiana's 2022 Integrated Report (IR) identified approximately 231 subsegments with NPS impairments, representing 43 percent of the state's assessed watersheds. These NPS-impaired waters are priorities for restoration through the NPS Program. Full restoration of a waterbody means all impairments have been removed and the waterbody fully meets all of its designated uses.

Water quality improvement means instream concentrations of specific pollutants are reduced and progress is being made toward full restoration. Although current budgetary constraints may affect the rate of progress in meeting NPS water quality goals, LDEQ intends to continue improving water quality in 38 NPS-impaired subsegments. Since 2008, when the program developed its first success story, NPS activities have removed 20 impairments from waterbodies in the state. To continue water quality improvements, LDEQ NPS developed a set of milestones and tasks.

Yearly program milestones are:

- Number of waterbodies identified in LDEQ's Integrated Report as being primarily NPS-impaired that are partially or fully restored (WQ-10): 2 biannually;

- Estimated annual reductions in tons of nitrogen from NPS to waterbodies (from Section 319 funded projects) (WQ-9a): 12 tons/year;

- Estimated annual reductions in tons of phosphorus from NPS to waterbodies (from Section 319 funded projects) (WQ-9b): 3 tons/year;

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- Estimated annual reductions in tons of sediment from NPS to waterbodies (from Section 319 funded projects) (WQ-9c): 1000 tons/year; and

- Progress in reducing unliquidated obligations (ULO): 20% per year.

These tasks and timelines will support milestones listed above:

- Continue to evaluate, on an annual basis, watersheds where LDEQ has partnered with NRCS and other cooperating federal, state and local agencies on statewide and watershed priorities (2023-2027);

- Continue to evaluate on an annual basis progress that has been made on coordination of federal and state agencies and local watershed groups on prioritization of statewide educational programs and watershed implementation projects in the state (2023-2027);

- Continue to partner with other agencies on improving statewide educational and outreach activities in areas of the state with water quality problems associated with agriculture (2023-2027);

- Continue to report annually on the number of waterbodies restored due to implementation of BMPs to reduce/control agricultural NPS pollutants (2023-2027);

- Evaluate water quality improvement on an annual basis in priority watersheds to determine if water quality is improving as a result of increased education and implementation of BMPs (2023-2027);

- Utilize the ambient monitoring program combined with in-stream surveys to determine where program activities have resulted in water quality improvements (2023-2027);

- Determine if additional steps are necessary to restore designated uses to waterbodies identified as having use support impairments due to nonpoint sources in the 305(b) report, and whether back-up authority is necessary to achieve BMP implementation and reduce NPS pollution in state waterbodies (2023-2027); and

- Remove use support impairments caused by nonpoint sources identified in the 305(b) report as a result of cooperative efforts on agricultural BMPs (2023-2027).

In addition to water quality goals for surface water, LDEQ also administers the Source Water Protection Program (SWPP) to protect the state's groundwater aquifers and surface waters utilized as drinking water supplies. The SWPP builds upon the Source Water Assessment Program (SWAP) that was completed by LDEQ in 2003. This program determined the susceptibility of public water supplies to contamination after assessing nearby type, quantity, and location of significant potential sources of contamination (SPSOCs) and hydrogeologic sensitivity factors. The assessment phase is discussed in the *State of Louisiana Source Water Assessment Program* document available on LDEQ's website at the following web address: https://www.deq.louisiana.gov/page/source-water-assessment-program

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The statewide SWPP concentrates on the most susceptible public water supply sources by implementing protection measures in sensitive areas around public supply wells (groundwater) and surface waters that are sources of drinking water. Watersheds that drain to and recharge these drinking water sources are of special concern in that the myriad of activities that occur within them can potentially affect the health and safety of the drinking water supply.

The following Source Water Protection Measures are completed to achieve substantial implementation of the SWPP:

- Visit SPSOC sites identified in the assessment phase to determine active status and identify new SPSOCs within the protection area;
- Introduce the drinking water protection model ordinance for adoption by local governing bodies; and
- Provide new or updated source water assessment reports to water systems as field assessments are completed.

Discussion of key elements that further explain and refine these protection measures is found in the Source Water Protection Section in the body of this document.

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AES – Agricultural & Environmental Sciences (LDAF)
ASSET – Aquifer Sampling and Assessment
ATTAINS – Assessment TMDL Tracking and Implementation System
BMPs – Best Management Practices
BOEM – Bureau of Ocean Energy Management
BTNEP – Barataria-Terrebonne National Estuary Program
BVD – Bayou Vermilion District
CFR – Code of Federal Regulations
CPP – Continuing Planning Process
CPRA – Coastal Protection and Restoration Authority of Louisiana
CREP – Conservation Reserve Enhancement Program
CRP – Conservation Reserve Program
CSP – Conservation Stewardship Program
CWA – Clean Water Act
CWSRF – Clean Water State Revolving Fund
CZARA – Coastal Zone Act Reauthorization Amendments
DO – Dissolved Oxygen
EPA – Environmental Protection Agency

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EQIP – Environmental Quality Incentives Program
FC – Fecal Coliform (bacteria)
FSA – Farm Services Agency
FWP – Fish and Wildlife Propagation
LAC – Louisiana Administrative Code
LDAF – Louisiana Department of Agriculture & Forestry
LDEQ – Louisiana Department of Environmental Quality
LDH – Louisiana Department of Health
LDNR – Louisiana Department of Natural Resources
LDOTD – Louisiana Department of Transportation and Development
LDWF – Louisiana Department of Wildlife and Fisheries
LFA – Louisiana Forestry Association
LOSCO – Louisiana Oil Spill Coordinator's Office
LSU – Louisiana State University
MRBI – Mississippi River Basin Initiative
NEP – National Estuary Program
NPS – Nonpoint Source
NRCS – Natural Resources Conservation Service
NWQI – National Water Quality Initiative
OSDS – On-Site Disposal System
OSWC – Office of Soil and Water Conservation
PCR – Primary Contact Recreation
PPG – Performance Partnership Grant
QAPP – Quality Assurance Project Plan
QMP – Quality Management Plan
RC&D – Resource Conservation and Development
SCR – Secondary Contact Recreation
SPSOC – Significant Potential Sources of Contamination
SWAP – Sourcewater Assessment Program
SWAT – Soil and Water Assessment Tool
SWCD – Soil & Water Conservation District
SWPP – Sourcewater Protection Program
TDS – Total Dissolved Solids
TMDL – Total Maximum Daily Load
ULO – Unliquidated Obligation
USACE – U.S. Army Corps of Engineers
USCG – US Coast Guard
USDA – United States Department of Agriculture
USDOT – US Department of Transportation
USEPA – United States Environmental Protection Agency
USGS – United States Geological Survey
WIP – Watershed Implementation Plan
WQA – Water Quality Act
WQMP – Water Quality Management Plan
WRE – Wetland Reserve Easements Program

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1 INTRODUCTION

1.1 Purpose and Authority of the Document

Section 303(e) of the Clean Water Act (CWA) requires each state to have a Continuing Planning Process (CPP). The CPP describes the processes used by the state in making water quality decisions. The state must review and update the CPP as necessary, to reflect its evolving needs and to meet the requirements of this regulation.

The purpose of the CPP is to describe the principal management processes of the state's water quality management programs that are used to implement the provisions of the Clean Water Act (P.L. 95-217) and state Environmental Quality Act (L.R.S.30:2001 and 30:2071). The CPP also helps identify needed improvements in organizational structure and procedure, and facilitates corrective management action. An up-to-date CPP serves as guidance for a more effective State Water Quality Management Plan (WQMP). LDEQ is the state agency designated to develop and carry out the CPP and the WQMP. The Federal regulations regarding their content are presented in 40 CFR Part 130.5 and 130.6.

The WQMP consists of:

Introduction
Volume 1: The Continuing Planning Process (CPP)
Volume 2: Water Quality Regulations (LAC 33:IX)
Volume 3: Permitting Guidance Document for Implementation of Louisiana's Water Quality Standards
Volume 4: Basin and Subsegment Boundaries
Appendix A: Subsegment Descriptions by Basin
Volume 5: Water Quality Integrated Report (305(b)/303(d))
Volume 6: Nonpoint Source Management Plan
Volume 7: Municipal Waste Treatment (State Revolving Fund)
Volume 8: Wasteload Allocations/Total Maximum Daily Loads and Effluent Limitations Policy

This document serves as Volume 6, which describes the procedures to be used to implement the Nonpoint Source Management Program and is prepared by the Office of Environmental Assessment, Water Planning and Assessment Division. The primary goal of the program is to systematically identify and address nonpoint sources of pollution that impair water quality in the state of Louisiana. The latest Nonpoint Source Management Plan is available on the LDEQ website at https://deq.louisiana.gov/page/nonpoint-source.

The Water Quality Act (WQA) of 1987 amended the CWA of 1972, with Section 319 directing States to develop and implement programs for control of NPS pollution. Section 319 authorized financial assistance to States for implementing State Management Programs. Section 319 (h) describes the types of activities that states can fund through the NPS Management Program. States are encouraged to develop NPS programs that build upon related water quality programs, such as Estuaries (Section 320), Surface Water Toxics (Section 304 (1)), Ground Water, Wetlands, and Storm Water Permitting. This allows NPS Programs to be implemented

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in conjunction with other programs and Section 319 funds to be leveraged for co-benefits with resources from other programs.

1.2 Nonpoint Source Management Program Goals

1.2.1 Mission Statement

The mission of the NPS program is to restore use support in waters identified as impaired by nonpoint sources in the 305(b) list of the Integrated Report.

1.2.2 Program Goals

The Program goals are to implement statewide and watershed programs that result in implementation of BMPs to increase DO concentrations and reduce the concentration of FC bacteria, sediment, and nutrients that contribute to water quality problems in state waters. These goals are evaluated on an annual basis with analysis of ambient water quality data. Water quality improvements are reported in LDEQ's NPS Annual Reports to USEPA Region 6 and posted on LDEQ's website.

LDEQ will continue to work cooperatively with federal, state and local partners that assist in implementation of statewide educational programs and watershed protection and restoration projects. Through this implementation, waterbodies in the state that are presently impaired because of NPS pollution should improve and meet their designated uses for fishing, swimming and drinking water supplies.

- By October 2027, work to improve and/or restore 38 waterbodies impaired for NPS pollution as funds allow; Implement NPS targeted watershed monitoring in 19 waterbodies in order to develop WIPs or evaluate water quality improvement in waterbodies targeted for improvement/restoration by 2027 (See Table 1, Table 2, Figure 1, and Figure 2);
- Produce two NPS Success Stories every two years as a result of reducing NPS pollutants for one or more parameters so the waterbody meets water quality standards;
- Track expenditure of federal and matching funds efficiently to solve NPS water quality problems; and
- By 2027, SWPP will minimize risks to public health in Mississippi, Pearl, Pontchartrain, and Vermilion-Teche watersheds.

1.2.3 Objectives

These objectives describe the NPS program strategies needed to achieve the goals listed above.

Objective 1: Prioritizing Watersheds After reviewing each integrated report, and in cooperation with partners, LDEQ will select priority subsegments for addressing nonpoint source water quality impairments.

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Objective 2: Planning LDEQ will collect water quality sampling data, and develop and update watershed-based plans for priority watersheds.

Objective 3: Education As funding allows, LDEQ will continue to provide educational outreach to the general public, stakeholders, and partners statewide and in priority watersheds in an effort to educate citizens about nonpoint source pollution.

Objective 4: Implementation LDEQ will coordinate with LDAF and other partners to implement measures that will promote water quality restoration and protection.

Table 1 Priority Watersheds

SUBSEGMENT ID	NAME	DESCRIPTION	BASIN	2022 STATUS
LA030801_00	West Fork Calcasieu River	From confluence with Beckwith Creek and Hickory Branch to mainstem of Calcasieu River	Calcasieu	TBD
LA030804_00	Little River	From headwaters to West Fork Calcasieu River	Calcasieu	TBD
LA030805_00	Indian Bayou	From headwaters to West Fork Calcasieu River	Calcasieu	TBD
LA030806_00	Houston River	From Bear Head Creek at La. Highway 12 to West Fork Calcasieu River	Calcasieu	TBD
LA040403_00	Blind River	From headwaters to Amite River Diversion Canal (Scenic)	Pontchartrain	New Vision
LA040404_00	New River	From headwaters to New River Canal	Pontchartrain	New Vision
LA040503_00	Natalbany River	From headwaters to La. Highway 22	Pontchartrain	New Vision
LA040504_00	Yellow Water River	From headwaters to Ponchatoula Creek	Pontchartrain	New Vision
LA050101_00	Bayou des Cannes	From headwaters to Mermentau River	Mermentau	Implementation
LA050103_00	Bayou Mallet	From headwaters to Bayou Des Cannes	Mermentau	Implementation
LA050201_00	Bayou Plaquemine Brule	From headwaters to Bayou Des Cannes	Mermentau	TBD
LA050301_00	Bayou Nezpique	From headwaters to Mermentau River; includes intermittent portion of Beaver Creek	Mermentau	TBD
LA050303_00	Castor Creek	From headwaters to Bayou Nezpique	Mermentau	TBD
LA050304_00	Bayou Blue	From headwaters to Bayou Nezpique	Mermentau	TBD
LA050401_00	Mermentau River	From headwaters to Lake Arthur	Mermentau	TBD

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LA050501_00	Bayou Queue de Tortue	From headwaters to Mermentau River	Mermentau	Implementation
LA050601_00	Lacassine Bayou	From headwaters to ICWW	Mermentau	Implementation
LA050603_00	Bayou Chene	From headwaters to Lacassine Bayou; includes Bayou Grand Marais	Mermentau	Implementation
LA060201_00	Bayou Cocodrie	From US Highway 167 to Bayou Boeuf-Cocodrie Diversion Canal (Scenic)	Vermilion-Teche	TBD
LA060204_00	Bayou Courtableau	From headwaters to West Atchafalaya Borrow Pit Canal	Vermilion-Teche	Planning
LA060208_00	Bayou Boeuf	From headwaters to Bayou Courtableau	Vermilion-Teche	TBD
LA060301_00	Bayou Teche	From headwaters at Bayou Courtableau to Keystone Locks and Dam	Vermilion-Teche	TBD
LA060703_00	Bayou Du Portage	From headwaters to Dauterive Lake	Vermilion-Teche	Implementation
LA060801_00	Vermilion River	From headwaters to La. Highway 3073 bridge	Vermilion-Teche	Implementation
LA060802_00	Vermilion River	From La. Highway 3073 bridge to ICWW	Vermilion-Teche	TBD
LA070501_00	Bayou Sara	From Mississippi state line to Mississippi River	Mississippi	New Vision
LA070505_00	Tunica Bayou	From headwaters to Mississippi River	Mississippi	New Vision
LA080401_00	Bayou Bartholomew	From Arkansas state line to Ouachita River; also known as Bayou Desiard and Lake Bartholomew (Scenic to Dead Bayou)	Ouachita	Planning
LA080903_00	Big Creek	From headwaters to Boeuf River; includes Big Colewa Bayou	Ouachita	TBD
LA080904_00	Bayou Lafourche	From headwaters to Boeuf River near Columbia	Ouachita	TBD
LA081101_00	Lake Providence	Lake Providence	Ouachita	TBD
LA081202_00	Lake St. Joseph	Lake St. Joseph	Ouachita	Planning
LA081609_00	Hemphill Creek	From headwaters to Catahoula Lake; includes Hair Creek	Ouachita	Implementation
LA101601_00	Bayou Cocodrie	From Little Cross Bayou to Wild Cow Bayou (Scenic)	Red	TBD
LA120103_00	Bayou Choctaw	From Bayou Poydras to ICWW	Terrebonne	TBD
LA120104_00	Bayou Grosse Tete	From headwaters to ICWW	Terrebonne	Planning
LA120111_00	Bayou Maringouin	From headwaters to East Atchafalaya Basin Levee	Terrebonne	Planning
LA120302_00	Bayou Folse	From headwaters to Company Canal	Terrebonne	Implementation

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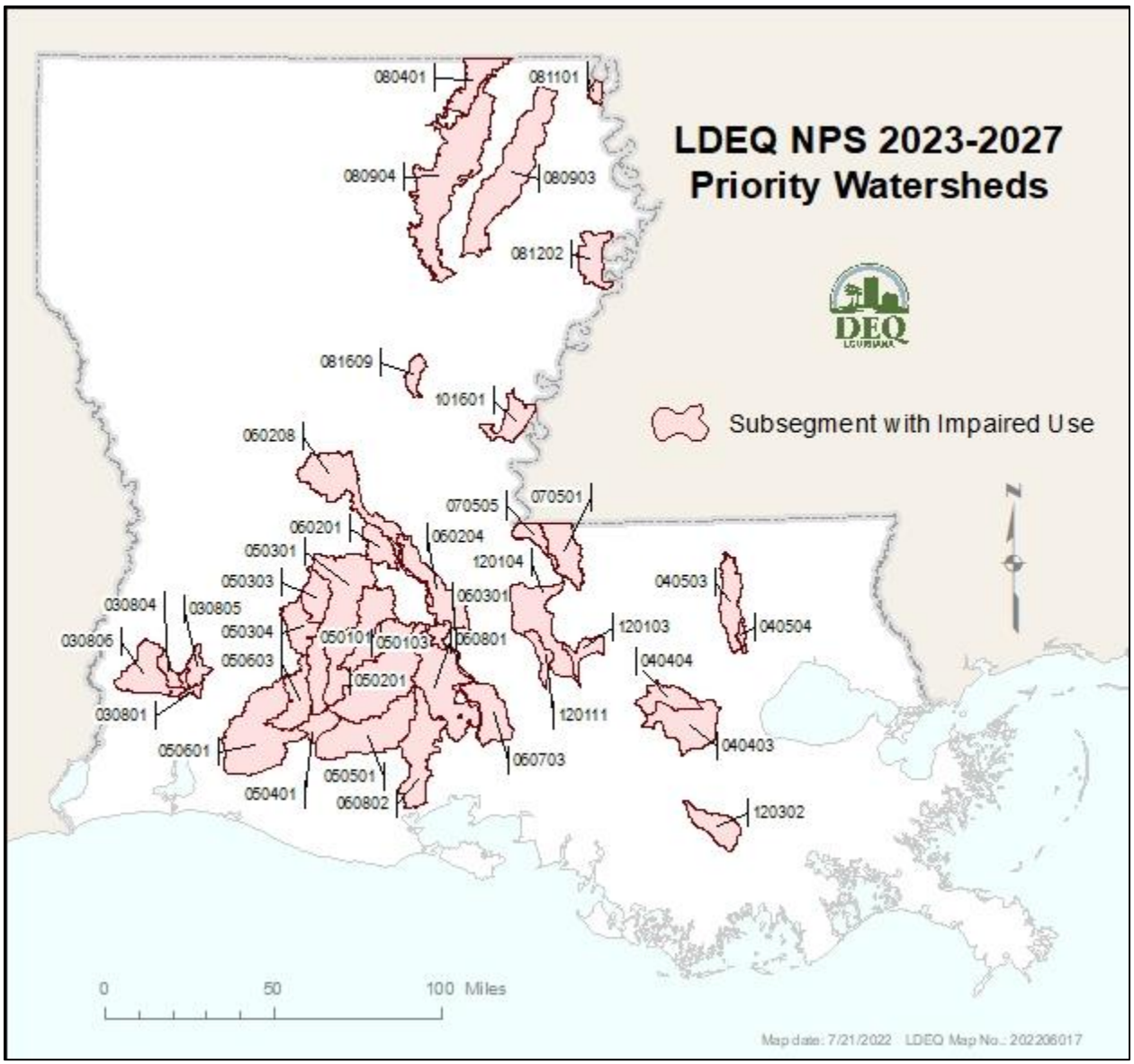

Figure 1 Priority Watersheds

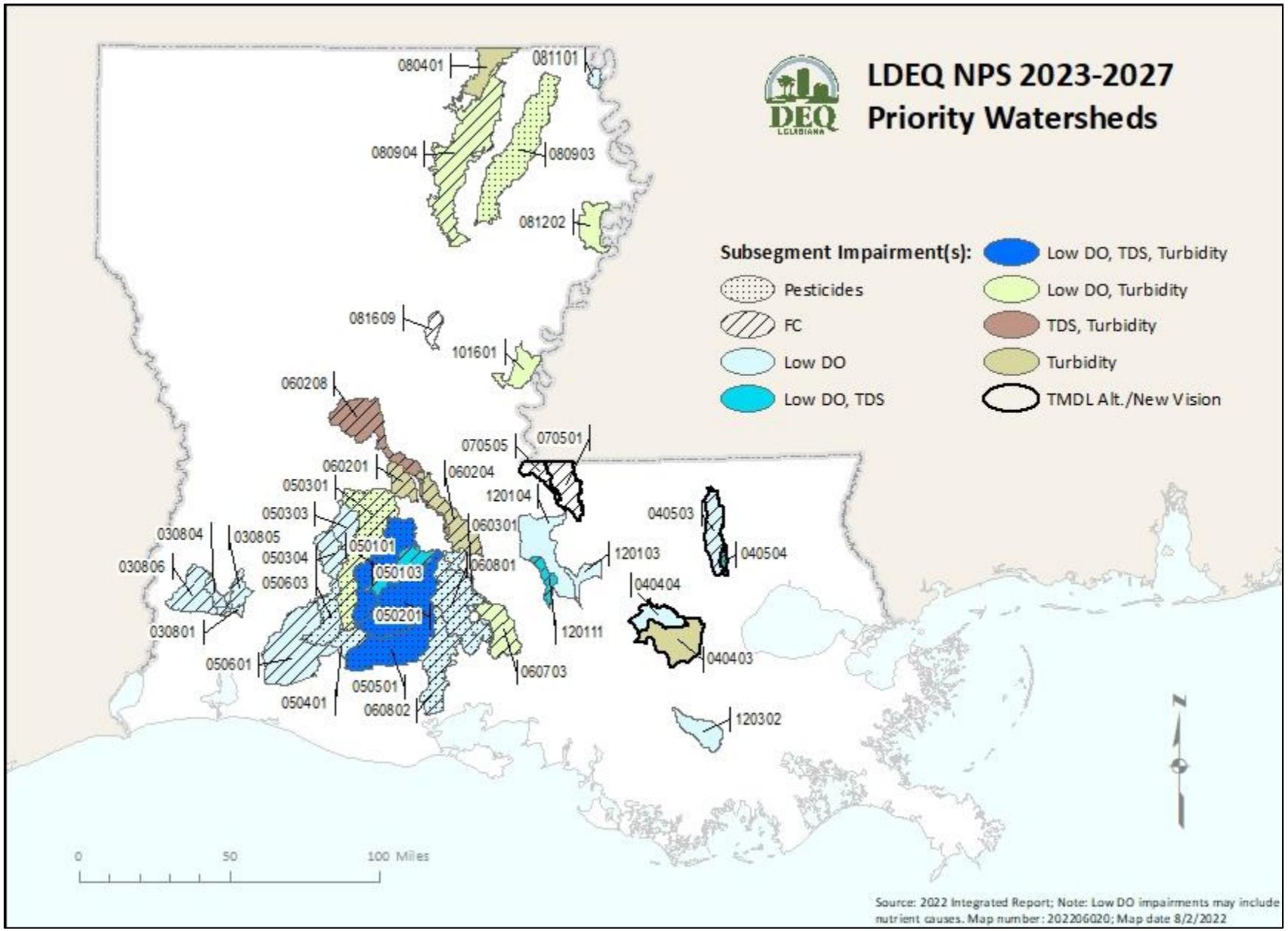

Figure 2 Priority Watershed NPS Impairments

Table 2 Goals and Milestones for Priority Watersheds

Subsegment	Priority Watersheds	Impaired Use	Causes to be Addressed	Sources	Goals	Actions/Milestones	Timeframe
030801	West Fork Calcasieu River	FWP, PCR	DO, fecal coliform	Agriculture, natural sources, silviculture activities, unknown sources	Restore use support	TBD	TBD
030804	Little River	FWP, PCR	DO, lead, fecal coliform	On-site treatment systems(septic and similar decentralized systems), source unknown, natural sources, sewage discharges in unsewered areas	Restore use support	TBD	TBD
030805	Indian Bayou	FWP, PCR, SCR	DO, fecal coliform	Agriculture, natural sources, on-site treatment systems(septic and similar decentralized systems)	Restore use support	TBD	TBD
030806	Houston River	FWP, PCR	DO, fecal coliform	Agriculture, natural sources, on-site treatment systems(septic and similar decentralized systems), unknown sources	Restore FWP and PCR use support	TBD	TBD
040403	Blind River	FWP, ONR, PCR	Non-native aquatic plants, turbidity, and temperature	Source unknown, introduction of non-native organisms	Restore use support	TBD	TBD
040404	New River	FWP	DO, non-native aquatic plants	On-site treatment systems(septic and similar decentralized systems), introduction of non-native organisms	Restore use support	TBD	TBD
040503	Natalbany River	FWP, PCR	DO, FC	On-site treatment systems(septic and similar decentralized systems), source unknown	Restore PCR use support	OSDS Inspections (New Vision), Post-Implementation Sampling	2021 - TBD
040504	Yellow Water River	FWP, PCR, SCR	DO, TDS, FC	Source unknown, natural sources, on-site treatment systems(septic and similar decentralized systems)	Restore PCR, SCR use support	OSDS Inspections (New Vision), Post-Implementation Sampling	2015 - TBD
050101	Bayou des Cannes	FWP	DO, nitrate/nitrite, total phosphorus, turbidity, fipronil, carbofuran, TDS	Agriculture, source unknown, point source(s) - unspecified	To reduce nutrients and sediment and decrease DO excursions to restore FWP use support	Baseline Sampling	2015-2017
						WIP Development	2015-2017
						BMP Implementation	2017- TBD
						Post-Implementation Sampling	2017- TBD
						Success Story	2023
050103	Bayou Mallet	FWP, PCR	DO, TDS, FC	Agriculture, crop production (irrigated), crop production (non-irrigated), natural sources, livestock (grazing or feeding operations), package plant or other permitted small flows discharges	Restore FWP and PCR use support	BMP Implementation	2015 - TBD
						Post-Implementation Sampling	2015- TBD
						WIP Development	2015-2017
050201	Bayou Plaquemine Brule	FWP	DO, total phosphorous, TDS, nitrate/nitrite, turbidity, fipronil	Agriculture, municipal point source discharges, unknown sources, point source(s) - unspecified	Restore use support	TBD	TBD

Subsegment	Priority Watersheds	Impaired Use	Causes to be Addressed	Sources	Goals	Actions/Milestones	Timeframe
050301	Bayou Nezpique	FWP, PCR	DO, fipronil, nitrate/nitrite, total phosphorous, turbidity, fecal coliform	Agriculture, source unknown, package plant or other permitted small flow discharges, runoff from forest/grassland/parkland, rural residential areas	Restore use support	TBD	TBD
050303	Castor Creek	FWP, PCR	DO, fecal coliform	Non-point sources, natural sources, unknown sources, wildlife other than waterfowl, on-site treatment systems(septic and similar decentralized systems)	Restore use support	TBD	TBD
050304	Bayou Blue	FWP, PCR	DO, fecal coliform	Agriculture, drought-related impacts, runoff from forest/grassland/parkland, source unknown, rural residential areas	Restore use support	TBD	TBD
050401	Mermentau River	FWP, PCR	DO, fipronil, nitrate/nitrite, total phosphorous, fecal coliform	Agriculture, on-site treatment systems(septic and similar decentralized systems), municipal point source discharges,	Restore use support	TBD	TBD
050501	Bayou Queue de Tortue	FWP	DO, fipronil, nitrate/nitrite, TP, turbidity, TDS	Agriculture, natural sources, water diversions, unknown sources, point source(s) - unspecified	Restore FWP use support	Baseline Sampling	2012-2013
						WIP Development	2012-2013
						BMP Implementation	2015-2023
						Post-Implementation Sampling	2023-2024
						Success Story	2025
050601	Lacassine Bayou	FWP, PCR	DO, fecal coliform	Agriculture, livestock (grazing or feeding operations), natural sources, unknown sources	Restore use support	TBD	TBD
050603	Bayou Chene	FWP, PCR	DO, fecal coliform, fipronil	Agriculture, source unknown, drought related impacts, runoff from forest/grassland/parkland, rural (residential areas)	Increase DO and decrease fecal coliform to restore FWP and PCR use support	Baseline Sampling	2012-2013
						WIP Development	2020
						BMP Implementation	2015-2021
						Post-Implementation Sampling	2021-2022
						Success Story	2028
060201	Bayou Cocodrie	ONR, PCR	FC, turbidity	Sewage discharges in unsewered areas, crop production (irrigated and non-irrigated)	Restore use support	TBD	TBD
060204	Bayou Courtableau	FWP, PCR	Turbidity, fecal coliform	Agriculture, sewage discharges in unsewered areas	Restore FWP and PCR use support	Baseline sampling	2022 - TBD
						Watershed planning / WIP development	TBD
						Implementation and water quality restoration	TBD
060208	Bayou Boeuf	FWP, PCR	TDS, turbidity, fecal coliform	Agriculture, sewage discharges in unsewered areas	Restore use support	TBD	TBD

Subsegment	Priority Watersheds	Impaired Use	Causes to be Addressed	Sources	Goals	Actions/Milestones	Timeframe
060301	Bayou Teche	FWP, PCR	Carbofuran, DO, fecal coliform	Agriculture, unknown source, on-site treatment systems, package plant or other permitted small flow discharges	Restore use support	TBD	
060703	Bayou du Portage	FWP, PCR	DO, turbidity, fecal coliform	Agriculture, on-site treatment systems (septic systems and similar decentralized systems), package plant or other permitted small flows discharges, natural sources	Restore PCR and FWP use support	Baseline sampling	2017 - 2019
						Watershed planning / WIP development	2018 - 2019
						Agricultural BMP implementation	2017 (NRCS) / 2020 (LDAF) - 2025
						OSDS inspections / pump outs / education	2020 – 2027
						Plan revision if required	2024 - 2025
						Use restoration	2025
060801	Vermilion River	FWP, PCR, SCR	Nitrate/nitrite, fecal coliform, DO, carbofuran	Agriculture, on-site treatment systems (septic systems and similar decentralized systems), package plant or other permitted small flows discharges, natural sources, unknown sources	To restore PCR, SCR, and FWP use support.	Project Preparation	2016-2021
						Implementation	2016-2024
						Post Implementation Analysis	2018-2024
						Success Story	2021-2024
060802	Vermilion River	FWP, PCR, SCR	DO, carbofuran, fecal coliform, nitrate/nitrite	Agriculture, on-site treatment systems (septic systems and similar decentralized systems), municipal point source discharges, sanitary sewer overflows (collection system failures), package plant and other permitted small flows discharges	Restore use support	TBD	TBD
070501	Bayou Sara	PCR	Fecal coliform	On-site treatment systems (septic systems and similar decentralized systems), package plant or other permitted small flows discharges	Reduce fecal coliform and restore PCR use support	OSDS Inspections	2017 - 2020
						Post-Implementation Sampling	2017 - 2020
070505	Tunica Bayou	PCR	Fecal coliform	On-site treatment systems (septic systems and similar decentralized systems)	Restore use support	TBD	TBD
080401	Bayou Bartholomew	FWP, ONR	Turbidity	Agriculture, source unknown	Restore FWP and ONR use support	Baseline sampling	2023 - TBD
						Watershed planning / WIP development	TBD
						Implementation and water quality restoration	TBD
080903	Big Creek	FWP	4,4’-DDT, atrazine, methyl parathion, carbofuran, DO, turbidity	Agriculture	Restore use support	TBD	TBD
080904	Bayou Lafourche	FWP, PCR	DO, turbidity, fecal coliform	Agriculture, sewage discharges in unsewered areas, municipal point source discharges, industrial point source discharge	Restore use support	TBD	TBD
081101	Lake Providence	FWP	DO	Agriculture, natural sources	Continue participating in Lake Providence Watershed Council, restore FWP use support	Complete Final Report for MRBI TDS project; attend Watershed Council meetings; data sharing	2022 – Council dissolution

Subsegment	Priority Watersheds	Impaired Use	Causes to be Addressed	Sources	Goals	Actions/Milestones	Timeframe
081202	Lake St. Joseph	FWP	DO, nitrate-nitrite, total phosphorous, turbidity	Agriculture, sewage discharges in unsewered areas, unknown sources	Restore FWP use support	Water quality monitoring to support partner implementation	TBD
081609	Hemphill Creek	FWP, PCR	Fecal coliform	Source unknown	Restore PCR use support	Project Preparation	2015 – 2017
						Implementation	2017 – 2020
						Post Implementation Analysis	2020-2022
						Success story	2024
101601	Bayou Cocodrie	FWP, ONR	DO, turbidity	Agriculture	Restore use support	TBD	TBD
120103	Bayou Choctaw	FWP	DO	Agriculture, on-site treatment systems (septic systems and similar decentralized systems), introduction of non-native organisms (accidental or intentional)	Restore use support	TBD	TBD
120104	Bayou Grosse Tete	FWP	DO, nitrate-nitrite, total phosphorous	Agriculture, silviculture harvesting, introduction of non-native species (accidental or intentional)	Restore FWP use support	Baseline sampling	Complete
						Planning / WIP development	2020-2022
						Agricultural and OSDS BMP implementation	2022 - TBD
						Plan revision if required	TBD
						Use restoration	TBD
120111	Bayou Maringouin	FWP, PCR	DO, TDS, fecal coliform	Agriculture, silviculture harvesting, on-site treatment systems (septic systems and similar decentralized systems), package plant or other permitted small flows discharges	Restore FWP and PCR use support	Baseline sampling	Complete
						Planning / WIP development	2020 - 2022
						Agricultural and OSDS BMP implementation	2022 - TBD
						Plan revision if required	TBD
						Use restoration	TBD
120302	Bayou Folse	FWP, DWS	Color, DO, nitrate-nitrite, total phosphorous	Source unknown; forced drainage pumping, introduction of non-native species (accidental or intentional), package plant or other permitted small flows discharges, sanitary sewer overflows (collection system failures), silviculture harvesting	Restore DWS and FWP use support, maintain PCR and SCR use support	Baseline sampling	Complete
						WIP development	Complete
						Agricultural BMP implementation	2019 - TBD
						Education and outreach	2016 - TBD
						OSDS inspections / education	2020 – TBD
						Coordinate activities with other stakeholders /programs /BTNEP	2016 – TBD
						Plan revision if required	2024
						Use restoration	TBD

1.2.4 **Key Management Program Components and Organization of the Document**

USEPA has provided national guidance documents to states since 1990, when Congress allocated Section 319 funds to implement NPS Programs. These guidance documents have been updated, revised, and re-issued several times. The 1996 NPS Guidance provided a set of nine key elements that all states should strive to incorporate into their upgraded NPS Programs.

1. The State manages and implements NPS program efficiently and effectively, including necessary financial management.
2. The State periodically reviews and evaluates its NPS management program using environmental and functional measures of success, and revises its NPS assessment and its management program at least every five years.
3. The State uses a balanced approach that emphasizes both statewide NPS programs and on-the ground management of individual watersheds where waters are impaired and threatened.
4. The State program (a) abates known water quality impairments from nonpoint source pollution and (b) prevents significant threats to water quality from present and future activities.
5. The State program identifies waters and watersheds impaired by NPS pollution and also identify important unimpaired waters that are threatened or otherwise at risk. Further, the State establishes a process to progressively address these identified waters by conducting more detailed watershed assessments and developing watershed implementation plans and then by implementing the plans.
6. The State reviews, upgrades, and implements all program components required by section 319(b) of the Clean Water Act, and establishes flexible, targeted, and iterative approaches to achieve and maintain beneficial uses of water as expeditiously as practicable. The programs include:
    a) A combination of water quality-based and/or technology-based programs designed to achieve and maintain beneficial uses of water; and
    b) A combination of regulatory, non-regulatory, financial and technical assistance as needed to achieve and maintain beneficial uses of water as expeditiously as practicable.
7. The State identifies Federal lands and activities, which are not managed consistently with State NPS Program objectives. Where appropriate, the State seeks USEPA assistance to help resolve issues.
8. The State manages and implements NPS program efficiently and effectively, including necessary financial management.
9. The State periodically reviews and evaluates its NPS management program using environmental and functional measures of success, and revises its NPS assessment and its management program at least every five years.

The purpose of USEPA's nine key elements is to provide an objective, scientific basis for watershed planning and management. All appropriate water quality, watershed, and land use data available to LDEQ are utilized to describe watershed conditions and how improvement and/or protection can occur through a systematic approach to NPS implementation. Involvement of the local community in the watershed planning process is important since the NPS Program relies upon partnership and participation at the local level to guide

implementation and provide sustainability of local water resources. This document will address the required components listed above.

1.3 Overview of Louisiana's Approach

LDEQ will serve as the lead agency for the state's NPS Program, as authorized by Act 272 by the State Legislature in 1987. Currently, LDAF and LDEQ apply directly to USEPA for CWA Section 319 Funds. This dual role of NPS program implementation allows for a targeted approach for watershed management and a more efficient utilization of Section 319 funds. In watersheds where agricultural and/or forestry are predominant land-uses impacting designated uses, LDEQ and LDAF maintain a partnership to focus federal funds directly where Total Maximum Daily Loads (TMDLs) and WIPS have been completed. If USEPA and LDEQ decide to alter the current approach to allocation of Section 319 funds, these changes can be made through a letter to the funding agency. LDEQ also works with other partners and local stakeholders, state and federal agencies, and watershed groups to focus on water quality problems that exist in Louisiana.

1.4 Extent of the NPS Water Quality Problem

The 2022 IR shows that 231 out of 537 subsegments in Louisiana have NPS-related use impairments (see Table 3).

Table 3 NPS-Related Use Support Impairments

Use	Impaired Subsegments (count)
PCR	**117**
SCR	**15**
FWP	**159**
DWS	**7**
ONR	**16**
OYS	**15**
AGR	**0**
LAL	**2**

The primary suspected sources of impairment are OSDS runoff and agriculture (see Table 4).

Table 4 Suspected Sources of NPS-Related Use Impairments

Suspected Source	Impaired Subsegments (count)
On-Site Treatment Systems (Septic Systems And Similar Decentralized Systems)	**108**
Agriculture	**86**
Sewage Discharges In Unsewered Areas	**45**
Silviculture Harvesting	**35**
Sanitary Sewer Overflows (Collection System Failures)	**16**
Silviculture Activities	**14**
Rural (Residential Areas)	**9**
Livestock (Grazing Or Feeding Operations)	**8**
Marina/Boating Sanitary On-Vessel Discharges	**7**
Runoff From Forest/Grassland/Parkland	**7**
Crop Production (Non-Irrigated)	**5**
Crop Production (Irrigated)	**4**
Non-Point Source	**2**
Manure Runoff	**2**
Sand/Gravel/Rock Mining Or Quarries	**1**
Animal Feeding Operations (NPS)	**1**
Pesticide Application	**1**
Wet Weather Discharges (Non-Point Source)	**1**

Low DO, high bacteria, and turbidity are the primary causes for impairment (see Table 5).

Table 5 Causes of NPS-Related Use Impairments

Cause	Impaired Subsegments (count)
Dissolved Oxygen	**105**
Fecal Coliform	**92**
Turbidity	**60**
Enterococcus	**43**
Carbofuran	**25**
Nitrate/Nitrite (Nitrite + Nitrate As N)	**23**
Total Dissolved Solids (TDS)	**23**
Phosphorus, Total	**19**
Sulfate	**7**
Fipronil	**7**
Color	**7**
4,4'-Ddt	**5**
pH, Low	**4**

Chloride	**3**
Temperature	**2**
Toxaphene	**1**
Ph, High	**1**
Methyl Parathion	**1**
Methoxychlor	**1**
Atrazine	**1**
Ammonia, Total	**1**

Note: Counts based on NPS-related impairments as determined by suspected source.

Figures 3-7, below, depict the geographic extent of NPS-related impairments of FWP, PCR, SCR, OYS, and ONR uses. Of these, LDEQ prioritized a set of 38 for focus over the next five years, as seen in Figure 1.

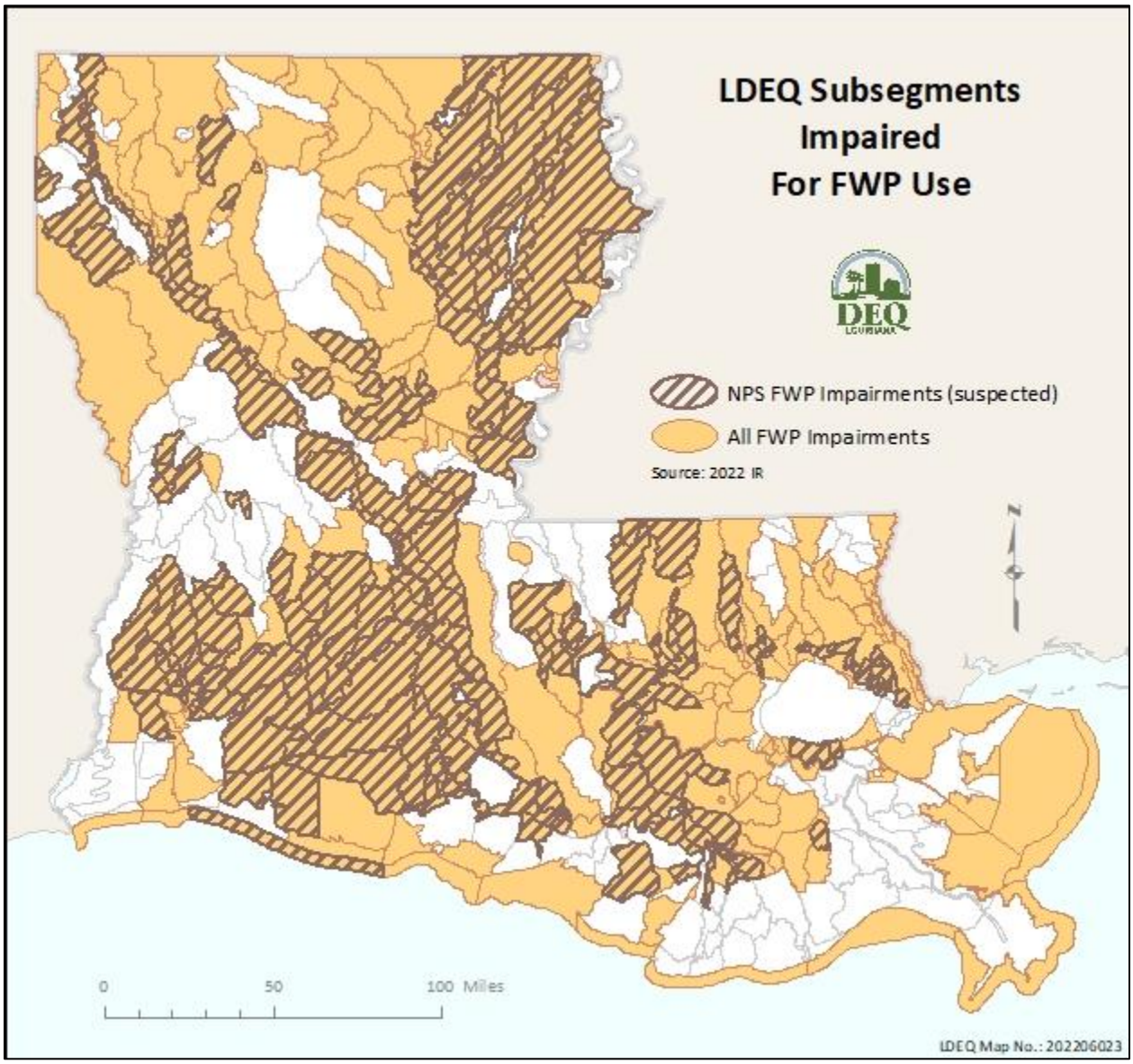

Figure 3 Subsegments with NPS-Related Impaired FWP Use

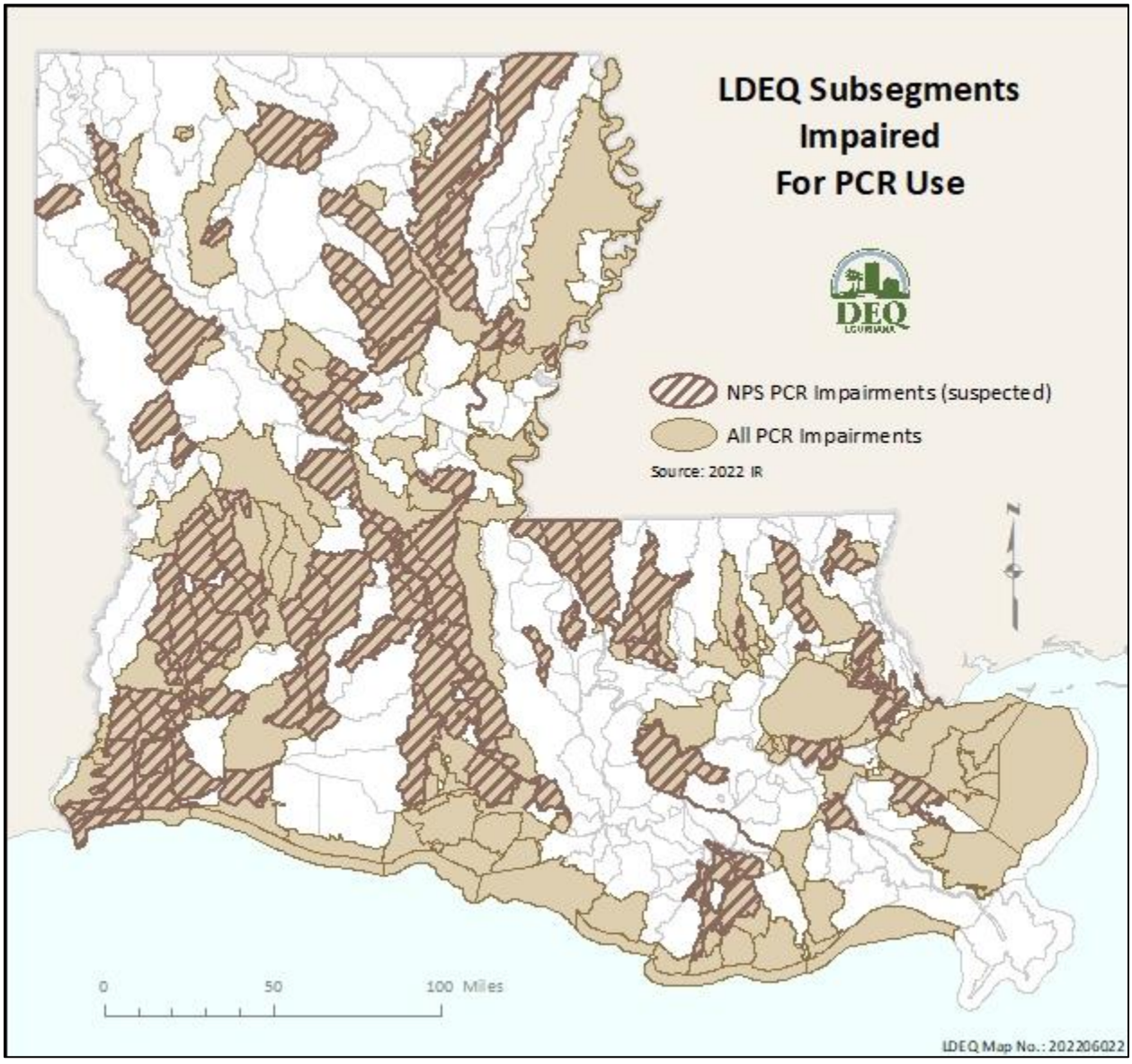

Figure 4 Subsegments with NPS-Related Impaired PCR Use

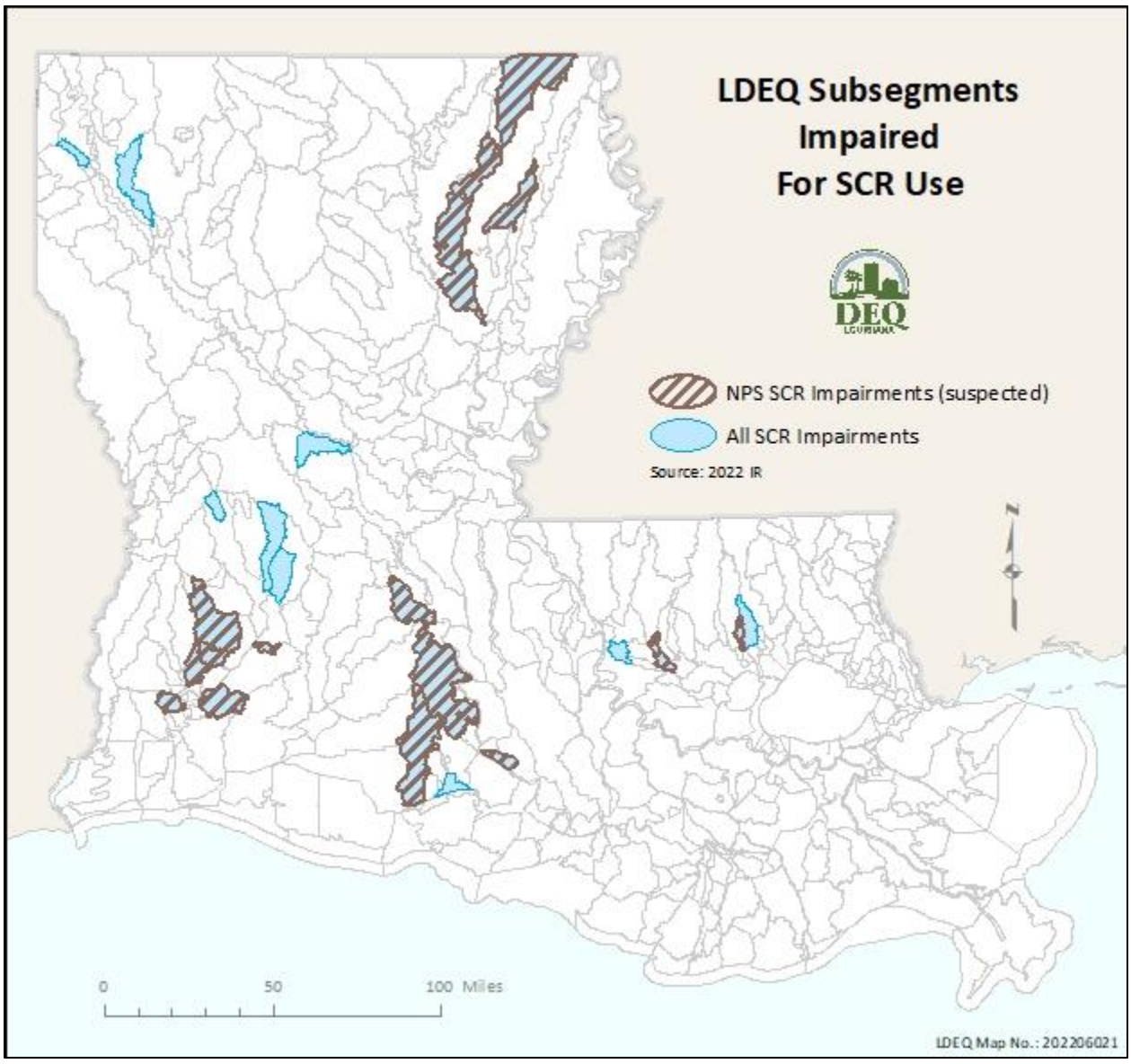

Figure 5 Subsegments with NPS-Related Impaired SCR Use

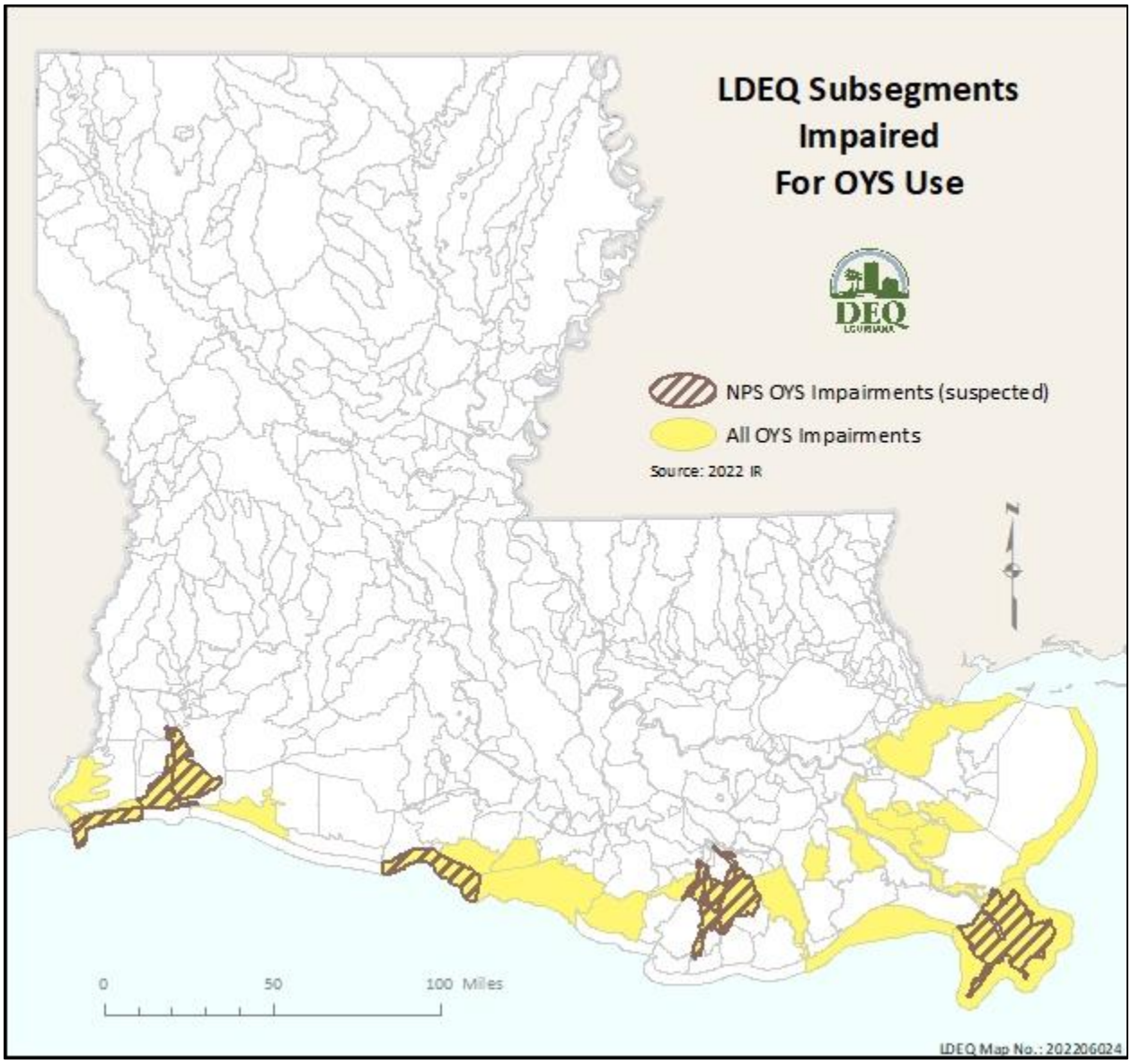

Figure 6 Subsegments with NPS-Related Impaired OYS Use

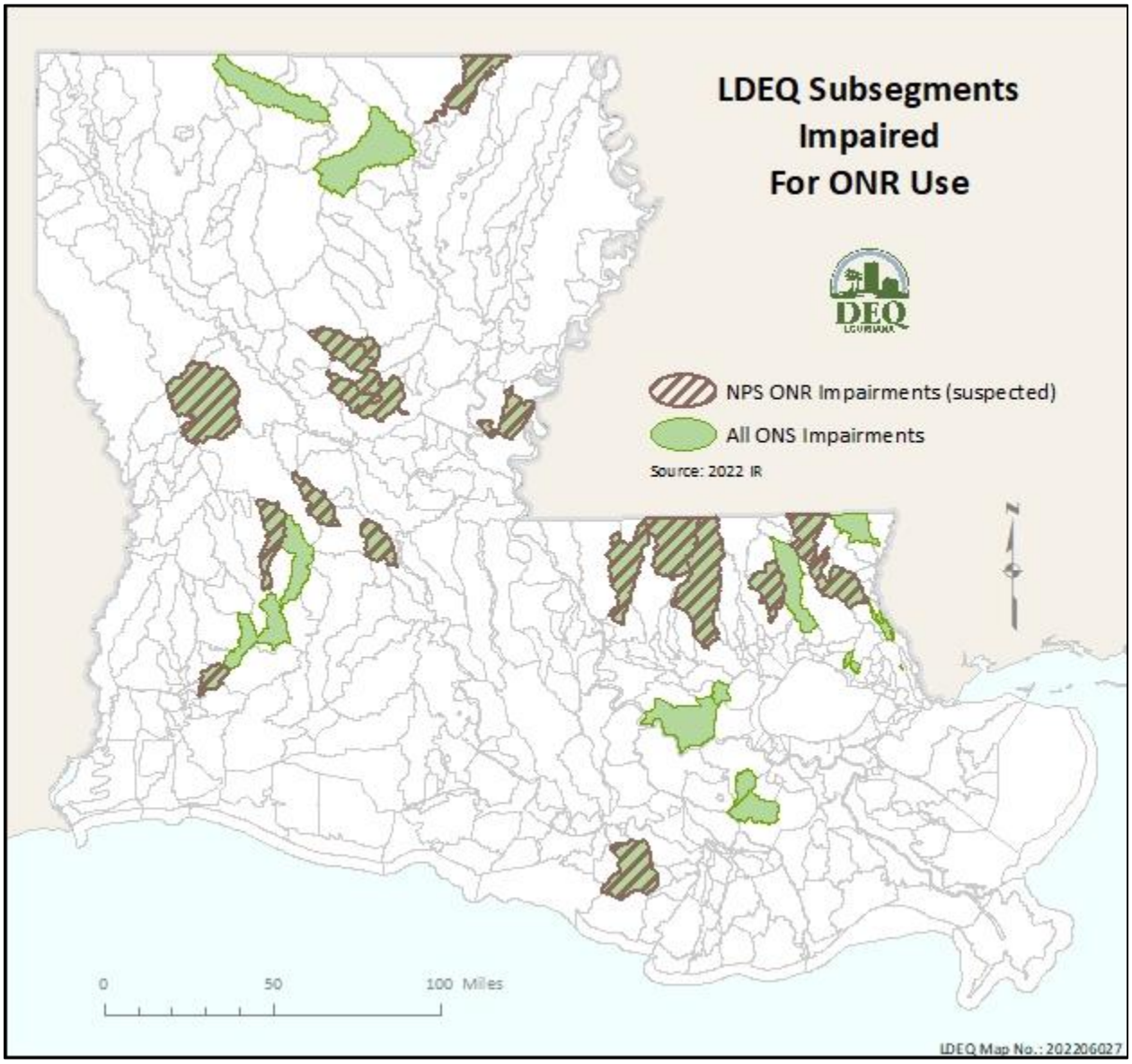

Figure 7 Subsegments with NPS-Related Impaired ONR Use

1.5 NPS Program Progress and Milestones

Progress in the program can be measured in multiple ways such as watershed plans, pollutants reduced, and success stories. Success stories offer an opportunity for Louisiana to highlight where restoration efforts have resulted in water quality improvements in NPS-impaired waterbodies. Developing these stories also allows EPA to track the number of NPS-impaired waterbodies that are partially or fully restored in Louisiana. Documenting success is a key measure in the effort to illustrate how NPS restoration efforts are improving water quality on a subsegment basis. This measure, known as WQ-10, is part of EPA's National Water Program Guidance and helps to direct the state in efforts to document results. Louisiana has developed 19 success stories since 2008. An additional success story, Comite River, is pending approval. Approved success stories can be found here: https://www.epa.gov/nps/nonpoint-source-success-stories-louisiana. See Figure 8 for subsegments with success stories.

Based on the 2018-2022 NPS Management Plan milestones (see Table 6), the Program has met or nearly met its goals for uses restored through water quality improvements, nitrogen, phosphorous, and sediment reduced, and reduced ULOs. The COVID-19 pandemic impacted implementation activity in priority watersheds. Hurricanes Laura, Delta, Zeta, and Ida, as well as flooding and other weather events, also impacted agricultural areas, and data for 2022 is not yet available for analysis. Load reductions are estimated using STEPL and compiled from annual reports and are reported by yearly average.

Table 6 Previous Statewide Achievements for Water Quality Improvement

Statewide Achievements for Water Quality Improvement	2018	2019	2020	2021	2022	Total Planned	Achieved
Number of waterbodies identified in LDEQ's Integrated Report as being primarily NPS impaired that are partially or fully restored (WQ-10)	**2**		**2**		**3**	**7**	**20 total**
Estimated annual reductions in tons of nitrogen from NPS to waterbodies (from Section 319 funded projects) (WQ-9a)	**12**	**12**	**12**	**12**	**15**	**63**	**11/year average**
Estimated annual reductions in tons of phosphorus from NPS to waterbodies (from Section 319 funded projects) (WQ-9b)	**2**	**2**	**2**	**3**	**5**	**14**	**2.4/year average**
Estimated annual reductions in tons of Sediment from NPS to Waterbodies (from Section 319 funded projects) (WQ-9c)	**1,000**	**1,000**	**1,000**	**1,200**	**1,200**	**5,400**	**742 tons/year average**
Progress in reducing unliquidated obligations (ULO)	**20%**	**20%**	**20%**	**20%**	**20%**	**100% timely closeout**	**Yes**

Each year, information is entered into EPA's Grant Reporting and Tracking System (GRTS) concerning estimated nutrient load reductions for current NPS projects, and project updates are entered twice yearly. WQ-10 success stories are also entered in GRTS.

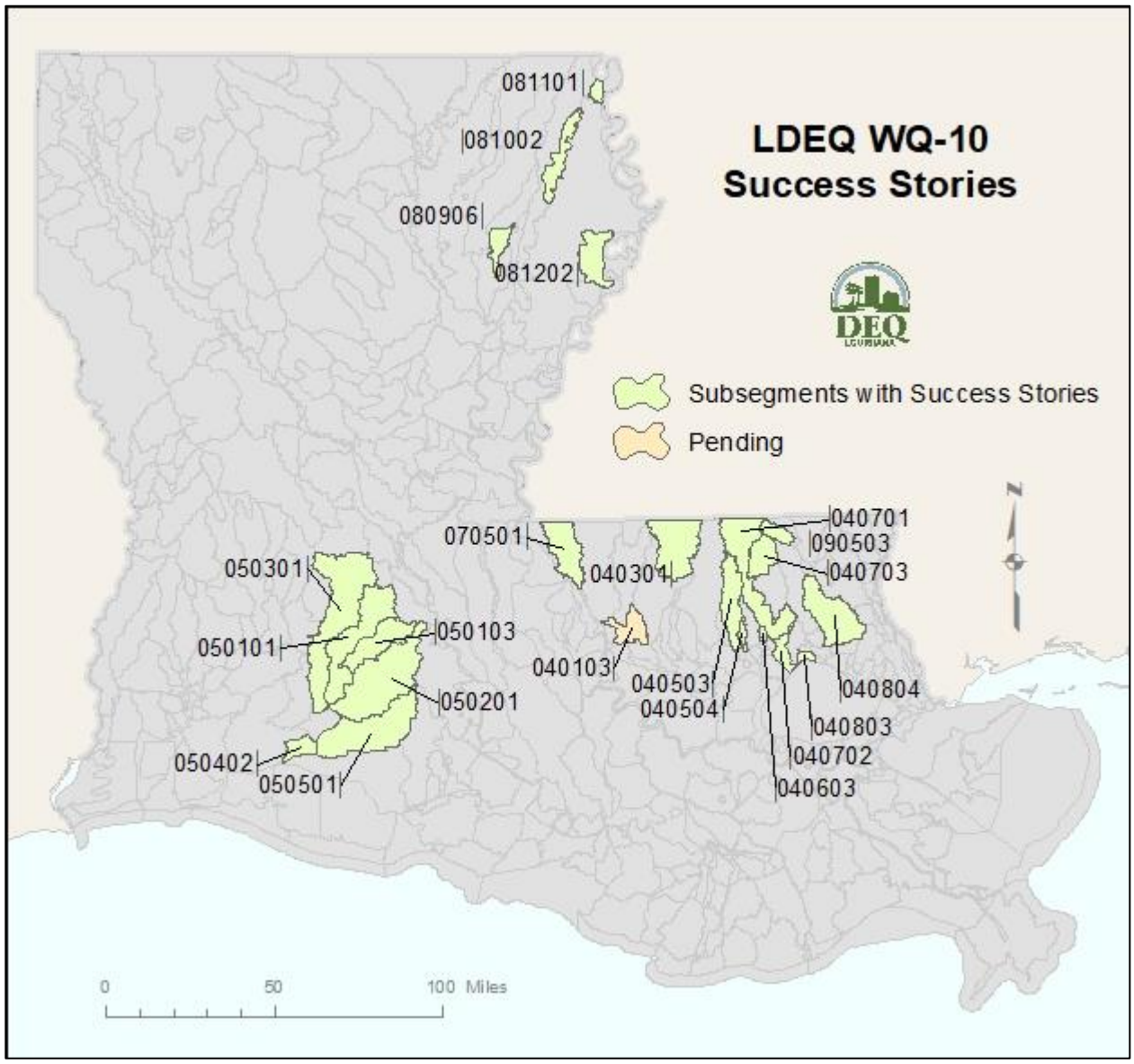

Figure 8 Subsegments with Success Stories since 2008

Program milestones for the 2023-2027 Management Plan are shown in Table 7.

Table 7 NPS Program Milestones

Statewide Milestones for Water Quality Improvement	2023	2024	2025	2026	2027
Number of waterbodies identified in LDEQ's Integrated Report as being primarily NPS impaired that are partially or fully restored (WQ-10)	**1**		**2**		**2**
Estimated annual reductions in tons of nitrogen from NPS to waterbodies (from Section 319 funded projects) (WQ-9a)	**12**	**12**	**12**	**12**	**12**
Estimated annual reductions in tons of phosphorus from NPS to waterbodies (from Section 319 funded projects) (WQ-9b	**3**	**3**	**3**	**3**	**3**
Estimated annual reductions in tons of Sediment from NPS to Waterbodies (from Section 319 funded projects) (WQ-9c)	**1,000**	**1,000**	**1,000**	**1,000**	**1,000**
Progress in reducing unliquidated obligations (ULO)	**20%**	**20%**	**20%**	**20%**	**20%**

2. ASSESSMENT OF NPS POLLUTION AND PRIORITIZATION

2.1 Background

Since the CWA was approved by Congress, significant progress has been made in improving the nation's water quality. A brief description of some of the actions of Congress to protect and restore the nation's drinking waters and recreational waters have been included here. In 1987, Congress amended the CWA to focus greater national efforts on managing NPS pollution. In the Water Quality Act of 1987, Congress amended Section 101, "Declaration of Goals and Policy," to add the following fundamental principle: It is the national policy that programs for the control of nonpoint sources of pollution be developed and implemented in an expeditious manner so as to enable the goals of this Act to be met through the control of both point and NPS pollution.

Congress enacted Section 319 of the CWA, which established a national program to control NPS water pollution. Under Section 319, States address NPS pollution by assessing NPS source pollution problems and causes in the state, adopting management programs to control NPS pollution, and implement the management program. Section 319 authorized USEPA to issue grants to states to assist them in implementing those management programs or portions of management programs, which had been approved by USEPA (USEPA, 1993).

In response to the federal law, the State of Louisiana passed R.S. 30:2011, signed by the Governor in 1987 as Act 272. This law directed LDEQ, designated as Lead Agency for the NPS program, to develop and implement a NPS Management Program. The Department, as the state agency officially charged with responsibility to protect and preserve quality of waters of the State, has developed the NPS Management Program. The NPS Management Program was developed in coordination with appropriate state agencies including, but not limited to, the Department of Natural Resources, the Department of Wildlife and Fisheries, the Department of Agriculture and Forestry, and the State Soil and Water Conservation Committee in those areas pertaining to their respective jurisdictions (La. R.S. 30:20). As a result, the State of Louisiana Water Quality Management Plan, Volume 6, Part A, Nonpoint Source Pollution Assessment Report was completed in 1993. Since that time, as part of the biannual integrated report, LDEQ continues to identify subsegments whose designated uses are impaired by NPS pollution.

Through the biannual water quality assessment, LDEQ determines which waterbodies have designated uses impaired by NPS pollution. Designated uses include:

- PCR – Primary Contact Recreation (swimming)
- SCR – Secondary Contact Recreation (boating)
- FWP – Fish and Wildlife Propagation (fishing)
- DWS – Drinking Water Supply
- ONR – Outstanding Natural Resource
- OYS – Oyster Propagation
- AGR – Agriculture
- LAL – Limited Aquatic Life and Wildlife

Over 600 ambient water quality monitoring sites have been established since 1958 but not all sites are currently in use. In 1998, the department established a four-year rotating monitoring program in order to expand the coverage of its monitoring efforts. LDEQ collects ambient surface water data at approximately 125 sites across the state each month. In addition, 22 sites on 16 waterbodies are monitored every month of every year as long-term trend sites in the ambient monitoring program. In addition to the ambient program, baseline water quality data is collected by the NPS program for a more detailed assessment of sources, causes, and estimated loading within targeted watersheds.

The NPS monitoring program has been designed to meet the following objectives:

1. Establish water quality conditions for each site for the parameters of interest;
2. Identify the site(s) with the highest concentrations of bacteria, sediment and nutrients;
3. Determine if there is a geographical or temporal component to the impairment; and
4. Quantify water quality changes over time.

2.2 Nonpoint Source Monitoring Program

To fully address Louisiana's NPS pollution issue, a vigorous monitoring program involving multiple partners has been adopted.

2.2.1 **Assessment Monitoring**

LDEQ collects surface water quality data in its Ambient Water Quality Monitoring Program as well as for other projects in waterbodies across the state. Ambient water quality data, as well as other water project data, collected by LDEQ is available by accessing the LEAU Web Portal. This water quality data is used for establishing water quality criteria or standards, assessment of conditions, and development of TMDLs. TMDLs are one means of establishing water quality discharge permit limits and Nonpoint Source Pollution reduction recommendations for the protection and improvement of surface water quality in Louisiana.

The Water Surveys Section performs intensive surveys on impaired waterbodies of Louisiana, which are listed on LDEQ's Water Quality Inventory: Integrated Report (305(b)/303(d)). During a survey on a watershed, a wide range of biological, physical, and chemical data is collected by environmental scientists and evaluated by LDEQ's modelers. Environmental scientists employ several methods of collecting data such as:

- water quality (*in situ* measurements and sample collection)
- stream geometry
- time-of-travel studies
- discharges
- stream flow

Assessment of data may eventually result in revisions in the water quality standards set or a

delisting of a waterbody deemed to be meeting current standards. The Water Surveys Section collaborates with LDEQ's Nonpoint Source Section to help plan and execute several water quality projects through field data assessment and sample collection. Water Surveys is tasked with reconnaissance of accessible and representative sites for each project, as well as adhering to monthly or bi-monthly water sample and flow measurement collection schedules. Their efforts provide a qualitative and quantitative assessment of a waterbody and help identify potential "hotspots" for nonpoint source pollution.

The LDEQ NPS program and its partners (LDAF, Barataria Terrebonne National Estuary Program (BTNEP), Capital Resource Conservation District (CRC&D), Bayou Vermilion District (BVD), and others), conduct water quality sampling to evaluate water quality conditions. This baseline monitoring data will be analyzed to determine sites with highest NPS pollutant concentrations and thus drainage areas contributing more loading. Long-term monitoring data will be analyzed to identify changes in water quality post-implementation. LDEQ will analyze sampling results quarterly and share with partners, along with any maps generated using this data. Monitoring data and QC results will be analyzed to identify any issues with completeness, precision, and accuracy as per the QAPP document.

The Water Planning and Assessment Division's Aquifer Sampling and Assessment Program, or the ASSET Program, is an ambient monitoring program established to determine and monitor the quality of ground water in Louisiana. It is partially funded as a Clean Water Act activity. Approximately 200 water wells are included in a statewide well grid. This number varies over time due to owner participation, which is strictly voluntary, and due to operational status of each well. The water wells are located in 14 of Louisiana's major aquifers and aquifer systems and are sampled by LDEQ at no cost to the well owner. The sampling process is designed so that the fourteen aquifers and aquifer systems are monitored on a rotating basis, within a three-year period so that each well is monitored every three years.

2.2.2 Baseline Monitoring

The purpose of baseline sampling is to determine the location of nonpoint sources and the amount of loading from those sources. In addition to water quality monitoring, discharge measurements are taken to assist in load estimation within the watershed. Baseline monitoring steps are as follows:

1. NPS identifies priority watershed
2. Within priority watershed a monitoring network is developed to determine how much loading is occurring and where it is located in the watershed.
3. A sampling plan, under an Umbrella Quality Assurance Project Plan (QAPP), is drafted to fulfill QAPP requirements, before sampling.
4. Baseline monitoring is conducted bi-monthly to capture a variety of environmental conditions, including rainfall events.
5. On baseline monitoring completion, adjust monitoring network as needed.

2.2.3 Long-term Monitoring

1. Once baseline monitoring data has been analyzed sites will be evaluated and those with highest NPS pollutant concentrations will continue to be monitored throughout the duration of the project.
2. This long-term monitoring data will be analyzed to identify changes in water quality post-implementation.

2.2.4 Post Implementation Monitoring

1. Monitoring occurs for one year following implementation. Data will be reviewed to monitor water quality changes in the watershed.
2. If the water quality improves and use support is restored, a success story is drafted for EPA's review and approval. If water quality does not improve, additional implementation may be necessary.

2.3 Assessment Strategies and Actions to Address Nonpoint Source Program Goals

LDEQ's NPS strategy is based on information in the water quality assessment as well as project monitoring. The following steps encompass the assessment activities as it relates to nonpoint source pollution.

- **Integrated Report -** The State identifies NPS impaired waters through the Ambient Water Quality Monitoring Network, Water Quality Assessments, and the state's IR. Within the IR is the 305(b) list, which is the basis for prioritizing watersheds where NPS implementation will occur. Ambient data collected for the assessment is uploaded to WQX and is available to the public.
    - Use Support Status
    - Suspected nonpoint sources of pollution
    - Suspected causes of pollution
    - TMDL status

- **NPS Project Monitoring -** Monitoring data is evaluated periodically to track changes in water quality. This data is uploaded to WQX and is available to the public.
    - Baseline Monitoring Data is used to assess load concentrations, potential sources, geographic components, water quality changes, and probable source areas
    - Long term monitoring assesses the effectiveness of implementation
    - Post implementation monitoring assesses water quality trends expected to continue after implementation

2.4 NPS Program Assessment Activities

Section 319(b) (2) (c) of the CWA required NPS Management Plans to contain a set of milestones towards water quality improvement. Program milestones for the 2023-2027

Management Plan are shown in Table 7. These milestones provide tasks and timelines to achieve the goals:

- Evaluate the Integrated Report every two years to identify status changes;
- Identify watersheds where use support is restored following NPS activities;
- Prepare success stories in watersheds where one or more uses have been restored; and
- Update priority watershed list as needed.

3. NONPOINT SOURCE PROGRAM PLANNING

Planning components of the NPS Program include prioritization of watersheds for implementation, partnerships, data collection and modeling, use of TMDLs, development of watershed implementation plans (WIPs), and evaluation and reporting of progress.

3.1 Prioritization of Louisiana's NPS Management Program

Prioritization of geographic areas for NPS mitigation activity is based on a process that utilizes a set of objective criteria and stakeholder input. Prioritization is based on state watershed management units called subsegments, which capture drainage areas, and on larger regional or statewide bases for implementing other complementary statewide programs such as the CNPCP. See Section 5 for more information on statewide programs.

For prioritization of subsegments for implementation, the following steps are used:

Step 1: Identify watersheds currently in implementation under the previous priority list. Any watersheds that have restored use support can be removed from the previous priority list.
Step 2: Identify suspected NPS-related use impairments from the 2022 IR. Exclude any non-NPS-related impairments.
Step 3: Determine causes of those impairments.
Step 4: Identify causes with appropriate numeric criteria. For DO, this implies criteria set based on a use attainability analysis (UAA). UAAs are important to the Program to determine appropriate standards to target for load reductions.
Step 5: Identify impaired watersheds with a TMDL.
Step 6: Exclude watersheds in which flow direction/load cannot be effectively modeled.
Step 7: Consult with partners including TMDL/New Vision program.
Step 8: Identify watersheds with bacteriological impairments.

Note that this process, while objective, allows for some flexibility in including or excluding subsegments from prioritization. Strong stakeholder interest, organized watershed groups with implementation momentum toward maintaining water quality, and other factors may be considered. Priority watersheds are listed in Table 1 and displayed in Figure 1.

3.2 Nonpoint Source Working Groups

State level agreements have been developed and utilized to strengthen assistance and participation in the NPS Management Program. These agreements have expanded the level of cooperation with agencies who partner with LDEQ on water quality data collection and use of BMPs. These partnerships have also strengthened the level of cooperation with USDA-NRCS and FSA on Farm Bill funds. LDEQ has continued to work with LDWF, LDOTD, LDNR and other state agencies to focus on water quality problems that exist in Louisiana.

Local watershed groups are key to successful water quality restoration. When prioritizing

watersheds, input from local groups is solicited and considered. Local partners help identify sources of runoff and coordinate activities. In watersheds where work is ongoing, local partners may perform NPS monitoring, provide information on watershed characteristics, changes within the watershed, and provide outreach. LDEQ NPS currently works with the following groups, and continues to search for new local partners.

Barataria-Terrebonne National Estuary Program (BTNEP)

The Barataria-Terrebonne Estuary lies between the Atchafalaya and Mississippi Rivers in southeast Louisiana, encompassing 4.2 million acres in all or parts of 16 parishes. BTNEP, which has worked in the area for more than 30 years, is a long-time partner with LDEQ and is currently working with the LDEQ NPS Program in the Bayou Folse watershed (Subsegment 120302). BTNEP itself is a partnership of "government, businesses, scientists, conservation organizations, agricultural interests, and individuals" (https://btnep.org/), and serves as a valuable local resource and liaison. See Section 8 for more specific information on BTNEP's role as an NPS partner agency.

Bayou Vermilion District (BVD)

The Lafayette Parish BVD has worked to beautify, conserve and manage sites along the Vermilion ensuring the preservation and enhancement of the natural and cultural resources for the citizens of Lafayette Parish. BVD's purpose is to improve the water quality and the aesthetics of the Bayou Vermilion within the Parish of Lafayette in an effort to promote the bayou as a recreational and cultural asset; to create and control a new type of viable economic development adjacent to Bayou Vermilion so as to provide a diversified economic base for the City and Parish of Lafayette; and to do any and all other acts which would enhance the general condition of the Bayou Vermilion. BVD has implemented an inspection program in conjunction with LDEQ and EPA in Coulee Mine (HUC-12 080801030106) that is intended to explain how malfunctioning OSDSs can degrade water quality. So far, BVD has been able to reach many homeowners and teach them how to operate and maintain their OSDS. Now that funding is available for pump-outs and total system repair or replacement, they have begun the process of working together with Lafayette Consolidated Government to establish a replacement program for qualified homeowners based on the Housing and Federal Programs Division's current financial assistance guidelines.

Capital Resource Conservation & Development Council (Capital RC&D)

Capital RC&D has partnered with LDEQ for more than ten years. They are based in Hammond, and have worked in numerous watersheds in southeast Louisiana. Capital RC&D typically targets subsegments that are listed as impaired for their PCR or SCR designated use due to improperly functioning on-site disposal systems. They then meet with local authorities to obtain permission to inspect the systems and educate homeowners about the need to maintain their system. Progress of inspections is tracked and water quality in the subsegment is monitored to determine improvement. This process has resulted in Success Stories in the Capital RC&D area.

Louisiana Rural Water Association (LRWA)

The Louisiana Rural Water Association (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 continue implementation of an OSDS inspections program, which includes conducting individual OSDS inspections, distribution of educational material demonstrating maintenance of OSDS, and educational workshops for homeowners as needed. In these inspections and workshops, homeowners are educated and instructed on how their systems work, how to conduct a thorough inspection, and how to maintain their system (through repairs, upgrades and pump-outs as needed).

Soil and Water Conservation Districts (SWCDs)

SWCDs can apply through LDAF for incremental Section 319 grant funds. Local SWCDs partner with agencies to implement educational outreach programs, cost-share and technical assistance and also demonstration farms. They provide support directly to farmers on conservation plans that include BMPs recommended to reduce pollutants entering receiving waterbodies. SWCD staff evaluates whether implementation programs have been successfully implemented and reports on success of these projects to LDEQ and the NPS Interagency Committee.

Louisiana Department of Natural Resources - Office of Coastal Management (LDNR-OCM)

LDNR-OCM has continued to partner with LDEQ's NPS Program on the development and implementation of the Coastal Nonpoint Pollution Control Program (CNPCP) in coastal watersheds of Louisiana. The CNPCP was developed in partnership with other governmental and non-governmental agencies to address five major source categories of nonpoint pollution agriculture, forestry, urban, marinas and recreational boating, and hydromodification. The plan was federally approved in 2022 and published in the federal register for public comment. More information about the program can be found at: http://www.dnr.louisiana.gov/index.cfm/page/109 and the tentative federal approval as published in the federal register can be found here: https://www.federalregister.gov/public-inspection/2022-01586/coastal-nonpoint-pollution-control-program-proposal-to-find-that-louisiana-has-satisfied-all.

Louisiana Department of Agriculture and Forestry (LDAF)

LDAF houses the Office of Soil and Water Conservation (OSWC), the Office of Forestry, and Agricultural & Environmental Sciences (AES), all of which are important partners in watershed implementation. The OSWC participates with local SWCDs to ensure they are sufficiently funded to implement BMPs and educational outreach programs identified for the watershed or basin. AES monitors water quality to determine if there are pesticide problems in

the waterbody. They cooperate with LDEQ on BMPs and educational programs for pesticides associated with agricultural production. The LOF implements educational programs and statewide BMP surveys to determine if forestry BMPs have been implemented.

Louisiana Department of Health (LDH)

LDH is responsible for home sewerage systems and will be included in educational programs and demonstration projects. The Onsite Wastewater Program's mission is to prevent untreated or improperly treated sewage from being discharged into the environment and thus to protect the health of the citizens of Louisiana. The program licenses and regulates onsite wastewater treatment system installers, haulers, sub-manufacturers, and manufacturers of wastewater systems in this state. Sanitarians located in the health units of each parish serve to inform, advise, and operate a permitting system with regard to onsite sewage treatment. The educational video and brochure, which describe the types of home sewerage systems approved in Louisiana, were developed in cooperation with LDH.

LSU AgCenter

LSU AgCenter partners with farmers, landowners and the school system to provide information to the public on NPS pollution, watershed protection and BMPs. Their parish offices provide a location for dissemination of educational materials and also for a local contact with people who live in watersheds prioritized for NPS implementation. Their expertise and experience form a critical link with the local community and utilized in all aspects of watershed education. They also provide educational components for Master Farmer Program and manage demonstration farms where BMPs have been implemented and are being evaluated for their effectiveness in reducing NPS loads.

3.3 Watershed Modeling

Soil and Water Assessment Tool (SWAT)

"The Soil & Water Assessment Tool is a small watershed to river basin-scale model used to simulate the quality and quantity of surface and ground water and predict the environmental impact of land use, land management practices, and climate change. SWAT is widely used in assessing soil erosion prevention and control, non-point source pollution control and regional management in watersheds" (TAMU, 2021). LDEQ employs the tool, when appropriate, to determine areas in the watershed where BMPs need to be implemented and assist in delineation of subwatersheds within the subsegment.

Spreadsheet Tool for Estimating Pollutant Loads (STEPL)

The Spreadsheet Tool for Estimating Pollutant Load (STEPL) is used to estimate nutrient and sediment loads from different land uses, as well as the load reductions associated with specific BMPs (USEPA, 2020). LDEQ uses STEPL primarily during watershed implementation planning and reporting via GRTS. More information on this model can be found at:

https://www.epa.gov/nps/spreadsheet-tool-estimating-pollutant-loads-stepl.

3.4 Total Maximum Daily Loads and Alternative Plans

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. LDEQ's TMDL Program has a long history of coordinating with the Section 319 NPS Pollution Program. Prior to 2016, the TMDL program developed hundreds of TMDLs, providing targets for the NPS Pollution Program. A TMDL is a pollution budget for a specific waterbody (river, lake, stream, etc.) and pollutant combination. It is the maximum amount of a pollutant (sum of allowable pollutant loads from point and nonpoint sources) that can be released into a waterbody without causing the waterbody to become impaired for a designated use and/or violate state water quality standards. A TMDL must include point source loads (wasteload allocations), nonpoint source loads (load allocations) and a margin of safety to account for any uncertainties in the scientific methods used to derive the TMDL. LDEQ began defining allocations for future growth in more recent TMDLs. During watershed planning, LDEQ NPS uses the load allocation or nonpoint load reduction percentage from a TMDL as the target for supporting the designated uses or achieving the water quality standards for a waterbody.

In 2013, the states and EPA initiated "A Long-Term Vision for Assessment, Restoration, and Protection under the CWA Section 303(d) Program". The primary goals of the long-term vision include prioritization, assessment, protection, alternatives, engagement, and integration. Restoration and protection objectives were 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. LDEQ has referred to this approach as the "New vision" or "Vision" and considers it to be an evolving approach to the TMDL program. This first round of the New Vision was planned for 2016 through 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.

LDEQ is in the process of developing TMDL alternative plans (watershed-based plans) for six priority watersheds identified for round one of this New Vision in the 2016 IR. The priority watersheds include Tunica Bayou (070505), Bayou Sara (070501), Yellow Water River (040504), Natalbany River (040503, 040507), Blind River (040401, 040403), and New River (040404).

The final restoration plan for Tunica Bayou was accepted by EPA on October 5th, 2020. Monitoring in the Yellow Water River and Natalbany River watersheds has been completed,

with monitoring continuing at one site in the Natalbany River watershed. Inspection \ investigation of point and nonpoint sources as well as outreach and engagement activities are ongoing for both watersheds. Inspections of point sources in the Bayou Sara watershed were completed in 2017 and 2018. Draft plans for Yellow Water River, Natalbany River, and Bayou Sara are currently in the development phases. LDEQ began monitoring activities in the New River watershed in July 2021. Monitoring activities are expected to commence in the Blind River watershed in February 2022. Outreach and engagement activities in both the New River and Blind River watersheds are expected to begin in early to mid-2022.

LDEQ is in the process of planning and prioritizing watersheds for round two of the "New Vision". Round two will run from 2023 to 2032. Whereas LDEQ planned to utilize TMDL alternatives exclusively for the round one priority watersheds, LDEQ is planning new and revised TMDLs as well as TMDL alternatives for round two. Throughout this process, the TMDL program will maintain the long-term connection between the Section 319 NPS program and the CWA 303(d) programs. The TMDL program 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.

3.5 Watershed Implementation Plans

WIPs, or watershed implementation plans, are developed to describe water quality problems and potential solutions to reduce and/or prevent NPS pollution and restore designated uses (such as contact recreation and fish and wildlife propagation) in a watershed. United States Environmental Protection Agency (USEPA) issued guidance to States in 2004 of nine key elements of an acceptable WIP, which is required for utilization of incremental or project funds provided to states through Section 319(h) of the CWA. These nine key elements include:

1) Identify causes and sources of NPS pollution that will need to be controlled in the watershed to improve water quality and restore designated uses;
2) Estimate load reductions expected from management measures (BMPs) implemented to reduce NPS pollutants;
3) Describe NPS management measures (BMPs) necessary to achieve load reductions;
4) Estimate the amount of technical and financial assistance necessary to achieve management measure implementation in the watershed;
5) Describe the type of educational-outreach activities necessary to reduce NPS pollution and improve water quality in the watershed;
6) Include a schedule for implementing NPS management measures identified in the WIP;
7) Describe interim, measurable milestones for determining effectiveness of the WIP in reducing NPS pollution and improving water quality;
8) Include a set of criteria that can be utilized to determine whether NPS load reductions are being achieved and water quality is being restored (i.e. meeting water quality standards); and
9) Describe the monitoring program that will be utilized to evaluate progress in reducing NPS pollution and improving water quality.

Table 2 shows WIP status for priority watersheds.

3.6 Planning Activities to Achieve NPS Program Goals

Section 319(b) (2) (c) of the CWA required NPS Management Plans to contain a set of milestones for program implementation. These tasks and timelines will support milestones:

- Continue to evaluate, on an annual basis, watersheds where LDEQ has partnered with NRCS and other cooperating federal, state and local agencies on statewide and watershed priorities (2023-2027);

- Continue to evaluate on an annual basis progress that has been made on coordination of federal and state agencies and local watershed groups on prioritization of statewide educational programs and watershed implementation projects in the state (2023-2027);

- Continue to partner with other agencies on improving statewide educational and outreach activities in areas of the state with water quality problems associated with agriculture (2023-2027);

- Continue to report annually on the number of waterbodies restored due to implementation of BMPs to reduce/control agricultural NPS pollutants (2023-2027);

- Evaluate water quality improvement on an annual basis in priority watersheds to determine if water quality is improving as a result of increased education and implementation of BMPs (2023-2027);

- Utilize the ambient monitoring program combined with in-stream surveys to determine where program activities have resulted in water quality improvements (2023-2027);

- Determine if additional steps are necessary to restore designated uses to waterbodies identified as having use support impairments due to nonpoint sources in the 305(b) report, and whether back-up authority is necessary to achieve BMP implementation and reduce NPS pollution in state waterbodies (2023-2027); and,
- Remove use support impairments caused by nonpoint sources identified in the 305(b) report as a result of cooperative efforts on agricultural BMPs (2023-2027).

4. NONPOINT SOURCE PROGRAM EDUCATION

4.1 Introduction

LDEQ's NPS Outreach Program seeks to educate the public on the effect's citizens, of all ages, throughout Louisiana, have on the state's waters. In addition, the program strives to increase the community's involvement in watershed protection activities through awareness and education, while changing mindsets. The long-term objectives are: increase awareness concerning impaired waterbodies in the state; increase awareness about our personal roles living in a watershed and the cumulative effect our day-to-day activities have on water quality; and encourage behaviors that will keep pollutants out of local streams and the ocean. An awareness campaign entitled “Be The Solu+ion” informs citizens of activities they can perform to reduce runoff pollution.

4.2 OSDS

Since maintenance is one of the major issues that needs to be addressed to reduce water quality problems associated with home sewerage systems, one of the most important steps is continued education of the homeowner about how his/her home individual system operates. Many homeowners may not be familiar with how to maintain their home sewerage system for maximum efficiency. LDEQ and LDH have partnered in several parishes to utilize Section 319 funds to hire additional inspectors to inspect onsite systems. These partnerships have been effective in reducing NPS problems from home sewerage systems. LDEQ has partnered with LDH on statewide educational programs aimed at reducing fecal coliform bacteria from home sewerage systems. An educational brochure and video were produced that focused on the types of home sewerage systems that were approved for use in Louisiana. In that material, each type of system was explained, along with maintenance requirements recommended to keep the system functioning properly. A maintenance checklist was also included so that the homeowner could keep a record of the steps that had been taken to repair or clean the system. Multimedia educational materials are produced and distributed across the state through parish offices. These materials are important components for the statewide educational program on home sewerage systems.

4.3 Master Farmer

The Louisiana Master Farmer Program focuses on helping agricultural producers voluntarily address environmental concerns as well as helping them enhance the production and resource management skills they need for the continued sustainability of Louisiana agriculture. The program helps producers across a wide range of agricultural and natural resource enterprises by teaching them more about environmental stewardship, conservation-based production techniques and resource management. The program uses a comprehensive approach that includes classroom instruction, observation of LSU AgCenter research-based BMPs and implementation of a comprehensive conservation plan. It also involves a voluntary producer certification process.

4.4 Source Water Protection Education

The Safe Drinking Water Act (SDWA) Amendments of 1996 emphasize pollution prevention to ensure safe drinking water, focusing on the protection of the water sources. In order to achieve such protection, all states are required to develop Source Water Assessment Programs. Once completed, these assessments can be used to focus prevention resources on drinking water protection. LDH entered into an interagency agreement with LDEQ to develop and implement the State's Source Water Assessment Program. The program is funded by a set-aside of the Federal Drinking Water State Revolving Fund Grant awarded to LDH.

The Source Water Assessment Program will result in an evaluation of the source water that provides drinking water to each public water supply system in Louisiana. This evaluation will determine the degree to which a public water supply is protected, or at risk from, contamination. Once completed, the assessment results are used to assist local communities in implementing protection measures such as contingency planning, implementation of best management practices, adoption of local ordinances, and public education.

4.5 Storm Drain Marking

The Storm Drain Marking Program is an established method of involving the public and increasing community awareness concerning NPS pollution and the hazards of dumping pollutants into storm drains. Stormwater that drains into the watershed is a pollution source that is sometimes overlooked; therefore storm drain marking is an effective method to increase community knowledge and understanding as it pertains to NPS pollution. Storm drain marking is an educational, interactive tool to engage citizens of all ages in community involvement for watershed pollution prevention. The goal is to dispel the idea that all stormwater is treated before it enters a watershed and to create public awareness in an effort to reduce NPS pollution from entering our local waterbodies. Storm drain marking helps build community and mobilize grass roots environmental protection. The NPS Program can supply organizations with storm drain markers.

4.6 Enviroschool

The Enviroschool program at LDEQ is the environmental education outreach arm of the Agency that provides training for communities, businesses, and other organizations on a number of regulatory topics. The goal of this program is for the attendees to become informed about the environmental regulatory process and to maintain and improve environmental compliance. These workshops are free and open to the public. The NPS Pollution program presents unit information in these seminars.

4.7 Enviroscape

The Enviroscape Model effectively communicates our shared responsibility for the environment, specifically water quality to people of all ages. The NPS model focuses on problems caused by NPS pollution and how some of those problems can be mitigated. This

model has been very effective in engaging young learners, as it creates a real sense of understanding through experience and hands-on demonstration. By being able to see "pollution" move around in real time and discuss solutions, these complex issues can be simplified and made easier to understand. Since the onset of the COVID-19 pandemic, many outreach events have been postponed and others cancelled. To continue our commitment to education and outreach, LDEQ-NPS created an Enviroscape Model Video, so that students, anywhere, anytime, are able to learn about NPS pollution, and its effects on our everyday lives. In conjunction with the video, an exam and answer key have been produced to test your knowledge on material learned, and can be viewed here: https://www.youtube.com/watch?v=2WHW3F5qG18&feature=youtu.be .

4.8 School Outings

LDEQ and partners work 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. These events are geared to people of all ages, and activities include hands-on demonstrations (often using our Enviroscape and Walnut Bayou models) as well as lectures. The Enviroscape model allows for students to see how water moves through an array of landscapes, from urban to agricultural, illustrating the interconnectedness of our waterways and the transportation of NPS pollution. Walnut Bayou is a model developed by a LDEQ Senior Scientist; 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.

4.9 Outreach Campaign

LDEQ's NPS outreach program educates the public on how to protect Louisiana's waters. The program features "Louie" a talking crawfish who reminds citizens not to litter, only use pesticides, herbicides needed and picking up pet waste among other strategies/suggestions. This campaign has been featured in advertisements in movie theaters, television, and radio as well as distributed through promotional items such as posters, bookmarks, and magnets. The video is available online at https://www.youtube.com/watch?v=ZYk71zyTeo4. "Be the solution" and "We are the solution to nonpoint source pollution" are commonly used slogans for outreach materials.

4.10 Brochures

LDEQ created a series of brochures on various NPS topics in conjunction with LSU AgCenter as a part of an educational campaign to prevent citizens from polluting state waters. These brochures can be found at https://deq.louisiana.gov/page/nonpoint-source.

4.11 Education in Priority Watersheds

LDEQ's NPS unit participates in public meetings and BMP Field Days in priority watersheds. This is primarily conducted in each priority watershed as a mandatory component which is described in each watershed plan under Element E.

4.12 NPS Program Education Activities

- Coordinate with partners to provide educational support and guidance to active watershed groups;
- Participate in NPS education and outreach events with the public as available throughout the year;
- Facilitate quarterly meetings with partners and stakeholders to share water quality data and trends within priority watersheds;
- Promote NPS education on social media platforms; and
- Support conservation districts in the development of educational events.

5. STATEWIDE PROGRAMS TO ADDRESS NONPOINT SOURCE IMPACTS

5.1 Agricultural Statewide Program

Agricultural production is an important part of Louisiana's economy. Crops such as rice, sugarcane, cotton, soybeans and corn sustain many individual families and are the economic base of many rural communities across Louisiana. Historically, agriculture has been a major part of Louisiana's heritage and remains an important component of the state's NPS Management Program.

A large percentage of land in Louisiana is utilized for crop and animal production and as pasture, therefore it is not surprising that sediment, nutrients, and organic material from these operations contribute to NPS pollutant loads in Louisiana's waters. Addressing the agricultural component of the NPS problem will continue to be a high priority for the state, in order to restore the state's impaired waterbodies. A set of BMPs has been developed for each of the major types of crops grown in the state. BMP manuals have been developed. Some of the practices are described in documents on the LSU AgCenter website: https://www.lsuagcenter.com/portals/communications/publications/publications_catalog/crops_livestock/best%20management%20practices

The USDA Field Office Technical Guide (FOTG) describes in detail agricultural BMPs and is utilized by conservation districts for planning and implementation. The Louisiana FOTG is found here: Field Office Technical Guide (usda.gov).

5.2 Forestry Statewide Program

Much of the land in Louisiana is forested, either upland forests such as pines, or bottomland hardwood forests in the floodplains and cypress-tupelo forests in coastal wetlands. Silviculture is defined as cultivation, harvest, and transport of lumber. These types of activities can represent a significant source of pollution when poor or no management practices are followed. Forestlands cover approximately half of the land area of the state; therefore forestry BMPs are an important aspect of protecting water quality in the State of Louisiana. A portion of the forests in the state are in a transition stage of cover during, and for two years after harvesting. These disturbed areas are where most of the sediment erosion problems will exist. In addition to sediment, nutrients, toxic chemicals, metals, organic material, pathogens, herbicides, pesticides and increases in stream temperature can cause pollution problems in the waterbody. It is important to utilize site planning and other types of BMPs to minimize these impacts to the waterbody.

A multi-agency forestry BMP guide was produced, and recommended forestry BMPs can be found at https://www.ldaf.state.la.us/wp-content/uploads/2014/04/BMP.pdf. The Louisiana Forestry Association, LDAF, LDEQ, and the LSU AgCenter collaborated on the guide, updated in 2022. These organizations train landowners, managers, and timber harvesters in the use of BMPs and conducting surveys on the implementation and effectiveness of forestry BMPs.

LDAF conducts surveys of silvlicultural operations to determine BMP adoption rates, currently at close to 97% (http://www.ldaf.state.la.us/wp-content/uploads/2022/02/2021-BMP-Survey-Report.pdf). The LDEQ NPS Program distributes educational materials on BMPs during outreach activities such as Earth Day events, school field days, festivals, SWCD locally led agricultural meetings, and field days.

5.3 Individual Home Sewerage System Statewide Program

A majority of Louisiana's bacteriological pollution can be attributed to sewage runoff from homes, camps, and businesses that are not connected to municipal sewerage treatment facilities. It is estimated that 625,000 people in Louisiana treat and dispose of their sewage with individual waste disposal systems. An estimated 50 percent of these systems are malfunctioning due to incompatible soil types or lack of maintenance. These failing systems are a major cause for water quality degradation in Louisiana's streams and fresh water aquifers.

In Louisiana, a person shall not install, cause to be installed, alter subsequent to installation, or operate an individual sewerage system of any kind without a permit from the State Health Officer at LDH (State Sanitary Code LAC 51:XIII). The state's sanitary code outlines and describes regulations that govern installation, maintenance and permitting of individual sewerage systems. A permit from the state health officer is required for installation or operation of an individual sewerage system. The permit is issued through a two stage process, with a temporary permit that authorizes the installation of the individual system. A final permit is issued upon verification that the system has been installed in accordance with the sanitary code. Absorption trenches, oxidation ponds and sand filters are examples of the types of additional treatments that should be utilized with a septic tank. A mechanical waste water treatment plant is also approved for use in Louisiana, but also requires a permit for its installation and discharge. Parish health units are good sources of information on these requirements. The Louisiana Public Health-Sanitary Code can be accessed at the LDH's website: https://www.doa.la.gov/doa/osr/louisiana-administrative-code/

Since maintenance is one of the major issues that needs to be addressed to reduce water quality problems associated with home sewerage systems, one of the most important steps is continued education of the homeowner about how his/her home individual system operates. Many homeowners may not be familiar with how to maintain their home sewerage system for maximum efficiency. LDEQ targets OSDS-related impairments on a statewide basis as part of this plan, and on a coastal zone basis as part of the CNPCP. Activities are not limited to education but may include repair/replace or other measures. Under the CNPCP, the statewide approach to failing home systems relies on the Public Health Sanitary Code, several parish ordinances, state-conducted inspections, a partnership with the real estate industry to encourage inspections at the time of transfer, and promotion of denitrifying systems. More information can be found in the CNPCP.

Additionally, LDEQ, LDH, and watershed groups collaborate in several parishes to utilize Section 319 funds to hire additional inspectors to inspect onsite systems. These partnerships have been effective in reducing NPS problems from home sewerage systems. In addition, funds may be made available to homeowners for repair or replacement through various funding

sources, including 319(h) project funds when indicated in an implementation plan. LDEQ also works with partners to identify additional funding sources to help homeowners repair/replace/upgrade failing or inappropriate systems.

5.4 Resource Extraction Statewide Program

Resource extraction is one of the NPS categories identified by USEPA and states as contributing to degradation of the nation's waters. Resource extraction includes a wide range of land disturbing activities. Resource extraction can include: surface mining, subsurface mining, placer mining, dredge mining, petroleum activities, mill tailings, and mine tailings. Each of these activities has specific pollutants associated with them, affecting the type of water quality impairment which may occur in the watershed where the mining operation exists.

Oil and gas extraction activities may contribute to waterbody impairments, particularly in cases of leaks or spills. Spills are handled by LDNR's Oil Spill Section, the US Coast Guard, the Louisiana Oil Spill Coordinator's Office, and other entities. The Oil Pollution Act, 33 USC 2701 et seq. and the Louisiana Oil Spill Prevention and Response Act of 1991 (OSPRA), La. Rev. Stat. 30:2451 et seq., are the principal federal and state statutes, respectively, authorizing federal and state agencies and tribal officials to act as natural resource trustees for the recovery of damages for injuries to natural resources and services resulting from incidents in Louisiana (http://www.dnr.louisiana.gov/index.cfm/page/102). LDEQ serves as a trustee, and in addition has a role in assessing spill-caused impairments to waterbody uses.

Construction sand and gravel was Louisiana's second leading non-fuel mineral, surpassed only by salt, which is currently Louisiana's leading non-fuel mineral (USGS, 2017). Some of the activities associated with mining include discharges from inactive operations, surface runoff from inactive road networks, old tailings and spoil piles. Although active mine sites also pose water quality problems, they are typically considered to be point source discharges, which are regulated under state and federal NPDES permits. In addition, the Surface Mining Control and Reclamation Act of 1977 included requirements for collection of runoff from active mines and treatment of such runoff to meet point source discharge requirements.

Louisiana has a limited amount of surface mining of coal. It occurs in northwestern portions of the state and is defined as a point source discharge, which requires a permit. However, Louisiana does have extensive sand and gravel mining and oil and gas operations (petroleum activities), which require a permit for discharge of their wastewaters. Sand and gravel operations have been identified as a source of increased sediment loads in rivers and streams. Lack of restoration at abandoned sand and gravel mining sites causes increased erosion and sediment entering adjacent waterbodies. Within the Louisiana Coastal Zone, sand and gravel mining has been limited to operations which dredge sediment from the Mississippi River. Sedimentation rates from mining can be extraordinarily high, if BMPs are not utilized in all phases of the mining operation. Erosion and delivery of sediment to surface water is a recurring problem in mining, as is often the case with agriculture and forestry.

LDEQ has partnered with the Concrete and Aggregate Association on a BMP manual for sand and gravel mining operations. This manual can be found at:

http://www.dnr.louisiana.gov/assets/docs/conservation/injectionmining/LouisianaRecommendedBMPs.pdf

5.5 Construction Statewide Program

Most construction activities in Louisiana include residential and commercial development, as well as road and highway projects. Since all of these types of activities involve clearing land and moving soils prior to and during construction, the major pollutant that is generated is sediment. Other pollutants that are often associated with construction sites are fuel, oil, paints, glues, pesticides, fertilizers, metals, and sanitary and solid wastes.

In Louisiana, water quality regulations define requirements for storm water discharge permits for construction sites of 5 acres or larger. Storm water permitting regulations are found in LAC 33:IX.2511. Information on permits, including construction and multi-sector stormwater permits, can be found here: https://www.deq.louisiana.gov/page/lpdes.

Phase I of the U.S. Environmental Protection Agency's (EPA) stormwater program was promulgated in 1990 under the CWA. Phase I relies on National Pollutant Discharge Elimination System (NPDES) permit coverage to address stormwater runoff from: (1) "medium" and "large" municipal separate storm sewer systems (MS4s) generally serving populations of 100,000 or greater, (2) construction activity disturbing 5 acres of land or greater, and (3) ten categories of industrial activity. The Stormwater Phase II Final Rule expands the Phase I program by requiring additional operators of MS4s in urbanized areas and operators of small construction sites, through the use of NPDES permits, to implement programs and practices to control polluted stormwater runoff (USEPA, 2005).

Currently Louisiana's statewide NPDES permitting program's LAR100000 (Storm Water Discharges from Construction Activities of 5 Acres or More) and LAR200000 (Storm Water Discharges from Small Construction Activities (equal to or greater than 1 acre but less than 5 acres) permits address construction runoff. One of the permit requirements is a stormwater pollution prevention plan, which describes steps that should be taken by developers or builders to prevent storm water runoff entering the water body. These permit requirements should address sediment and erosion control issues for construction activities during the actual construction phase of the project.

All construction activities in Louisiana should comply with Phase I and Phase II regulations, and NPS pollutants associated with construction activities should be controlled through these permitting processes. LDEQ's stormwater information page can be found at: https://www.deq.louisiana.gov/page/storm-water-protection, and includes templates, guidance documents, and presentations.

In addition to LDEQ permitting, LDEQ NPS has partnered with LDOTD on Section 319 projects including Highway Right-of-Way BMPs. In addition, the NPS Program distributes educational materials at outreach events and through the LDEQ website. The Louisiana Department of Wildlife and Fisheries requires certain BMPs when conducting development activities adjacent to designated Scenic Rivers. Information on these practices is provided here:

https://www.wlf.louisiana.gov/page/bmps-for-scenic-rivers.

5.6 Urban Runoff Statewide Program

During the past 30 years, urban storm water runoff has been identified as a significant contributor to degradation of water quality. Water quality monitoring studies in urban areas have shown that highest pollutant loads usually occur during initial runoff of rain. In urbanized areas, impervious surfaces such as streets, parking lots, and rooftops are a dominant part of the landscape. These surfaces allow little or no detention or infiltration of storm water. Pollutants such as contaminants from streets and sidewalks, petroleum residues from automobiles, exhaust products, heavy metals and tar residuals from the roads; fertilization, weed and insect control and sediment from construction sites are transported across impervious surfaces to waterbodies. Disposal of chemicals such as used motor oil and antifreeze into storm sewers is another source of urban NPS pollution. Illegal connections of storm drains to sanitary sewers can result in increased volumes of flow to waste water treatment plants causing more frequent overflows of sewage to receiving waters.

NPS pollutants typically associated with urban runoff include sediment, nutrients, oxygen demanding substances, pathogens, hydrocarbons, heavy metals, and toxins.

LDEQ participates in a storm drain marking program with scouts, students, volunteers and environmental organizations to promote water quality stewardship in urban areas. These types of projects combined with urban educational materials can be provided to local schools in watersheds to involve them in implementing urban NPS projects in their communities.

LDEQ collaborates with partners in promoting nature-based solutions and green infrastructure approaches to flood and runoff control, development, and management of other NPS pollutants.

Brochures and manuals describing BMPs are provided to parishes and cities where these issues need to be addressed. Louisiana's Municipal Association, university urban forestry programs, and landscape architects are important audiences for these materials, which provides for communication with cities and the development community on how urban BMPs can be incorporated into urban projects. See: http://www.dnr.louisiana.gov/assets/docs/coastal/interagencyaff/nonpoint/BMP-Publication-UrbanRHB-Final.pdf

5.7 Hydromodification Statewide Program

Hydrologic modifications are defined as activities designed to affect natural stream flow. These types of modifications include bank stabilization, channel alignments, high-flow cutoff devices, in- stream construction, dredging, locks and dams, levees, spillways, and impoundments. Dredging, channel modification and impoundments alter physical characteristics of waterbodies, often causing NPS problems. Currently, these activities are routinely conducted in Louisiana, primarily for navigation and flood protection in coastal areas. In addition to stream alterations made by dredging, waterbodies are also altered by levees, pumps and weirs. Most of south Louisiana has been hydrologically altered to allow habitation in areas other than natural

ridges of bayous and rivers that flow to the Gulf of Mexico. These types of hydromodification were made to protect life and property during high flow events. Conversely, weirs and impoundments were often placed in waterbodies to retain water for irrigation during low flow seasons of the year. It is not unusual for waterbodies in Louisiana to have low to no flow during summer and fall months and to experience reverse flow in tidally influenced coastal areas. Hydromodification is associated with sediment, nutrients, pesticides, heavy metals, organic pollutants, and thermal impacts.

Programmatic activities that may be implemented to reach water quality goals include increased implementation of BMPs for agriculture, forestry and urban storm water runoff. Through reduction of sediment and other pollutants associated with these three land use categories, the necessity to channelize streams, bayous and rivers should be reduced. Partnering with police juries, city engineers and parish drainage boards on innovative ways to manage streams and drainage systems at the local level is a primary activity that should assist LDEQ to reach its goals. In coastal waters, LDEQ and LDNR-OCM partner on implementation of CZARA management measures in coastal areas

LDEQ NPS staff distribute educational information related to hydromodification at outreach events, including the coastal hydromodification BMP guide, at: http://www.dnr.louisiana.gov/assets/docs/coastal/interagencyaff/nonpoint/hydro/BMP-Publication-Hydromodification-Final.pdf and a hydromodification BMP brochure, which can be found at: http://www.dnr.louisiana.gov/assets/docs/coastal/interagencyaff/nonpoint/hydro/Hydromodification-brochure.pdf.

Section 404 of the Clean Water Act (CWA) established a permit program administered by Secretary of the Army, acting through the Chief of Engineers, to regulate discharge of dredged materials and those pollutants that comprise fill material into waters of the United States. CWA Section 404(c) gives the Administrator of USEPA further authority, subject to certain procedures, to restrict or prohibit discharge of any dredged or fill material that may cause an unacceptable adverse effect on municipal water supplies, shellfish beds, and fisheries (including spawning and breeding areas), wildlife, or recreational areas.

The US Army Corps of Engineers (USACE), New Orleans District (MVN) processes permit applications subject to Section 10 of the Rivers and Harbors Act and/or Section 404 of the Clean Water Act. Section 401 of the Clean Water Act requires the certification of all federal licenses and permits in which there is a “discharge of fill material into navigable waters”. The certification is used to determine whether an activity, as described in the federal license or permit, will impact established site specific water quality standards. A water quality certification (WQC) is not a permit to perform the activity and all federal licenses or permits cannot be issued without it; the most common federal license or permit requiring certification is the Corps of Engineers 404 permit. If LDEQ determines that the proposed activity will not violate water quality standards and is in accordance with the Water Quality Management Plan, or applicable state water laws, rules, or regulations, a certification may be issued. The certification may include stipulations or conditions necessary to ensure compliance (LAC 33:IX.1507).

5.8 Source Water Protection Program

5.8.1.1 Introduction

The Source Water Protection Program (SWPP) is an environmental pollution prevention program designed to protect the quality of aquifers and waterbodies that are sources of drinking water. In accordance with Federal Register Volume 68 205, LDEQ has included Louisiana's source water protection strategy as part of its NPS management program. The federal government mandated that each state implement a Wellhead Protection Program (Section 1428, Safe Drinking Water Act amendments of 1986) to protect public water wells and a Source Water Assessment Program (SWAP) (Safe Drinking Water Act amendments of 1996) to assess potential susceptibility to contamination of all drinking water sources. Louisiana's source water protection strategy satisfies these mandates. In Louisiana this program is called the Drinking Water Protection Program whereas USEPA refers to this program as the SWPP.

5.8.1.2 Coordination of NPS Program and SWPP

Many NPS pollution and source water protection issues are the same. The SWPP has established a schedule to perform activities in watershed basins consistent with USEPA's guidance. NPS staff and SWPP staff work together on educational outreach and provide technical expertise on NPS pollution and source water protection.

5.8.1.3 Source Water Assessments

In order to determine the susceptibility of public water supplies to contamination, LDEQ identified nearby types, quantity, and locations of potential sources of contamination and hydrogeologic sensitivity factors. This assessment phase was completed in 2003. LDEQ's SWAP document describing the assessment process can be found at LDEQ's website: https://www.deq.louisiana.gov/page/source-water-assessment-program

As part of this assessment, LDEQ mapped locations of all public supply wells, surface water intakes and potential sources of contamination in delineated source water protection areas. The factors affecting susceptibility of contamination included:

1. The types and number of potential sources of contamination in the source water protection area and their distance from the well or intake;
2. For groundwater systems, the age and depth of the well, the aquifer permeability, and the recharge potential of the aquifer; and
3. For surface water systems, the age of the intake structure, average annual rainfall, vegetative cover, slope of the land and number of feeder streams to the water source.

The source water assessment data is utilized by LDEQ, outside agencies and the public. The SWPP uses this information to prioritize communities to initiate protection activities, as stipulated by USEPA guidance.

5.8.1.4 Source Water Protection Strategy

The SWPP implemented strategies in 2004 to protect the state's drinking water supplies once the source water assessment phase was completed in 2003. LDEQ developed its SWPP in accordance with USEPA's guidelines to protect sources of water for public water systems (aquifers and surface water sources) from contamination. From 2004 to 2020, the SWPP

targeted communities on a parish or regional (combination of parishes) basis, depending on the local situation. Once work in a community was initiated, source water assessment data and feedback from stakeholders and governmental agencies were used to identify the proper protective measures. Additionally, LDEQ reviewed water quality monitoring data to further refine protection activities.

Beginning in 2021, the SWPP transitioned from the parish-based approach to a watershed basin approach, focusing on one or more watersheds to initiate protection activities. Key elements of the watershed SWPP include the following strategies:

1. Updating and maintaining source water assessment data, which includes information on sources of drinking water (wells or intakes) and a list of potential sources of contamination located near those drinking water sources;
2. Development of contingency plans for all water systems in each targeted community in the event of an emergency or the loss of the water supply;
3. Implementation of public education/awareness campaigns to make the public aware of their drinking water sources and how to protect them;
4. Development and dissemination of educational/outreach material and BMPs for protection of drinking water;
5. Addressing the most threatening potential sources of contamination identified in the source water assessment data;
6. Addressing specific issues affecting water sources identified by local stakeholders;
7. Addressing specific NPS contamination identified as affecting water supplies; and
8. Introduce the drinking water protection model ordinance for adoption by local governments. The model ordinance may be modified by the local governing body to address specific issues and concerns.

5.8.1.5 Implementation Schedule

The USEPA Source Water Protection Strategic Plan stated that by 2011, the SWPP will achieve a minimized risk to public health through source water protection for 50 percent of community water systems and for the associated 62 percent of the population served by community water systems (i.e., "minimized risk" is achieved by substantial implementation of Louisiana's USEPA approved SWPP). To achieve this objective in Louisiana this translates to implementation of protection strategies for 537 community water systems and a population of approximately three million (based on USEPA's Safe Drinking Water Information System (SDWIS) data at the time the Strategic Plan was developed). By 2011, LDEQ's SWPP had Implemented protection strategies for 549 community water systems serving a population of more than 3.8 million, which exceeded the USEPA goals of the Source Water Protection Strategic Plan.

The following table shows LDEQ's SWPP implementation schedule for FY 2022 through FY 2027, which includes the number of public water supply sources (wells and intakes) and watersheds to be assessed. In addition to the implementation schedule table below, a map on the following page depicts the watersheds scheduled to be assessed during this management plan implementation.

Table 8 SWPP Implementation Schedule

FISCAL YEAR	WELLS	INTAKES	WATERSHEDS (Well/Intake Count by Watershed)
2022	300	0	PONTCHARTRAIN (623/0) PEARL (101/0) MISSISSIPPI (92/0) VERMILION-TECHE (84/0)
2023	200	0	
2024	200	0	
2025	200	0	
2026	200	0	VERMILION-TECHE (385/3)
2027	185	3	
TOTAL	1,285	3	4

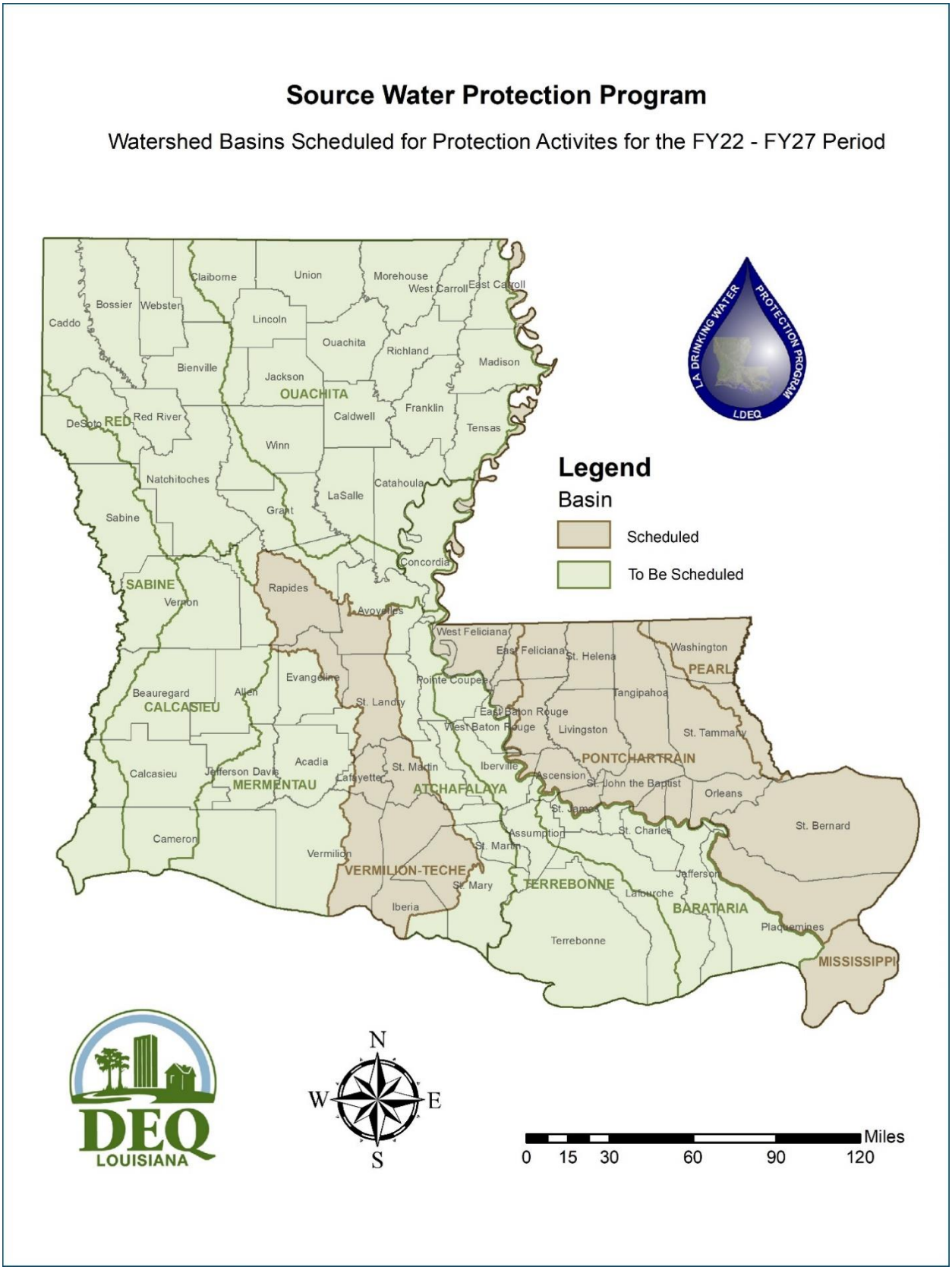

Figure 9 Watershed Basins Scheduled for Protection Activities

5.8.1.6 Protection Strategies Implemented

The following source water protection strategies are designed for implementation statewide and in each target watershed.

Updating SWAP Data

This is an ongoing activity for LDEQ. It is important that SWAP data is updated and maintained for use by LDEQ and other agencies seeking information on protecting water supplies. The data is also used in implementation of the SWPP for prioritizing protection activities.

Contingency Plans

Contingency plans are developed for all water systems in each community targeted by the SWPP. This ensures that water systems have a plan in place in the event of an emergency or the loss of the water supply.

Public Education/Awareness

Extensive public education/awareness campaigns utilizing presentations and local media are conducted. These campaigns are used to educate local citizens, and if necessary, solicit volunteers for source water protection activities. LDEQ also conducts presentations to organizations, at local and statewide events and conferences. As of 2021, LDEQ has presented information on drinking water source protection to over 56,000 people including government officials, water system operators, the public, professional organizations, and schools.

LDEQ also utilizes an educational video on drinking water source protection that is aired on television and distributed extensively for public use. LDEQ also distributes "Drinking Water Protection Area" signs to communities to raise the general awareness level regarding drinking water source protection. Specific issues affecting local drinking water sources are also addressed through public education at the local level.

LDEQ uses a visual groundwater model to demonstrate the hydrologic cycle and how aquifers are recharged, how groundwater moves through aquifers, and how wells draw water from aquifers. It also shows how an aquifer can become contaminated by both contaminated ground seepage and by interaction with contaminated surface water. A surface water model is also used to demonstrate how surface contaminants can be carried into waterbodies.

LDEQ may collaborate with local volunteers to share information on the application of appropriate BMPs with businesses identified in the source water assessment phase as potential sources of contamination (PSOCs). The information provided is intended to educate business owners and operators about how to protect their local drinking water sources. They are educated on the proper disposal of waste and how to keep surfaces free of chemicals and petroleum products that could threaten the drinking water sources. As seen in the photo, the blue water droplet on the door denotes that Ryland Motors is a Drinking Water Protection Partner.

Educational Material

Educational material on drinking water source protection has been developed with assistance from local committees, agencies, and organizations. The topics covered in the material include those issues raised either directly from committees, from SWAP data, or by other means. The following is a list of educational materials that LDEQ has developed:

- Drinking Water Program Brochure
- Top Ten Tips to Protect Drinking Water
- How to Protect Drinking Water in the Home
- How to Conserve Drinking Water in a Business
- Well Plugging and Abandonment
- Water Facts and Figures
- BMPs for Irrigation Wells
- Spill Prevention and Control for Above Ground Storage Tanks
- BMPs for Underground Storage Tanks
- Lawn and Garden Fact Sheets
- BMPs for Businesses Using Small Quantities of Chemicals
- Volunteer Training Manual
- Pharmaceutical Disposal Practices
- How to Protect Drinking Water – Contractor Education

Additional educational material has been developed for water system operators and for students of various levels. In addition, relevant educational material from other agencies/organizations or from LDEQ has been utilized to address specific issues. LDEQ maintains a website containing educational material developed for the SWPP. The website can be accessed at: https://deq.louisiana.gov/page/drinking-water-protection-program.

The website also explains the program and gives specific updates of current activities. LDEQ also developed a ten-minute video entitled "Drinking Water and You" that describes the sources of drinking water, why it's important to protect them, and how they can be protected. Copies of the video were distributed to several schools, governmental officials, non-governmental organizations, media outlets, and the public. The video is also shown on local television and is part of LDEQ's presentation material.

Most Threatening PSOCs

LDEQ strives to address the most threatening PSOCs found in each community. LDEQ defines these as the most numerous high risk PSOCs found within one thousand feet of water wells and/or five miles upstream of surface water intakes in each community. Above ground storage tanks have been identified as a common most threatening PSOC in many watersheds.

A project in Avoyelles parish is an example of how a most threatening PSOC was addressed by partnering with stakeholders. In an effort to address concerns over spills from above ground storage tanks in the parish, representatives from the State Fire Marshall's Office and LDEQ assisted in training stakeholders on applicable regulations and BMPs. This effort resulted in development of a model spill prevention and control plan distributed in Avoyelles Parish and in other communities targeted by LDEQ's protection strategy.

Local Issues

Specific issues affecting local water sources may need to be addressed. These specific issues, which are also examples of NPS pollution, include maintenance of individual sewerage treatment systems (septic tanks, etc.), used oil recycling, and proper plugging of abandoned water wells. Several techniques are employed to implement public outreach. For example, local newspapers printed articles informing the public where used oil can be recycled. Also, oil recycling flyers were given to oil retailers for distribution to their customers. Improper disposal of used oil can be a NPS of contamination to drinking water.

Specific NPS Issues

LDEQ strives to address specific NPS contamination identified within the framework of its SWPP as affecting water supplies. Specific projects are utilized to address NPS contamination, such as used oil recycling education and visits to potential sources of contamination. LDEQ has also worked in communities to familiarize the public with individual sewerage treatment system maintenance. Two examples of specific NPS issues are identified below.

Sand and Gravel BMP Manual

The SWPP staff assisted with development of the "Sand and Gravel BMP Manual," dealing with groundwater and public supply wells. Due to the cooperative development of this manual, a 1,000-foot setback distance is required between mining activities and a public supply well, which helps address concerns with mining in the aquifers and potential adverse impacts on the wells.

Bayou Lafourche

LDEQ has implemented an initiative to address fecal coliform loading in Bayou Lafourche. As part of the SWPP, LDEQ routinely reviews historical sampling data and Louisiana's list of impaired waterbodies. During the review process for Assumption, Lafourche, and Terrebonne Parishes, it was noted that subsegment 020401, Bayou Lafourche from Donaldsonville to Intracoastal Waterway at Larose, consistently does not meet its designated uses for PCR, SCR, and drinking water due to fecal coliform levels.

Bayou Lafourche is the main source of drinking water for approximately 300,000 people and there is a TMDL for fecal coliform for the bayou. LDEQ has partnered with local governments, Nicholls State University (NSU) and citizens to address these high fecal coliform levels. LDEQ initiated inspection of all facilities requiring discharge permits and fecal coliform samples were collected at every bridge crossing the bayou to identify sources of fecal coliform. Additional investigation into determining the sources of fecal coliform along Bayou Lafourche was performed through two contracts with NSU from 2007 – 2012.

In the phase one study, approximately the middle third of Bayou Lafourche from Labadieville to just below Lockport was assessed. In phase two, the top third of the bayou from Donaldsonville to Labadieville was assessed. In both phases data collected identified "hot spots" or locations of anthropogenic fecal coliform attributed to untreated human waste. LDEQ presented their findings to local officials along with possible corrective measures. Options that are being discussed to alleviate the elevated fecal coliform levels include adoption of an ordinance to address malfunctioning sewage treatment systems and consolidation of individual

sewage treatment systems into more regional, community-based systems.

Public education, promotion of BMPs, and coordination with LDH to address individual home treatment systems are also necessary. LDEQ is continuing to inspect permitted facilities in the area to ensure compliance. Routine sampling performed in conjunction with DEQ's ambient surface water quality monitoring network of sample sites has already exhibited a decrease in the fecal coliform levels in Bayou Lafourche resulting from the compliance sweep LDEQ completed.

Ordinances

A model ordinance to protect public water wells is introduced in each target community to local governments with public water wells located in their jurisdiction. Through 2010, ordinances were adopted by 63 local governments in 21 parishes prohibiting PSOCs from being placed within 1,000 feet of water wells serving public water systems. These ordinances were based on a model ordinance that LDEQ has developed. The following is a list of parishes with the number of ordinances adopted in each parish:

- Acadia Parish – 5
- Avoyelles Parish – 5
- Beauregard Parish – 2
- Bossier Parish – 3
- Calcasieu Parish – 3
- Caddo Parish – 3
- East Feliciana Parish – 2
- Grant Parish – 1
- Jefferson Davis Parish – 4
- Lafayette Parish – 3
- LaSalle Parish – 2
- Lincoln Parish – 2
- Natchitoches Parish – 1
- Ouachita Parish – 1
- Rapides Parish – 5
- St. Landry Parish – 5
- Vermilion Parish – 7
- Vernon Parish – 6
- Washington Parish – 1
- West Baton Rouge Parish – 1
- West Feliciana Parish – 1

SWPP Summary

The SWPP protects drinking water sources (aquifers and surface waterbodies) from contamination. It combines all available resources, including coordination with the NPS Program, and local involvement. SWPP activities result in protection of Louisiana's water sources through environmental education and various pollution prevention activities. In addition to protecting water sources, the pollution prevention work conducted by the SWPP

assists the NPS Program with reduction of NPS pollution.

5.8.1.7 ***Ground Water Monitoring***

The ground water monitoring network, Louisiana's Aquifer Sampling and Assessment Program, or the ASSET Program, is an activity that was developed to determine the quality of naturally occurring ground water in the major drinking water aquifers in the state. The program also monitors and examines regional changes in ground water quality on a statewide basis. This program can provide an early warning to NPS contamination of ground water in the state.

The ASSET Program monitors approximately 180 water wells in 14 major aquifers every three years. The actual number of wells sampled in each three-year period depends on several factors including owner participation, which is voluntary, and operational status of each well. Over 150 targeted analytes and field parameters are analyzed/measured for each well. Analyte categories include conventional water quality and nutrient parameters, inorganics, volatile and semi-volatile organic compounds, pesticides, and PCBs.

The ASSET Program strives to maintain a consistent well density and distribution for each aquifer. Different well use-types are selected so that data collected is representative of the aquifer. Additionally, this distribution and mixed use-type is necessary to detect NPS type pollutants, whereas focusing on a particular area or activity within an aquifer, or a single well use-type would not provide the necessary coverage.

Monitoring Strategy

The Aquifer Evaluation and Protection (AEP) Unit operates the ASSET Program as an ambient ground water monitoring activity to assess and monitor the quality of ground water in Louisiana's principal aquifers. Approximately 180 water wells are sampled over a three year period (at least 60 wells being sampled each year). The ASSET Program Ground Water Sampling Schedule Table found below lists the areal extent of each aquifer monitored along with the number of wells scheduled to be sampled for each aquifer through FY 2027.

Water Well Selection

The number of wells selected to monitor an aquifer is based on the aquifer's areal extent. The ASSET Program has established a minimum well density of one well for every 400 square miles of areal extent. For example, an aquifer with an aerial extent of 6,000 square miles would require a minimum of 15 wells to be selected to represent the aquifer. In addition to well density within an aquifer, the well's use-type is considered. Different well use-types are selected, when available, to help ensure that all activities within an aquifer's extent are represented. The well use-types selected are: Domestic, Industrial, Irrigation, Monitoring, Observation, Power Generation and Public Supply (use-type is determined by LDNR at the time the well is registered).

The success of the ASSET Program is dependent on well owner participation, and is an important consideration when wells are selected. The owner is made aware that their participation is strictly voluntary and may decide not to participate in the program at any time. Owners are also made aware of the three-year sampling cycle and are encouraged to maintain their well in good working order.

Sampling Schedule

The sampling process is designed so that each well is monitored at least once every three years so that all 14 aquifers are monitored within a three-year period. The process is then repeated once a three-year cycle has been completed. Typically, five or more wells are sampled each sampling trip, and each sampling trip may last from one to three days. Multiple aquifers may be sampled in one sampling trip to take advantage of the proximity of wells producing from different aquifers. Aquifers with a small areal extent may be completed in a single sampling trip, whereas larger aquifers require multiple sampling trips to complete. In a typical year, approximately 60 water wells are sampled. Table 9, below, identifies when each aquifer is scheduled to be sampled, and the following maps depict aquifer locations along with associated wells.

Table 9 List of aquifers and number of wells to be monitored

AQUIFER (AREAL EXTENT SQ. MI.)	PLANNED NUMBER OF WELLS TO SAMPLE
FIRST YEAR OF SAMPLING ROTATION State Fiscal Years: 2022 and 2025	
Sparta (6,923)	**14**
Carrizo-Wilcox (4,795)	**13**
Red River Alluvial (1,387)	**6**
Evangeline (4,547)	**12**
Catahoula (2,590)	**5**
North Louisiana Terrace (2,152)	**11**
Carnahan Bayou (3,640)	**10**
SECOND YEAR OF SAMPLING ROTATION State Fiscal Years: 2023 and 2026	
Mississippi River Alluvial (9,947)	**23**
Cockfield (5,161)	**15**
Chicot (9,949)	**24**
THIRD YEAR OF SAMPLING ROTATION State Fiscal Years: 2024 and 2027	
Williamson Creek (3,243)	**7**
Chicot Equivalent (6,800)	**27**
Evangeline Equivalent (6,252)	**17**
Jasper Equivalent (6,051)	**15**

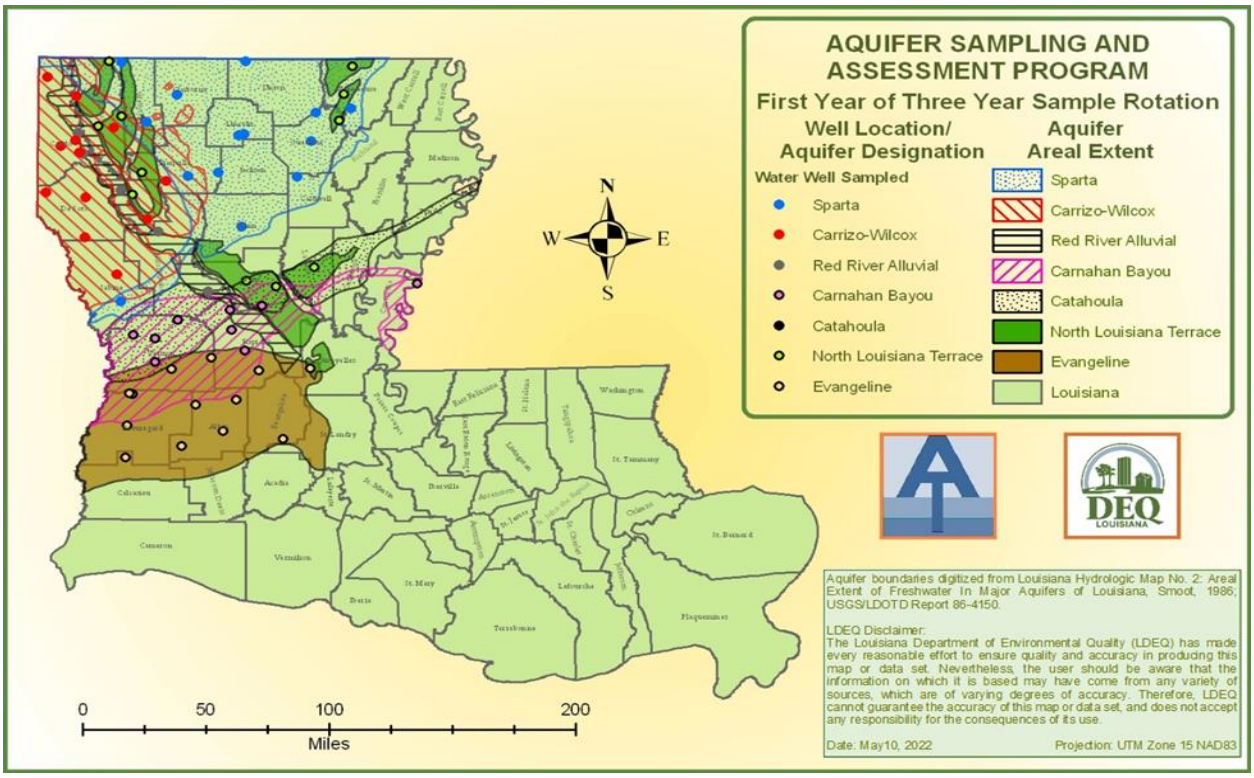

Figure 10 Wells/Aquifer Monitored First Year of Three-year Sample Rotation

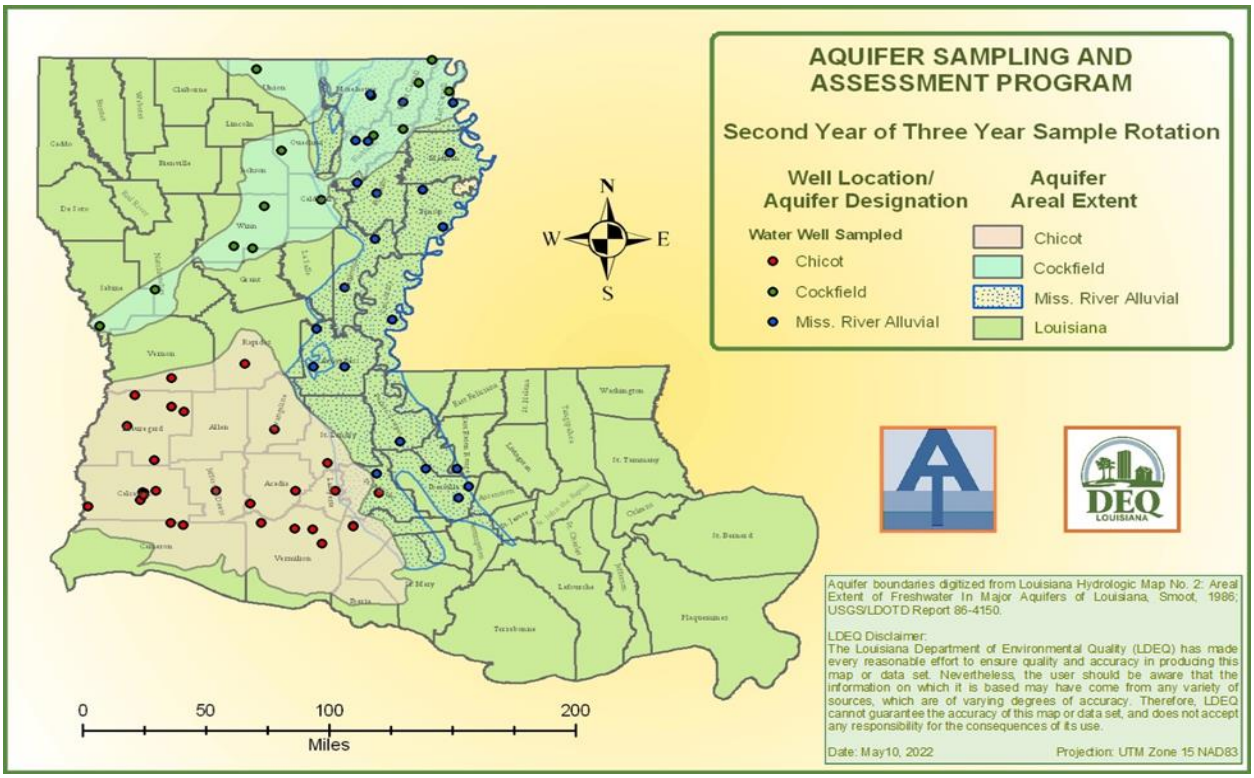

Figure 11 Wells/Aquifer Monitored Second Year of Three-year Sample Rotation

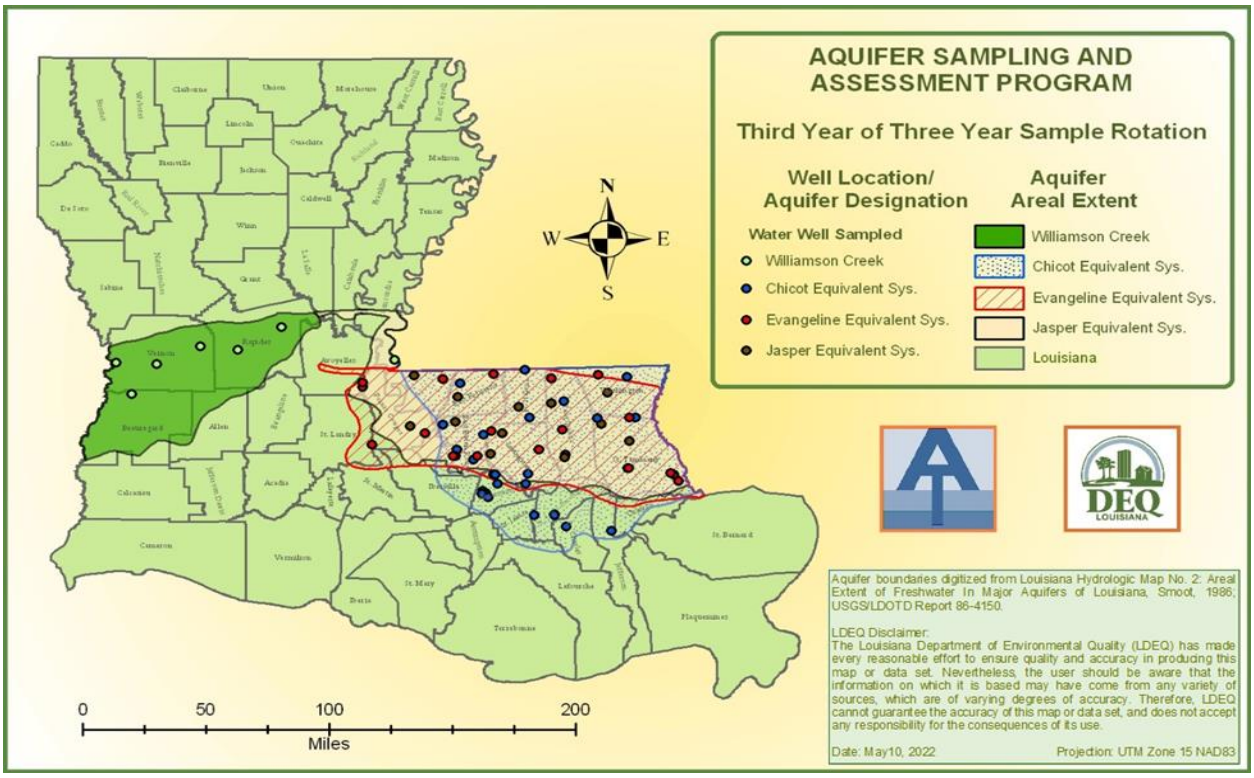

Figure 12 Wells/Aquifer Monitored Third Year of Three-year Sample Rotation

Sample Analysis

A common set of field parameters and samples are measured and collected for analyses from each well. Samples are analyzed for conventional water quality and nutrients, inorganics, volatile organic compounds, semi-volatile organic compounds, pesticides, and PCBs. For the full list of field parameters recorded at each well and the individual analytes contained in each parameter group please refer to the website:
https://www.deq.louisiana.gov/assets/docs/Water/Aquifer-ASSET_PARAM_LIST.pdf

A more detailed discussion of sample analysis methods, reporting limits, container selection and holding times is found in USEPA's approved QAPP for the ASSET Program. The QAPP is reviewed annually, and if necessary, updated and submitted to USEPA Region 6 for comment and approval. This ensures that monitoring requirements are met, and the data generated is valid and appropriate.

Assessment and Reporting

All valid sample data collected from each well is reported to the well owner with a discussion of findings. Then, once all data for a particular aquifer has been reviewed for completeness and validated, an aquifer summary is prepared. This summary assesses and summarizes the findings of sampling activities. The aquifer summary is posted to LDEQ's website and provided to any interested party requesting it.

At the end of each three-year sampling cycle, and after all individual aquifer summaries are completed, a Triennial Summary Report is prepared. The Triennial Summary includes a discussion of findings for the period, a comparison of quality of groundwater found in each of the aquifers monitored, and a comparison of analytical findings to the Federal Primary

Drinking Water Standards, or Maximum Contaminant Levels (MCLs). The Triennial Report is also published to LDEQ's website.

In addition to comparing groundwater quality across aquifers, each aquifer's analytical results are compared to historical data generated from previous ASSET Program monitoring activities. This can identify trends in water quality changes, improvements, or degradation.

LDEQ is the lead implementing agency for this activity with other appropriate agencies responding as necessary according to findings. Following established standard operating procedures, other agencies notified of findings include: LDH whenever a public supply well exceeds an MCL; LDNR when petroleum exploration or production contamination is suspected; and LDAF when agriculture related contaminants are discovered. Notification is also given to appropriate Divisions within LDEQ. In certain situations, multi-agency notification may be required.

5.8.1.8 Summary

NPS pollutants could be a major threat to Louisiana's surface water, groundwater, and groundwater recharge areas. ASSET is the only statewide program continuously monitoring ambient groundwater in Louisiana. It is designed to determine and monitor the quality of groundwater in Louisiana. Trends in water quality can be tracked and NPS and other pollutants can be detected early so that action can be taken to protect the health and safety of Louisiana's citizens. Louisiana's NPS Management Plan contains explicit strategies to protect surface and groundwater. ASSET is one of the strategies Louisiana is using to protect groundwater.

Data generated from ASSET is also used to complete the groundwater portion, Part 4, of Louisiana's Integrated Report (IR). Every two years, data from a particular hydrogeological setting is selected, summarized, and presented in the IR according to USEPA requirements. ASSET Program data is the sole data source that contributes to the groundwater portion of the state's Integrated Report.

5.9 Coastal Nonpoint Pollution Control Program

The Coastal Nonpoint Pollution Control Program (CNPCP) was developed in partnership between LDNR, LDEQ, and other governmental and non-governmental agencies to educate Louisiana coastal users about available best management measures, and to reduce pollutants that may impact the coastal waters of Louisiana. In 2022 the plan received final approval from USEPA and NOAA.

In 1990 the United States Congress passed the Coastal Zone Act Reauthorization Amendments (CZARA) which entrusted the States with the task of developing and implementing State CNPCPs. Section 6217 of CZARA required that states with federally approved coastal zone management programs develop and implement CNPCP. These states must implement management measures approved by NOAA and EPA that will control or prevent nonpoint source pollution from five designated sources: agriculture, forestry, hydromodification, marinas and recreational boating, urban runoff (TSS) and wetlands, riparian areas, and vegetated treatment systems. More information about the state's CNPCP is online:

http://www.dnr.louisiana.gov/index.cfm/page/109.

5.10 Clean Water State Revolving Fund (CWSRF) Funding for NPS Projects

The Louisiana Department of Environmental Quality administers the CWSRF Program. This program provides financial assistance in the form of low interest loans to finance eligible projects, bringing them into compliance with the requirements of the Clean Water Act. Funding for this program is provided by federal grants and match funds generated by the program's interest and loan repayments. Interest and loan repayments provide a permanent source for funding in future Louisiana projects. The CWSRF website link is: https://deq.louisiana.gov/page/clean-water-state-revolving-fund

The Louisiana CWSRF has been selected by EPA to receive technical assistance to use CWSRF resources for decentralized wastewater repairs/replacement. With this technical assistance, the CWSRF is working with an EPA consultant to develop a funding strategy for a pilot project with the goal of creating a new program for OSDS repair/replacement throughout the state. This venture is still in the early stages, but effort is underway to start implementation of a pilot project by the end of September 2022.

Additionally, with the influx of Bipartisan Infrastructure Law (BIL) funding over the next five years (2022-2026), there is an opportunity to explore and consider consolidation projects, which could incorporate areas of concentrated OSDS. While decentralized systems may not be the primary target of the BIL funding, it might be an added benefit to the overall goal of improving water quality.

5.11 Strategies for NPS Program Implementation

The State has identified a number of actions necessary to address the long- and short-term goals in the stepwise manner of assessment, planning, education, and implementation. The implementation-related strategies are detailed below:

Implement or demonstrate methods to remedy water quality problems associated with NPS pollution. The State will implement programs to address identified NPS pollution sources and causes as identified in the IR as well as in WIPs, TMDLs, and other documents. Most watershed projects will require multiple years' resources. These efforts will work towards reduction of NPS pollution and restoration and protection of designated use support. Partnerships with other agencies and groups are critical to program success.

Participate in Litter Abatement Partnerships. LDEQ participates in partnership efforts on the state level to address litter, which frequently ends up in Louisiana waters. In 2015 LDEQ worked with the Louisiana Aquatic Litter Alliance to develop and publish the "Louisiana Local Government Litter Ordinance Template and Handbook." The handbook, created under USEPA's Trash Free Waters, is a start-to-finish tool for developing local litter ordinances and adjudication/enforcement. Currently LDEQ serves on the Governor's Task Force on Statewide Litter Abatement and Beautification, which is expected to issue a report to the governor with its

recommendations in 2022.

The State will research and identify alternate funding sources to work towards the goals of the NPS Program. LDEQ NPS partners with other agencies to find potential funding for its statewide programs. The state may support grant proposals from partners seeking alternate sources. The state may also apply for grants and provide low interest loans through the CWSRF and may solicit funds or other resources from private partners. LDEQ may work with stakeholders such as the USACE Silver Jackets, FEMA, NOAA, USACE, and local communities and tribes to initiate, collaborate on, or secure funding for projects with multiple benefits that include water quality. Other programs that may fund or have funded water quality restoration efforts include:

- USEPA/CWA:
  - CWA Section 106 Supplemental Monitoring
  - CWA Section 104(b)(3) Water Pollution Control Program Grant
  - CWA Section 205(m) Capitalization Grants for Clean Water State Revolving Fund
  - Gulf of Mexico Division grants
  - Clean Water Act Section 319 Nonpoint
  - EPA Multipurpose Grants
  - Gulf of Mexico Hypoxia Task Force
- Gulf of Mexico Alliance
- USDA Farm Bill Programs:
  - EQIP – Environmental Quality Incentives Program
  - CSP – Conservation Stewardship Program
  - WRE – Wetland Reserve Easements Program
  - CRP – Conservation Reserve Program
  - CREP – Conservation Reserve Enhancement Program EQIP (NRCS)
  - NWQI – National Water Quality Initiative
  - MRBI – Mississippi River Basin Healthy Watersheds Initiative
  - WRP – Wetland Reserve Program

Support nutrient management activities across the state. The State has established a nutrient reduction and management strategy and LDEQ NPS will support implementation of that strategy. See Section 7.7, Nutrient Management Strategy, for additional information.

Implement source water and wellhead protection programs to reduce pollution affecting drinking water sources. The §319 Program will coordinate with and supplement LDEQ's and the Louisiana Rural Water Association's source water protection programs to protect drinking water sources. This coordination will occur on an annual basis with selection of watersheds for §319-driven watershed workplans. For more information see Section 5.8: Source Water Protection Program.

Implement education and outreach programs. Education and outreach activities will be implemented statewide and within individual watersheds as needed. These programs focus on preventing pollution at its point of origin. Activities include outreach to schools and community groups; education on OSDS repair/replacement; demonstrations; and anti-litter

campaigns. For more information see Section NONPOINT SOURCE PROGRAM EDUCATION.

The NPS program will partner with other agencies in evaluating and disseminating new NPS control practices. LDEQ, LDAF, LSU AgCenter, and NRCS will work integrally to develop and prioritize conservation practices to better address water quality as a resource concern. These efforts will specifically be undertaken on a watershed by watershed basis. LDEQ will also participate in local and state groups to identify and evaluate practices for controlling urban NPS pollution.

5.12 NPS Statewide Program Activities

- Continue to prioritize watersheds listed in the IR as impaired by NPS pollution.
- Continue to assist in development of BMPs.
- Continue to estimate statewide NPS load reductions annually with LDAF.
- Partner with stakeholders and other agencies to improve coordination and data sharing.
- Continue to partner with other agencies on improving statewide educational and outreach activities in areas of the state with water quality problems.
- Evaluate water quality improvement on an annual basis in priority watersheds.
- Continue to monitor water quality to determine if BMP implementation has resulted in water quality improvement.
- Continue to report annually on use support restoration in impaired waterbodies.
- Write and submit success stories to USEPA as use support is restored.

6. STATE AND FEDERAL CONSISTENCY

6.1 Federal Consistency Review

The Federal Consistency Provision in CWA Section 319 provides an opportunity to improve NPS management by promoting communication and cooperation between state and federal agencies. LDEQ has formed an interagency committee including federal and state partners, such as NRCS and LDAF that meets annually to ensure consistency with NPS program goals. LDEQ will continue to evaluate Army Corps of Engineers (USACE) proposed projects to ascertain consistency with LDEQ-NPS water quality goals.

6.2 Program Review

Section 319 of the CWA requires states to evaluate their NPS Management Programs on an annual basis to determine their effectiveness in reducing NPS pollutants and improving water quality.

- Evaluate progress in meeting tasks and milestones outlined in the NPS Management Plan;
- Include information on BMPs implemented as a result of CWA Section 319, EQIP, CREP or other sources of cost-share and technical assistance in LDEQ's NPS Annual Report;
- Report progress in reducing NPS pollutants, such as sediment, nutrients, and bacteria in the watershed;
- Report annually on water quality improvement in state waterbodies;
- Share data periodically with partners and stakeholders;
- Submit semi-annual and annual reports to EPA which summarize activities and results of the watershed management strategy; and
- Revise LDEQ's website to include information on the progress made in watershed planning and water quality restoration.

LDEQ also participates in an annual program review with USEPA Region 6 to verify that the goals and objectives of the program are being met. Elements of this review evaluate whether the Program is:

1. Meeting Statutory and Regulatory Requirements and Demonstrating Water Quality Results;
2. Reporting via GRTS;
3. Focusing on Watershed-Based Implementation;
4. Ensuring Fiscal Accountability;
5. Considering Performance Partnership Grants (PPG) Priorities and Commitments; and
6. Identifying and Addressing Performance Issues/Progress Concerns.

7. OTHER STATE APPROVED PLANS AND PROGRAMS RELEVANT TO NPS

7.1 Louisiana Water Quality Standards

Louisiana's water quality regulations and standards are designed to 1) provide for the protection and preservation of the abundant natural resources of Louisiana's many and varied aquatic ecosystems; 2) protect the public health and welfare that might otherwise be threatened by degradation of water quality; 3) protect or enhance the quality of state waters for designated uses; and 4) serve the objectives of the Louisiana Water Control Law and Federal Clean Water Act.

Federal regulations require that states hold public hearings at least once every three years to review applicable surface water quality standards and, as appropriate, adopt new or modified standards, taking into consideration public concerns, EPA guidance, and new scientific and technical information. This process is called a triennial review. The triennial review also provides an opportunity to discuss the priorities and commitments the agency makes with EPA and others regarding surface water quality standards. Water quality standards may be updated as needed.

7.2 Source Water Protection Plan

The Source Water Protection Program is part of the NPS Program. For additional information, refer to Section 5.8, Source Water Protection Program.

7.3 State Pesticide Management

LDAF's Advisory Commission on Pesticides serves to protect the interests, health, safety, and welfare of the Louisiana public through rules and regulations pertaining to the proper labeling, sale, distribution, transportation, storage, use and application, and disposal of pesticides within the state.

These rules and regulations include but are not limited to registration of pesticides for sale and use in Louisiana, for governing the certification and licensure of pesticide applicators, for agricultural worker and pesticide handler safety, for water protection, for the transportation, storage and handling of pesticides and pesticide application equipment, and for the treatment of pesticide residues and the handling and disposal of solid wastes generated in the course of pesticide use.

Additionally, LDAF provides technical assistance to producers to implement BMPs that reduce pesticide runoff to waterbodies (https://www.ldaf.state.la.us/ldaf-programs/pesticide-environmental-programs/). The Louisiana Forestry BMP manual also provides pesticide BMPs for silvicultural operations (https://www.ldaf.state.la.us/wp-content/uploads/2014/04/BMP.pdf).

7.4 Louisiana Department of Natural Resources Office of Conservation

The LDNR OC implements the ground water management program [LAC 43:Part VI.Subpart 1], the water well programs for driller licensing, well registration and enforcement (construction and plugging standards) [LAC 46:Part LXXXIX and LAC 56:Part I], and the exploration and production waste (E & P waste) program for off-site (commercial) management of E & P waste [LAC 43:XIX.Subpart 1.Chapter 5].

Manages all settlement and court related activity for litigation subject to the provisions of ACT 312 of 2006 pertaining to site evaluation or remediation pursuant to the ACT and LAC 43:XIX.Subpart 1.Chapter 6, and serves as technical support to other divisions for matters involving ground water impact resulting from E & P waste sources.

The Underground Injection Control (UIC) Section administers a regulatory and permit program to protect underground sources of drinking water from endangerment by the subsurface emplacement of both hazardous and non-hazardous fluids through deep well injection, and other oilfield waste disposal techniques.

The Surface Mining Section is responsible for the regulation of exploration, development, and surface mining operations for coal and lignite, and protection of state and private lands.

The Coastal Use Permit is the basic regulatory tool of Permits/Mitigation Division and is required for certain projects in the Coastal Zone, including but not limited to dredge and fill work, bulkhead construction, shoreline maintenance, and other development projects. The purpose of the Coastal Use Permit process is to make certain that any activity affecting the Coastal Zone is performed in accordance with guidelines established in the Louisiana Coastal Resources Program (LCRP). A prime concern of the CUP Program is to regulate activities that may increase the loss of wetlands and aquatic resources, as well as to reduce conflicts between coastal resource users. More information about the Coastal Use Permit is online: http://www.dnr.louisiana.gov/index.cfm/page/90 and more information about the Office of Conservation can be found here: http://www.dnr.louisiana.gov/index.cfm/page/585.

7.5 Louisiana Coastal Nonpoint Pollution Control Program

The state Coastal Nonpoint Pollution Control Program (CNPCP) has been an ongoing partnership between LDEQ and LDNR. For more information, see Section 5.9, Coastal Nonpoint Pollution Control Program.

7.6 Nutrient Management Strategy

Nutrient impacts and eutrophication are a nationwide water quality concern. Many entities, including the Mississippi River Gulf of Mexico Watershed Nutrient Task Force (Hypoxia Task Force), Gulf of Mexico Alliance, USEPA, and the Gulf Coast Ecosystem Restoration Task Force recognize the need to address excess nutrients within the nation's waterbodies. Louisiana created an interagency team comprised of the Coastal Protection and Restoration Authority of

Louisiana (CPRA), LDAF, LDEQ, and LDNR. The team developed and is implementing a statewide nutrient management strategy to combat nutrient issues impacting waterbodies within the State. The strategy is located at the link below.

https://edms.deq.louisiana.gov/app/doc/view?doc=11972009&key=d749a95e-5bc4-47fc-8bcc-28b0d583a60a

8. ROLES, RESPONSIBILITIES, AND OVERSIGHT

State and federal agencies have specific non-regulatory roles and regulatory responsibilities defined in federal and state statutes as well convention. These roles are shown in Table 10 and with more detail in the following text. Additional agencies may have roles not shown in this table. Following the table, key stakeholder roles are described in more detail.

Table 10 Roles and Responsibilities

Source	Agency With Role or Responsibility
Nonpoint (319)	**USEPA, LDEQ, LDAF**
Agriculture	**LDAF, NRCS, RC&Ds, LSU Ag Center, NEP**
Silviculture	**LDAF, LFA, NRCS, USFS**
Road Construction /Maintenance	**LDOTD, USDOT, LDEQ, LDAF**
Construction	**LDEQ, LDOTD, LDWF (Scenic Rivers)**
Urban Runoff/Stormwater	**LDEQ, LDH, LDOTD, NEP, local governments**
Wastewater	**LDEQ**
Mining/Resource Extraction	**LDNR, BOEM, LDEQ, NEP**
Land Disposal/Landfill Leachate	**LDEQ, LDAF**
OSDS	**LDH, LDEQ, RC&Ds, NEP**
Hydromodification/Channelization	**USACE, LDEQ, NEP, LDWF, local governments**
Hazardous Waste	**LDEQ**
Atmospheric Deposition	**LDEQ**
Streambank Vegetation Removal	**USACE, LDAF, LDWF, local governments**
Spills	**LOSCO, USCG, LDEQ, LSP, NEP**
Storage Tanks, Pipelines, Wells	**LDEQ, LDNR, USCG, LOSCO**
Disasters - ESF10 (Stafford Act)	**FEMA, USEPA, LDEQ, LOSCO, USCG, etc.**
Harbors/Marinas	**USCG, LDEQ, NEP, LDNR**

USEPA

EPA provides grants to state and tribal entities to implement NPS management programs under CWA Section 319(h). Section 319 is a significant source of funding for implementing NPS management programs.

USDA Natural Resource Conservation Service (NRCS)

NRCS has coordinated their cost-share and technical assistance programs in watersheds that LDEQ has identified as having water quality impairments. Programs like EQIP, CRP, CREP, WRP, and the Wildlife Habitat Incentives Program have been instrumental in supporting implementation of BMPs. These practices target reduction of sediment, nutrients, pesticides, and fecal coliform from entering waterbodies in priority watersheds. The Farm Service Agency (FSA) and NRCS provided cost-share funds through USDA to assist farmers in making changes to their fields, poultry houses, and dairy operations. NRCS has been involved in the

statewide forestry NPS program's training sessions, workshops and water quality conferences. Their technical expertise in erosion control methods on forest roads has been an important aspect of these educational activities.

Louisiana Forestry Association (LFA)
LFA is an organization of forestry industry representatives, private non-industrial landowners, foresters, and loggers. LFA has worked closely with LOF, as well as with LDEQ, in development of forestry BMPs and training sessions to educate the forestry community about their utilization. LFA implements the Sustainable Forestry Initiative Master Logger Program and investigates complaints concerning poor forestry practices.

Louisiana Office of Forestry - Department of Agriculture and Forestry (LDAF-LOF)
LOF has the responsibility of forest management across the state and has been an important partner for LDEQ in implementation of forestry BMPs across the state. They were involved in development of the initial forestry BMP manual. They have been involved and been the key player in development of the statewide biannual BMP survey.

U.S. Forest Service (USFS)
The U.S. Forest Service is responsible for management of Kisatchie National Forest in Louisiana and many of the highest quality streams and bayous in the state are on these forest lands.

Louisiana Department of Environmental Quality (LDEQ)
CWA Section 319(b)(1) requires the governor of each state to prepare and submit to the administrator of USEPA a management program which the state proposes to implement for controlling NPS pollution and improving water quality. LDEQ will also exercise oversight and management responsibilities for projects funded with Section 319 funds. LDEQ will also evaluate progress and report to USEPA and other participants on the state's NPS Management Program.

LDEQ has maintained coordination and leadership roles in all of these activities with partners in education, technical dialogue, and policy decisions involving water quality improvement. The partnerships described have shaped Louisiana's NPS Management Program. Through many meetings and discussions, water quality management has been evaluated and analyzed in an attempt to determine the direction that this program should take to protect and improve the state's waters.

A Water Quality Certification, issued by LDEQ, is a statement that a proposed activity will not have an unacceptable impact on water quality, and is issued in accordance with CWA Section 401.

US Army Corps of Engineers (USACE)
USACE regulates sand and gravel operations when they occur in navigable waters and/or other waters of the U.S., including wetlands. The USACE regulates all work and structures in or affecting the course, condition, location, or capacity of navigable waters of the U.S. under Section 10 of the Rivers and Harbors Act of 1899 and by the issuance of activity-specific

permits for discharge of dredged or fill material into waters of the U.S. under CWA Section 404.

USACE has historically been responsible for maintaining the nation's waterbodies for navigation and drainage. Therefore, they are an important partner in hydromodification activities conducted at the watershed level. LDEQ has collaborated with Corps of Engineers on these issues for years, but continues to dialogue on how to protect the state's waterbodies and prevent flooding.

In addition, USACE coordinates the Silver Jackets Program (https://silverjackets.nfrmp.us/State-Teams/Louisiana), which has been operational in Louisiana since 2015. The Louisiana Silver Jackets State team was established to coordinate comprehensive and sustainable solutions to flood risk management in the State of Louisiana and provides an opportunity for communication and advancement of projects with multiple benefits that include water quality.

Federal Emergency Management Agency (FEMA)

FEMA pre-disaster and post-disaster funding supports efforts to increase community resiliency, including nature-based solutions that have water quality improvement co-benefits. Establishing new collaborations with partners such as FEMA will allow for development and funding of green infrastructure and nature based solutions to benefit both flood mitigation and water quality (https://www.fema.gov/emergency-managers/risk-management/nature-based-solutions/funding).

Louisiana Department of Natural Resources

The LDNR-Office of Coastal Management has partnered with LDEQ on NPS programs for coastal communities across Louisiana. LDNR-OCM has developed educational brochures, displays and slide presentations on urban NPS management measures. These materials have been utilized in workshops, meetings, conferences, and NPS coalitions in many coastal areas in south Louisiana.

The OCM's Coastal Use Permit Program issues permits for activities that directly and significantly affect coastal waters. OCM will review the permitting process for inclusion of NPS controls in the CUP Program, and will assist parish local coastal programs in developing and incorporating NPS controls into coastal management programs.

The Louisiana Clean Marina Program promotes and celebrates voluntary adoption of measures to assist marinas and recreational boaters in protecting Louisiana's waters. Designated "clean marinas" are recognized as environmentally responsible businesses and enjoy the positive goodwill and economic feedback of being able to promote their business as a Certified Louisiana Clean Marina.

As a partner under the CZARA, LDNR works with LDEQ on coastal NPS activities as listed in Table 1. See Section 5 for further information.

LSU AgCenter
The LSU AgCenter researches conservation practices and holds workshops for producers and other partners. LSU AgCenter conducts BMP research relevant to Louisiana conditions and informs implementation throughout the state. LSU AgCenter provides education and training programs on water quality issues. They have participated in NPS coalition meetings in several areas in the state.

Resource Conservation and Development Councils (RC&Ds)
RC&Ds are USDA partnerships led by local volunteer councils to help protect and develop economic, natural, and social resources in ways that improve the area's economy, environment, and quality of life. The RC&D Councils have partnered with LDEQ on watershed implementation in many parts of the state. This partnership has been invaluable to successful implementation of watershed restoration projects. RC&Ds inspect, repair, and replace malfunctioning OSDS and have held demonstrations of functioning systems to educate homeowners on operation and maintenance. This partnership has been an essential component to locally-led program implementation.

Local Governments
Local governments may consist of police juries, parish governments, municipalities, and drainage districts, etc. Local governments are often the entities that submit a hydromodification project to LDEQ for certification. The parish is typically responding to a request by the local community for improved drainage for their farms or their subdivision, for alleviating flooding problems. The drainage board may also be responsible for maintaining a project that was implemented by USACE.

Local governments also may assist in OSDS inspections, and may seek to acquire 319 funding for NPS reduction that goes above and beyond the MS4 permit requirements.

National Estuary Program (CWA Section 320)
The National Estuary Program (NEP) is a non-regulatory program established by Congress in 1987. As part of P.L. 100–4, Congress added Section 320 to the CWA to establish the Program to promote comprehensive planning for long-term protection of nationally significant estuaries threatened by pollution, development, or overuse. NEPs are voluntary partnerships of federal, state, local, non-profit, and private interests that collaborate to address water quality problems in, and promote the ecological integrity of, estuaries. Through EPA, the NEP coordinates and funds long-term planning and management activities to address the complex factors that contribute to the degradation of estuaries. EPA provides annual funding, national guidance, and technical assistance to local NEPs.

Louisiana is home to the Barataria-Terrebonne National Estuary Program, established in 1990, one of the 28 NEPs in the US. "The mission of BTNEP is the preservation and restoration of the Barataria – Terrebonne estuarine system, the 4.2 million-acre region. BTNEP strives to rebuild and protect the estuary for future generations through the implementation of a science-based, consensus-driven plan that utilizes partnerships focused on the estuary's rich cultural, economic, and natural resources." (https://btnep.org/about-btnep/what-is-btnep/). BTNEP partners with LDEQ and other agencies to address numerous water quality issues, including

hydrologic modification, habitat loss, eutrophication, pathogens, and toxic substances. Water quality objectives are listed in the Water Quality Action Plan: https://waterquality.btnep.org/action-plans/.

9. PROGRAM AND FINANCIAL MANAGEMENT

In 2013, USEPA published Federal Fiscal Year (FFY) 2014 NPS Program and Grants Guidelines for States and Territories. A copy of the guidelines can be obtained at USEPA's website: https://www.epa.gov/sites/default/files/2015-10/documents/319-guidelines-fy14.pdf.

The purpose of this guidance document was to build upon and replace the *Nonpoint Source Program and Grants Guidelines for States and Territories* that became effective in the FFY 2004 grant cycle, as well as all of the supplemental annual NPS guidance and guidelines that have been published. A primary goal of the new guidelines was to place additional emphasis on watershed-based planning and restoring impaired waters through developing and implementing TMDLs. The guidelines emphasized two key steps to address NPS impairments: development of watershed-based plans, and actual implementation of the plans. The nine key elements of watershed-based planning are defined in Section 3.5 Watershed Implementation Plans.

Each state agency working within the NPS program receiving federal funds through the EPA submits an annual Quality Management Plan (QMP)] following EPA QA/R-2: EPA Requirements for Quality Management Plans. The QMP is drafted by the LDEQ Quality Assurance Manager and submitted for review and concurrence through the LDEQ Secretary, Office of Management and Finance/Undersecretary, Office of Environmental Assessment/Assistant Secretary, Office of Environmental Compliance/Assistant Secretary; Office of Environmental Services/Assistant Secretary; and the USEPA.

LDEQ's QMP describes a management system established by the Department to ensure that the collection, analysis and quality of its environmental data is sufficient for its intended uses (LDEQ, 2021). The plan outlines the procedures to be used to generate quality data, the means to verify accuracy and completeness, and corrective action procedures to promote continual improvement. The plan conforms to EPA QA/R-2 – EPA Requirements for Quality Management Plans and is in support of the Quality Management Statement of Policy. The quality system is implemented in accordance with applicable federal and state laws and rules, standards, requirements documents, guidance documents, contractual requirements, and sound management practices.

In addition to the QMP, LDEQ's Water Quality Management Plan (WQMP) guides activities related to water quality management, pollution control, and planning. The plan was developed in accordance with the CWA §§205(j), 208, and 303(e). LDEQ is authorized to carry out this activity under the Louisiana Environmental Quality Act (LA R.S. 30:2001 and 30:2071). The WQMP is comprised of a number of documents, considered volumes of the plan. The LDEQ WQMP can be found online: https://deq.louisiana.gov/page/water-quality-management.

Finally, LDEQ NPS operates under an active EPA-approved "programmatic" or "umbrella" Quality Assurance Project Plan (QAPP) _#3050 and subsequent project-specific sampling plans. Sampling plans contain the Data Quality Objectives (DQO) according to which NPS collects project water quality data. The QAPP can be found online here: http://www.deq.la.gov/assets/docs/NPSUmbrellaQAPPRevision6.pdf.

It is LDEQ's policy that data of the appropriate type and quality be used by the department in all of its environmental programs and decision making processes. All employees are responsible for adhering to this statement of policy and other policies and procedures stated in this document.

In accordance with Memoranda of Understanding (MOU), LDEQ will continue to serve as the Lead Agency for the state's NPS Program. Currently, LDAF and LDEQ both apply directly to USEPA for CWA §319 funds. This dual role of NPS program implementation allows for a targeted approach for watershed management and a more efficient utilization of these funds. LDEQ will maintain its role as the "Lead Agency" for the State's NPS Management Program, as authorized by Act 272 by the State Legislature in 1987. However in watersheds where agricultural and/or forestry are predominant land-uses that need to be addressed to restore designated uses, LDEQ and LDAF maintain a partnership to focus federal funds directly where TMDLs and WIPS have been completed. If USEPA and LDEQ decide to alter the current approach to allocation of §319 funds, these changes can be made through a letter to the funding agency.

These MOUs between state and federal agencies, universities, local governments and non-profit organizations illustrate the level of cooperation and collaboration that is necessary to implement the State of Louisiana's NPS Management Plan. These MOUs identify and encourage the use of existing authorities and programs to achieve goals and objectives of this NPS plan. As a result of this collaborative approach, NPS pollution should be reduced and water quality goals of the CWA could be met. MOUs between LDEQ and other agencies can be found in Appendix A.

LDEQ is the grant recipient of the CWA §319(h) program funding for the State of Louisiana and acting lead agency for CWA §319 project funding allocated to the Louisiana Department of Agriculture and Forestry (LDAF). As the grant recipient, LDEQ serves as the liaison to EPA Region 6, receiving §319(h) funds. From inception of the grant, LDEQ handles all communications with EPA; submitting proposed work plans, negotiations of the final work plan, submittal of deliverables, and revisions to the work plans. LDEQ also participates on a quarterly basis with the United States Department of Agriculture / Natural Resources Conservation Service (USDA/NRCS) and the LDAF / OSWC; and stakeholders and contractors, as needed.

Financial responsibilities include submittal of the grant application packages, financial reports, disbursement of grant funds, and grant close-out. All procedures are in accordance with LDEQ's standard operating procedures and protocols regarding state and federal policies.

The following guidelines are used in managing §319(h) funds:

- Federal funds are issued through the Automated Standard Application Payments (ASAP) and proper payment draw down processes and are grant specific. Appropriate LDEQ personnel must be enrolled to receive payments under EPA financial assistance agreement. EPA will not make payments to recipients until the ASAP enrollment requirement is met.

    - LDEQ initiates an electronic payment request online via ASAP, which is approved or rejected based on the amount of available funds authorized by EPA in the recipient's ASAP account.
    - Drawdowns are then submitted through Louisiana's State Treasury Office and passed through to LDEQ.

- All grant applications/work plans and subsequent awards are approved by the LDEQ Office of Environmental Assessment (OEA) / Water Planning Assessment Division (WPAD); Office of Management and Finance (OMF) / Financial Services (FS); and the Governor-appointed LDEQ Secretary or designee.
- All items charged against EPA Grants must be approved by LDEQ OEA/WPAD and OMF FS.
- Tasks to be charged must be placed on requisition/invoice/credit card for payment and approved by LDEQ OEA/WPAD and OMF FS.
- Claim for payment is audited, processed, and approved by LDEQ OEA/WPAD and OMF FS. Appropriate supporting documentation is included with designated grant coding at time of processing.
- Expenditure summaries are queried at the end of each month/quarter and charged against the referenced USEPA grant. A request for funds is then made.
- The summary and request for funds is reviewed by the LDEQ OEA/WPAD and OMF FS.
- All records and supporting documentation are maintained with LDEQ OEA/WPAD and OMF FS until disposition authorization is provided by the appropriate agency.
- State and federal funds are audited by the Louisiana State's Legislative Auditor's office to ensure compliance with applicable federal and state laws and rules.
- Expenditures are cost reimbursable monthly/quarterly as applicable and charged against the referenced USEPA grant. A request for funds is then made.

The Louisiana NPS program has historically relied on water programs, including but not limited to, §319(h) program and §319 project funds, §106 funds, §104(b)(3) funds, §604(b) funds Water Quality Management Program funds, PPG funds, CWSRF funds, Network Exchange Grants, and some state cost-share funds.

Recent activity has increased funding opportunities such as CWSRF program supporting NPS-related issues. The State will increase its efforts to research for funding opportunities for NPS related efforts. The section below details the majority of funding sources available for water quality related programs.

Clean Water Act (CWA) §104(b)(3) (USEPA) Noncompetitive Assistance Agreement to Hypoxia Task Force States under Clean Water Act (CWA) 104(b)(3) funds the Nutrient Reduction Strategies Supporting Section 319 CWA Louisiana Nonpoint Source (NPS) Water Quality Analysis and Pilot Expansion of Water Quality Monitoring from Inshore to Offshore.

CWA §106 Supplemental Monitoring (USEPA) to establish and implement ongoing water pollution control programs ensuring health of the nation's waterbodies. Activities include monitoring and assessing water quality; developing water quality standards; identifying

impaired waters and TMDLs; managing national pollutant discharge elimination system permits; ensuring compliance; implementing enforcement actions; protecting source water; and managing outreach and education programs. Projects include:

- Collect Data to Support the Evaluation of Stressor-Response Relationships between Nutrients and Aquatic Life in Inland Lakes and support Expansion of Cyanobacteria Harmful Algal Bloom Pilot Study;
- Cyanobacteria Harmful Algal Bloom Detection and Verification Pilot Study;
- National Lakes Assessment Monitoring and Southern Plains Terrace and Flatwoods Ecoregion Project;
- Biotic Ligand Model (BLM) Methodology and Selenium Freshwater Aquatic Life; and
- Pesticides and Metals Monitoring Activities.

CWA §319(h) NPS (USEPA) assists in implementing the State's NPS Management Plan to control NPS pollution ensuring continued compliance with the §319 CWA and assisting in meeting national water quality goals in the 2022-2026 Strategic Plan. Funding split 50/50 with partner, LDAF for project implementation, with LDEQ acting as lead agency. A 40% match is required with this program.

In addition with the §319(h) work plan, Congress mandated each state to implement a Wellhead Protection Program (WHPP) that protects public water wells and a SWAP to assess potential susceptibility to contamination of all water sources utilized for drinking water supplies. The Source Water Protection Program (SWPP) combines the efforts of WHPP and SWAP to prioritize protection activities. Also, the ASSET Program is an ambient monitoring program established to determine and monitor the quality of groundwater in Louisiana's major freshwater aquifers.

CWA §319 NPS Project Funds (USEPA) the LDAF OSWC provides administration and coordination in the planning and implementation of BMP projects to improve water quality in stream segments impacted by runoff from agriculture and forestry lands in these priority watersheds. A 40% match is required with this program.

CWA §604(b) (USEPA) supports LDEQ's performance of water quality management activities to support restoration and protection activities, including modeling and data analysis activities to support Louisiana's Water Permits Program and Nutrient Management Strategy, TMDL revisions, and other TMDL alternative approaches. The States must pass-through 40% of these funds to regional planning agencies, unless the Governor, in consultation with affected parties, determines that regional planning agency participation will not significantly assist the State in its water quality management planning efforts. With Regional Planning Commissions' approvals, the Governor submits letter to USEPA's Regional Administrator with approval to proceed with DEQ funding.

PPG funds help collect data on the quality of state waters, develop tools and procedures, process incoming water quality permit applications such as Louisiana Pollution Elimination System (LPDES), water quality certifications, pretreatment program audits, biomonitoring programs, and waste permits. They may be used to encourage green infrastructure practices to minimize and

prevent the release of pollutants to Waters of the State, conduct water quality standard activities, assessment activities, modeling functions, and to support TMDL activity.

Capitalization Grants for Clean Water State Revolving Funds §205(m) Title VI of the CWA of 1987 Intended Use Plan (USEPA) Grants to states to capitalize the CWSRF Loan Program to provide other assistance specified in Title VI to communities for the purpose of addressing wastewater treatment, NPS control and estuary protection needs. A 20% match is required with this program.

Exchange Network Grant (USEPA) [Competitive Grant] Water Quality Assessment Process Improvement / Assessment TMDL Tracking and Implementation System (ATTAINS) to advance LDEQ's ability to provide quality, efficient, and timely submittal of water quality information by improving the process of LDEQ data validation and determination of technical acceptability prior to data use by the agency for assessments through development of a more automated and efficient validation process, and by submitting information to satisfy CWA Integrated Reporting §303(d)/§305(b) reporting and TMDL/Alternatives to EPA through the new priority ATTAINS.

Gulf of Mexico Alliance, Gulf Star Program Pilot Expansion of Water Quality Monitoring from Inshore to Offshore: Coastal Louisiana Water Quality Transect Study to fill the critical water quality monitoring gap by establishing a monitoring transect extending from Barataria Pass, LA to the inner shelf.

Louisiana Department of Agriculture & Forestry Funding In addition to §319 funding, LDAF participates in projects funded by EPA Multipurpose Grants, the Coastal Wetland Re-vegetation Program, and USDA Farm Bill Programs: EQIP, CSP, WRE, CRP, and CREP.

10. PROCESS TO EVALUATE AND UPDATE THE MANAGEMENT PROGRAM PLAN

The Nonpoint Source Management Plan serves as the guiding document for NPS pollution activities in the State. Regularly reviewing and revising the document is key to effective management. At a minimum, the EPA requires a thorough review and update every five years. The revision will be drafted, reviewed, approved, and directed by the NPS program with input from partners. The plan will then be submitted to EPA for final approval. The review and revision will be based on success towards achieving goals and milestones of the NPS Program.

LDEQ annually reviews the NPS program and the progress made on achieving milestones outlined in the NPS management plan. The progress of the NPS program is updated in the annual report. The annual report will be generated and submitted to partners for review and evaluation and is available to the public on LDEQ's website. In addition, updates to the plan may be made more frequently than every five years, when necessary to incorporate new activities and strategies. Workplans and watershed plans will also serve as supplements to the management plan. These documents refine the specific activities that are undertaken in a given year in each specific watershed. More current detail is provided in these documents.

Additional interim program updates include the umbrella QAPP, the sampling plan activities, data analysis, and priority watershed updates based on changes in impairment status and/or suspected sources and causes of NPS pollution as reported in the IR.

The current versions of the Annual Report, Watershed Plans, Management Plan, Umbrella QAPP, and other program documents can be found here: Nonpoint Source | Louisiana Department of Environmental Quality (la.gov)

The Integrated Report can be found here: Louisiana Water Quality Integrated Report (Clean Water Act Sections 305(b)/303(d)) | Louisiana Department of Environmental Quality (la.gov)

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Relevant Federal Laws

33 U.S.C. Chapter 26, § 1251 et seq. – Clean Water Act (CWA)

42 U.S.C. Chapter 6a, § 300f et seq. – Safe Drinking Water Act (SDWA)

16 U.S.C. Chapter 33 § 1451 et seq. – Coastal Zone Management Act

Pub. L. 101-508, title VI, subtitle C (Sec. 6201 et seq.). – Coastal Zone Management Act Reauthorization Amendments of 1990 (CZARA)

40 C.F.R. Chapter I – Environmental Protection Agency

40 C.F.R. Chapter I Subchapter D – Water Programs

Relevant State Laws

La. Rev. Stat. tit. 30 §2001 et seq. – (La. R.S. § 30:2001) Louisiana Environmental Quality Act

La. Rev. Stat. tit. 30 §2071 – (La. R.S. § 30:2071) Louisiana Water Control Law

La. Admin. Code tit. 33, pt. IX – (LAC 33:IX) Water Quality

La. Admin. Code tit. 51, pt. XIII – (LAC 51:XIII) Sanitary Code - Sewage Disposal

APPENDIX A: MEMORANDA OF UNDERSTANDING (MOU)

MEMORANDUM OF UNDERSTANDING [MOU]

I. PURPOSE

This Memorandum of Understanding (MOU) between state and federal agencies, universities, local governments and non-profit organizations illustrates the level of cooperation and collaboration that will be necessary to implement the State of Louisiana's Nonpoint Source Management Plan. This MOU seeks to identify and encourage the use of existing authorities and programs that can be utilized to achieve the goals and objectives of this plan. As a result of this collaborative approach to the water quality management, nonpoint source pollution should be reduced and water quality goals of the Clean Water Act (CWA) should be met.

Through this MOU, the Louisiana Department of Environmental Quality seeks to utilize existing programs and encourages new programs to address water quality problems that exist across the state. The entities that have been included in these MOUs are partners that help the state's NPS Management Plan work. As the NPS Program expands and works in more watersheds and basins during 2022-2027 additional partners may emerge and new MOUs will be added. The coordination and cooperation between agencies, non-profit organizations, and local governments will reduce unnecessary duplication of effort and accelerate the rate of implementation of Best Management Practices (BMPs).

II. AUTHORITIES

Section 319 of the CWA instructed the Governor of each state to prepare and submit a Nonpoint Source Management Plan, in order to reduce and control nonpoint source pollution and improve water quality. The State Legislature enacted Act 272 in 1987, designating the Department of Environmental Quality as the "Lead Agency" for the State's Nonpoint Source Program, which was to be prepared in cooperation with state and federal agencies who have land management authorities within the state. This MOU does not alter existing statutory or regulatory authority of cooperating agencies. It is intended to facilitate satisfying those statutory requirements through the development of cooperative federal, state and local efforts.

III. BACKGROUND

The Water Quality Act of 1987 (WQA) amended the CWA of 1972, with Section 319 directing states to develop and implement programs for the control of NPS pollution. Section 319 authorizes financial assistance to the states for implementing State Management Programs.

States are encouraged to develop NPS programs that build upon related water quality programs such as Estuaries (Section 320), Surface Water Toxics (Section 304 (1)), Ground Water, Wetlands, and Storm

Water Permitting. This allows NPS Programs to be implemented in conjunction with other programs and Section 319 funds to be leveraged with resources from other programs.

The Food Security Act of 1985 and 1990 initiated and subsequent amendments established major new conservation provisions, primarily dealing with highly erodible croplands, which when targeted can assist in protection and enhancement of water quality. In carrying out these requirements and other on-going conservation programs, the USDA NRCS Field Office Technical Guide will provide the standards and specifications of BMPs dealing with agricultural planning and implementation, for treating NPS.

Agencies involved recognize the need to improve, conserve, and protect the quality of surface, and ground water for conducting activities in a manner that promotes maintaining and improving the quantity and quality of water available for public consumption and recreation.

IV. PROVISIONS

Involved agencies will continue to integrate water quality concerns into their ongoing programs and activities. Where requested assistance is beyond that currently provided by any one of the involved agencies (either state or federal), and to the extent authorized by existing legal authorities of the involved agency, such additional assistance will be covered by agreements developed at the state level by appropriate agency leaders. These agreements may provide for:

1. Implementation of statewide water quality educational programs and watershed restoration projects related to the State's NPS Management Program;
2. Assistance in the implementation of BMPs; and
3. Other services that the State identifies as necessary for nonpoint source pollution abatement and other water quality program management.

In accordance with this provision, LDEQ and LDAF partner on NPS Program implementation to achieve goals of Section 319 of the CWA. This partnership in the State of Louisiana provides for an effective targeted approach for watershed management to protect and restore waters of the state. LDEQ maintains its role as the "Lead Agency" for the State's NPS Management Program, as authorized by Act 272 by the State Legislature of 1987. However in watersheds where agricultural and/or forestry are the predominant land-uses that need to be addressed to restore water quality, LDAF will apply for and receive federal funds to work with landowners to implement agricultural BMPs that will reduce and control the type of NPS pollutants that have been identified as contributing to water quality impairment.

This state level agreement strengthens assistance and participation with goal of accelerating implementation of the NPS Management Program. Where USEPA grant funds are used by the states to reimburse USDA or other federal agencies, these funds will remain subject to the statutory non-federal match requirements established for these grants. Use of these funds to reimburse any federal agency will not diminish the amount of non-federal match required for the grant.

THE DEPARTMENT OF ENVIRONMENTAL QUALITY AGREES TO:

A. Serve as the "Lead Agency" for the state's Nonpoint Source Management Program and as a partner in the implementation of the Coastal Zone Amendment Reauthorization Act, Section 6217, Coastal Nonpoint Pollution Control Program (CNPCP).

B. Review all project proposals and commit appropriate resources and personnel, where available, to the nonpoint source projects.

C. Review for possible consideration all federal and state funds that are available for nonpoint source projects and determine which projects meet the goals and objectives of the state's NPS Program.

D. Maintain a fixed-station, long-term, surface water quality monitoring network and database combined with a 4-year basin cyclic monitoring program to monitor progress made in the implementation of nonpoint source projects and programs. Utilize any of the special monitoring programs that are available through LDEQ to address nonpoint source concerns (as time and funds allow).

E. Coordinate on a quarterly basis with Federal, State and Local partners, an interagency committee meeting which highlights the progress of on-going projects and proposals for future projects.

F. Update the Nonpoint Source Management Plan and Memorandum of Understanding (MOU) to meet the needs of the Nonpoint Source Management Program as necessary.

LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY

Date 8/1/2022

Dr. Chuck Carr Brown
Secretary, Louisiana Department of Environmental Quality

DEPARTMENT OF AGRICLUTURE AND FORESTRY AGREES TO:

A. Be ultimately responsible through its offices of Soil and Water Conservation, Forestry, and Agricultural and Environmental Sciences for the development, direction, implementation and integrity of natural resource conservation plans that provide for the conservation and protection of soil and water resources within the Soil and Water Conservation District boundaries.

B. Design, construct, improve, operate and maintain structures consistent with the district objectives for soil and water conservation and protection. Districts can enter into cooperating agreements with other agencies and with individual landowners and users.

C. Carry out its legislative authority to oversee Soil and Water Conservation Districts activities, through the State Soil and Water Conservation Committee and the Office of Soil and Water Conservation. The Office of Soil and Water Conservation works closely with each district in developing natural resource conservation plans.

D. Soil and Water Conservation Districts are the local government entities through which the agricultural nonpoint source management programs are implemented. Therefore, the Office of Soil and Water Conservation and the 44 Soil and Water Conservation Districts have an integral and essential role in the development and implementation of the State's Nonpoint Source Management Program.

E. Carry out the governing authority concerning the use of pesticides in the State of Louisiana. The Pesticides Division of the Office of Agricultural and Environmental Sciences with the Department of Agriculture and Forestry exercises authority in state regulation and safe use of pesticides within the state, based on state and federal mandates. The Louisiana Department of Agriculture and Forestry will exchange information that is generated on pesticides with the Louisiana Department of Environmental Quality, in order to prioritize watersheds for nonpoint source implementation projects and educational programs, where pesticides have been detected in surface or ground waters.

F. Through the Office of Soil and Water Conservation working with the Office of Agricultural and Environmental Sciences and the Louisiana Cooperative Extension Service to carry out state and federal laws as they relate to pesticide use. The Office of Agricultural and Environmental Sciences, with assistance from the Louisiana Cooperative Extension Service, will continue to develop and implement educational programs that facilitate the implementation of Best Management Practices for handling, use and application of agricultural chemicals.

G. Be responsible for working with Soil and Water Conservation Districts on continued development and implementation of best management practices that will reduce soil erosion, prevent floodwater and sediment damage, prevent the removal of pesticides and nutrients from the point of application and further soil and water resource protection, conservation, development and utilization.

H. Work closely with state and federal agencies toward implementing nonpoint source program objectives.

I. Advise and guide Soil and Water Conservation Districts in their development of water quality management programs. The Office of Soil and Water Conservation Districts in partnership with USDA Natural Resource Conservation Service will develop nonpoint source pollution control programs by basin, by resource area, by soil type and type of farming operation or designated land use. Best management practices, in addition to those presently contained in the USDA Natural Resource Conservation Service Field Office Technical Guide, will be identified and recommended for abating nonpoint source problems. The Office of Soil and Water Conservation will encourage districts and district cooperators to make water quality a routine component of their soil and water conservation program.

J. Assist Soil and Water Conservation Districts in establishing resource conservation priorities, which govern the activity of cooperating state and federal agencies.

K. Promote the continued cooperation of the Natural Resource Conservation Service, as outlined in the memoranda of understanding with the Secretary of USDA and the Chief of Natural Resource Conservation Service, as the primary source of technical assistance for implementing soil and water conservation programs through Soil and Water Conservation Districts on private lands.

L. Through the Office of Forestry, continue to implement a statewide educational program on silvicultural BMPs and to improve methods for determining BMP effectiveness, including the percentage of silvicultural sites implementing BMPs.

LOUISIANA DEPARTMENT OF AGRICULTURE AND FORESTRY

Date 07/20/2022

Mike Strain, D.V.M.
Commissioner

THE DEPARTMENT OF HEALTH AND HOSPITALS AGREES TO:

A. Continue to monitor public water supplies pursuant to LSA-R.S. 36:258(B), and LSA-R.S. 40:5.

B. Continue to regulate public water supply treatment and distribution systems pursuant to LSA-R.S. 36:258 (B), and LSA-R.S. 40:5.

C. Work with the Department of Environmental Quality to convince local units of government that stricter ordinances are needed to regulate sewage treatment, sanitary sewage disposal, and other wastewater matters, that are considered nonpoint sources for individual homeowners.

D. Work with the Department of Environmental Quality and the LA Cooperative Extension Service on implementation of educational programs for maintenance of individual septic systems and on investigation and evaluation of alternative individual wastewater treatment systems.

E. Continue to monitor those bodies of water for which the Molluscan Shellfish and Beach Monitoring Programs are responsible for pursuant to LSA-R.S. 36:258(B), and LSA-R.S.40:5. Continue to assist the Department of Environmental Quality through laboratory analysis for bacterial contaminants for both point and nonpoint projects as personnel, programs and funds allow. (There is no provision for a recreational water program in Department of Health and Hospitals).

F. Continue to work with the Department of Environmental Quality, as personnel, programs and funds allow, on watershed projects where home sewage systems have been identified as contributing to nonpoint source pollutant loads and loss of designated uses for the stream, lake or estuary.

G. Work with the Department of Environmental Quality on possible ways to improve inspection programs and enforcement actions for home sewage systems, in order to reduce the level of nonpoint source pollution in state waters.

LOUISIANA DEPARTMENT OF HEALTH AND HOSPITALS
OFFICE OF PUBLIC HEALTH

Date _____

Bruce D. Greenstein
Secretary

THE LOUISIANA DEPARTMENT OF WILDLIFE AND FISHERIES AGREES TO:

A. Execute laws and implement policies for the protection, conservation, and replenishment of wildlife and aquatic species within the state.

B. To manage all renewable resources on all wildlife management areas, refuges, and preserves that we may own or lease, which would include some regulatory powers over water quality for those water bodies within our jurisdiction.

C. Continue to administer the State Natural and Scenic Rivers System which specifically prohibits channelization, clearing, and snagging, channel realignment and reservoir construction and to regulate other activities affecting system streams through permit restrictions. Incorporate streambank protection best management practices into permits, where feasible, in order to reduce bank erosion and loss of riparian habitat along the water body.

D. Continue to participate in the environmental review process, conduct water analysis in conjunction with studies of productivity of the State's water and regulates the use of toxicant for fishing.

E. Continue to work with Department of Environmental Quality on watershed restoration projects and educational programs to reduce and control nonpoint source pollution.

LOUISIANA DEPARTMENT OF WILDLIFE AND FISHERIES

Date 6-6-2012

Robert Barham
Secretary

STATE OF LOUISIANA
DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
P.O. Box 94245
Baton Rouge, Louisiana 70804-9245
www.dotd.la.gov
(225) 379-1025

BOBBY JINDAL
GOVERNOR

SHERRI LEBAS
SECRETARY

MEMORANDUM OF UNDERSTANDING (MOU)
Between the
Louisiana Department of Transportation and Development (DOTD)
and the
Louisiana Department of Environmental Quality (DEQ)
Regarding 2011 – 2016 Nonpoint Source Management Plan to
The United States Environmental Protection Agency

The purpose of this Memorandum of Understanding (MOU) is to serve as a letter indicating the importance of a partnership between our Agencies in implanting the States NPS Plan:

THE DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT AGREES TO:

A. Plan, design, construct, maintain, and operate a statewide transportation system consistent with best management practices for the purpose of reducing the level of sediment and other pollutants entering the state's water bodies.

B. Work with the DEQ to incorporate watershed planning and management into development and implementation of the statewide flood control system to reduce the impact of flood control projects on water quality

C. Coordinate and cooperate with DEQ to incorporate best management practices into DOTD's overall water resource planning.

D. Collect, maintain and disseminate water resources information to the general public and to the local, state and federal agencies.

E. Register and maintain a record of all regulated dams and reservoirs in the State.

F. Represent the State on interstate water compacts.

G. Continue to participate in the state's Nonpoint Source Program and work toward inclusion of best management practices into all road and highway projects across the state.

Sherri H. LeBas, P.E.
Secretary
Louisiana Department of Transportation
and Development

5/31/12
Date

THE DEPARTMENT OF NATURAL RESOURCES AGREES TO:

A. Through this MOU the Louisiana Department of Natural Resources (DNR) seeks to further utilize the personnel, expertise and existing programs of interested state and federal agencies for the development a nd implementation of water quality programs and projects for the Coastal Nonpoint Pollution Control Program (CNPCP) under Coastal Zone Act Reauthorization Amendment of 1990 (CZARA) including Section 6217 (Section 310, Coastal Zone Management Act).

B. Through the Office of Coastal Management (OCM) implement the Louisiana Coastal Resources Program (LCRP), that will seek to protect, develop and, where feasible, restore or enhance the resources of the state's coastal zone.

C. Through the Office of Coastal Management (OCM), work cooperatively with the Department of Environmental Quality on nonpoint source implementation projects and seek to make the Coastal Nonpoint Source Program [Section 6217 of the Coastal Zone Act] consistent with the Nonpoint Source Program [Section 319 of the Clean Water Act].

D. Administer the regulatory responsibilities through the Coastal Use Permit Program, the Consistency Program, and the Enforcement Program.

E. Help landowners to preserve the ecological and environmental integrity of the wetlands.

F. Inform and educate the general public, business, and industry about the programs, policies, and functions of the agency.

LOUISIANA DEPARTMENT OF NATURAL RESOURCES

Date 6/18/12

Scott Angelle
Secretary

THE LSU AGRICULTURAL CENTER AGREES TO:

A. As personnel, programs and funding allow, conduct water quality research and demonstrations on Louisiana Agricultural Experiment Station facilities and private lands, and to make Experiment Station facilities and research programs available for educational efforts emphasizing water quality.

B. Provide leadership in developing and delivering Louisiana Cooperative Extension Service educational programs (including field days and demonstrations) to emphasize the adoption of management practices to protect or enhance water quality.

C. Integrate water quality concepts and management techniques into all appropriate programs that address nonpoint sources of pollution.

D. Provide assistance to involved agencies in support of the development and use of site specific information to address water quality issues.

William B Richardson Date 6/1/12

Dr. William B. Richardson
Chancellor and Chalkley Family Endowed Chair
LSU Agricultural Center

John S Russin Date 01 Jun '12

Dr. John Russin
Vice-Chancellor and Director
Louisiana Agricultural Experiment Station

Paul Coreil Date 6/1/12

Dr. Paul Coreil
Vice-Chancellor and Director
Louisiana Cooperative Extension Service

THE NATURAL RESOURCES CONSERVATION SERVICE AGREES TO:

A. Take leadership in conducting Field Office Technical Guide training for involved agency personnel.

B. Integrate water quality concepts and management techniques into all applicable programs to address nonpoint sources of pollution.

C. Provide technical assistance to all agencies in support of meeting water quality standards of the state and in the development and use of educational materials.

D. Encourage the local Soil and Water Conservation Districts to address the water quality priorities of their district in their business plans.

E. Provide on-site assistance to landowners and land-users in all 64 parishes.

F. Enter into state level agreements to provided technical assistance for implementing Section 319 NPS pollution control projects under provisions of Section IV of this Memorandum of Understanding.

USDA-Natural Resource Conservation Service

Kevin D. Norton

Date 8/4/2008

Kevin Norton
State Conservationist

THE FARM SERVICE AGENCY AGREES TO:

A. Encourage FSA County Committees to support Best Management Practices that conform to NRCS Field Office Technical Guide Practices.

B. Review annual practices. Make necessary revisions to meet minimal requirements of the Louisiana Water Quality Standards.

C. Implement, as applicable provisions of the Food, Conservation and Energy Act of 2008 including Conservation Compliance, Highly Erodible Land and Wetlands.

D. Actively support the Conservation Reserve Program, Conservation Reserve Enhancement Program (CREP), and State Acres for Wildlife Enhancement (SAFE).

E. Provide copies of aerial photography to various agencies for use in planning and implementation of programs.

F. Continue to make information on FSA programs available to other agencies, farmers, and landowners.

USDA – FARM SERVICE AGENCY

Willie Cooper
State Executive Director

Date 7/1/08

THE U.S. FISH AND WILDLIFE SERVICE AGREES TO:

A. Assist in development of cooperative education programs to encourage implementation of land-use practices that provide improved habitat for fish and wildlife and also enhances the quality of groundwater and surface water.

B. Provide technical assistance in development of cooperative demonstration projects, design of water quality monitoring programs, assessment of nonpoint source pollution problems of specific drainage basins, and development of plans to remedy such problems.

C. Continue to review water resource development proposals and recommend measures to mitigate adverse project effects on water quality. Mitigation measures would typically include preservation, restoration, or creation of forested wetlands, marshes and other wetland areas that enhance the quality of ground water and surface water and provide important fish and wildlife habitat.

U.S. FISH AND WILDLIFE SERVICE

Field Supervisor

Date 4/1/08

THE U.S. GEOLOGICAL SURVEY AGREES TO:

A. Provide the hydrologic information and understanding needed for the optimum utilization and management of water resources for the people through cooperation with other Federal, State, and local agencies.

B. Collect data on a systematic basis, needed for the continuing determination and evaluation of the quantity quality, and use of water resources.

C. Conduct analytical and interpretive water-resources appraisals, describing the occurrence, availability, and the physical, chemical, and biological characteristics of the surface and ground water.

D. Conduct supportive basis and problem oriented research in hydraulics, hydrology, and related fields of science to improve the scientific basis for investigations and measurement techniques and to understand hydrologic systems sufficiently to quantitatively predict their response to stress, either natural or man-made.

E. Disseminate the water data and the results of these investigations and research through reports, maps, computerized information services, and other forms of public releases.

G. Provide scientific and technical assistance in hydrologic fields to other Federal, State, and local agencies, to licensees of the Federal Power Commission, and to international agencies on behalf of the Department of State.

U.S. GEOLOGICAL SURVEY
LOUISIANA WATER SCIENCE CENTER

Date 6/20/08

Charles R. Demas
Director

The Barataria-Terrebonne National Estuary Program

A. Coordinate programs and activities related to reducing nonpoint source pollutant loads into water bodies within the Barataria-Terrebonne National Estuary (BTNE);
B. Work with LDEQ on watershed implementation in impaired water bodies that have had total maximum daily loads (TMDLs) and watershed implementation plans developed for them.
C. Share data and information such as GIS land-use maps and water quality data that is related to watershed implementation and reduction of nonpoint source pollutants.
D. LDEQ will participate in the BTNEP Management Conference meetings.
E. BTNEP staff will participate in LDEQ's NPS Interagency Committee meetings and water quality conferences.
F. BTNEP and LDEQ will work together to restore water quality and protect wetlands in the BTNE.

Kerry M. St. Pe'

Kerry St. Pe'
Director

Date 4/22/08

THE LAKE PONTCHARTRAIN BASIN FOUNDATION AGREES TO:

A. Collect water quality samples (including the physiochemical parameters of water temperature, dissolved oxygen, specific conductance, salinity, pH, and turbidity and the enteric pathogen indicators fecal coliform and *Enterococcus*) weekly and release the data to the public under an EPA-approved quality assurance project plan.

B. Collect fecal coliform and *Enterococcus* bacteria samples in St. Tammany Parish bi-weekly under an EPA-approved quality assurance project plan.

C. Collect water samples (including fecal coliform and *E.coli* bacteria and physiochemical parameters) at sites in the Tangipahoa and Natalbany Watersheds under an EPA-approved quality assurance project plan.

D. Use water quality data to track down and correct pollution sources within the watersheds.
   - Assist wastewater treatment plant (WWTP) owners and operators with the maintenance and operation of their plants. Work with LDEQ in the proper permitting of WWTPs (when needed).
   - Work with municipalities in the location and correction of sources of infiltration and inflow into wastewater collection systems.
   - Hold educational events focusing on the proper care and maintenance of WWTPs.
   - Educate dairy owners on the importance of installing and maintaining dairy waste lagoons.

E. Maintain communication with state, parishes, and local agencies involved in the clean-up of the watersheds.

F. Give talks to local civic/environmental groups on issues in the Lake Pontchartrain Basin.

G. Give the local media updates on Foundation programs.

H. Share data with all local, state, and federal agencies and universities/research institutions.

LAKE PONTCHARTRAIN BASIN FOUNDATION

Carlton Dufrechou Date 2.13.08

Carlton Dufrechou
Executive Director

THE USDA FOREST SERVICE AGREES TO:

This management agency agreement is entered into by and between the State of Louisiana, hereinafter referred to as the State, and the U.S. Department of Agriculture, Forest Service, hereinafter referred to as the Forest Service, for the purpose of identifying the responsibilities and activities to be performed by each agency in carrying out mandates of the Clean Water Act as amended in 1987, Sections 208 and 319, as related to activities on National Forest System (NFS) lands.

WHEREAS

1. The Louisiana Department of Environmental Quality (DEQ) was designated as the "Lead Agency" for the Nonpoint Source Program by the State Legislature of Louisiana in 1987, within Act 272. This legislative act authorized DEQ to develop the Nonpoint Source Program through coordination of efforts of Federal, State, and Local Agencies.

2. The State is responsible for promulgating a Water Quality Management Plan pursuant to the Clean Water Act as amended in 1987, Section 208 and 319.

3. The Forest Service is authorized and directed by Acts of Congress, namely the Act of June 4, 1897, as amended; Act of June 12, 1960 (16 USC 528-31); and Executive Order Number 11514, approved March 5, 1970; and regulations issued by the Secretary of Agriculture to administer, manage, and protect the lands and resources of the National Forest System, and to cooperate with other agencies.

4. The Forest Service, under Section 313 of Public Law 92-500 (U.S.C. 1252), Executive Order 12088 and Executive Order 12372, is directed to meet Federal, State, interstate and local substantive and procedural requirements respecting control abatement of pollution in the same manner, and to the same extent, as a non-governmental entity.

5. The Forest Service and the State agree that presently the most practical and effective means of controlling potential nonpoint sources from forest management practices is through development and implementation of pollution prevention land management practices.

6. The State and the Forest Service mutually desire:

A. To meet the water quality goals defined by Congress in the Clean Water Act, as amended; and to attain these water quality goals and objectives according to an established plan, Vol. 6 of the Water Quality Management Plan (Nonpoint Source Management Program), in order to minimize duplication of effort and facilitate complementary nonpoint source pollution control abatement programs.

B. To ensure control of potential nonpoint source water pollution source water through implementation of pollution preventive measures generally referred to as Best Management Practices (BMPs).

Recommended Forestry Best Management Practices for Louisiana were revised in 1999-2000, by the Louisiana Forestry Association in cooperation with seven groups, including the Office of Forestry, Louisiana Department of Environmental Quality and the USDA Forest Service. Kisatchie National Forest established "Standards and Guidelines" (S and Gs), which function as technical standards or performance guidelines for all forestry and other management activities on NFS lands, some of which relate to the best management practices.

NOW, THEREFORE

1. The Forest Service agrees to:

A. Accept the responsibility for selecting, implementing, and monitoring of the Standards and Guidelines for activities on National Forest System (NFS) lands and to reduce nonpoint source pollution.

(1) Standard and Guideline Selection.

a. Recognize identified beneficial uses and State Water Quality Standards of water and select Standards and Guidelines (S and Gs) that can be expected to provide necessary protection of these beneficial uses.
b. Manage those activities which have the potential to affect water quality within the guidelines of the State (LDEQ) approved BMPs.

(2) Application of Selected Standards and Guidelines.

a. Specify the selected BMPs/S and Gs in Forest Service project and/or operational plans.
b. Include selected BMPs/S and Gs as contractual provisions for FS projects.
c. Incorporate selected BMPs/S and Gs as conditions for special use authorizations.

(3) Monitoring

a. Coordinate monitoring plans with the Louisiana Department of Environmental Quality through the Nonpoint Source Interagency Committee.
b. Monitor implementation and determine effectiveness of BMPs/S and Gs in meeting identified resource, aquatic and State approved water quality standards on selected activities.
c. In cooperation with the State, develop and implement a procedure for the timely modification of ineffective BMPs.
d. Provide annual summaries to the State of monitoring results.

B. Through participation in the Nonpoint Source Interagency Committee, cooperate with the State and other appropriate governmental agencies in evaluating potential sources of nonpoint source pollution on NFS lands.

C. Coordinate education and training sessions with LDEQ to increase employee awareness of and sensitivity to the importance of maintaining water quality and of the requirements of state and federal water quality regulations.

D. Provide the State, on a biannual basis, a general assessment of water quality accomplishments, monitoring results, problems and priorities for inclusion in the Louisiana Water Quality Inventory [305(b)] Reports.

2. The State agrees to:

A. Review and determine if BMPs selected and implemented by the Forest Service according to Louisiana's Nonpoint Source Management Program process herein identified meet the intent of Section 319 of the Clean Water Act.

B. Coordinate State water quality management planning and implementation with the Forest Service when State and Private Forestry (S and PF) activities on NFS lands are involved and include Forest Service

representation on technical advisory committees relating to NFS or S and PF activities, through the Nonpoint Source Interagency Committee.

C. Provide drafts of applicable water quality laws, regulations, and appropriate state and local BMP handbooks to the Forest Service for their review and comment.

D. Identify NPS implementation projects and review results of monitoring data and information with Forest Service as appropriate.

E. Review of water quality criteria and beneficial use designations when problems are identified by Forest Service and/or State monitoring information.

3. The **Forest Service** and the **State** mutually agree:

A. To coordinate present and proposed water quality monitoring activities adjacent to and within National Forest boundaries; to share data collection and analysis responsibilities when the results are mutually beneficial to the Forest Service and the State; and to routinely make available any unrestricted water quality data and information; and to identify, test and evaluate the effectiveness of BMPs/S and Gs implemented on NFS lands.

B. To provide, on request, technical expertise and support not otherwise available to the other party, to the extent the supplying party's program priorities, budget and availability of expertise allow. Requests might involve, but not be limited to, training and education sessions, developing, testing and implementing water quality models, and establishing projects.

C. To meet no less than semi-annually to maintain coordination/communication, report on water quality management progress, review proceedings under this agreement and to consider/negotiate revisions and amendments that shall become effective after written approval by both parties.

D. That when the views of the State or the Forest Service are contrary to the accepted policy and plans of the other, the Regional Forester, the Commissioner of Agriculture and Forestry, and the Secretary of the Department of Environmental Quality, or their designated representatives, shall meet and attempt to resolve the differences before any further action is taken by either party.

E. That nothing herein shall be constructed in any way as limiting the authority of the State in carrying out its legal responsibilities for management or regulation of water quality, or as limiting the Forest Service in carrying out it legal responsibilities for management of NFS lands.

F. That nothing in this agreement shall be construed as obligating the Forest Service or the State to expend funds in any contract or other obligation for future payment or services in excess of those available or authorized for expenditure.

G. That no member of or delegate to Congress, or Resident Commissioner of the United States, are admitted to any share or part of this agreement, or benefit that may arise there from.

H. That each and every provision of the Management Agreement is subject to the laws of the State of Louisiana, and the laws of the United States, the regulations of the Secretary of Agriculture, and the regulations of the State of Louisiana.

I. This instrument is executed as of the date of last signature and, unless sooner terminated, is effective through September 30, 2013 at which time it will expire unless renewed.

FOREST SERVICE
U.S. DEPARTMENT OF AGRICULTURE

Margrett "Gretta" Boley
Forest Supervisor
Kisatchie National Forest Service

10/14/08

Forest Service Agreement No.: 09-MU-11080600-003

F.S. Agreements Specialist

10-16-08
Date

THE UNITED STATES ARMY CORPS OF ENGINEERS AGREES TO:

A. Exercise authority as contained in Section 10 (33 U.S.C. 403) which covers construction, excavation, or deposition of materials in, over, or under navigable waters, or any work which would affect the course, location, condition, or capacity of those waters to minimize any pollution that could impact the physical, chemical and biological functions of those waters.

B. Exercise authority as contained in Section 404 of the Clean Water Act, which addresses authorization of the discharge of dredged of fill materials into waters of the United States to minimize any pollution that could impact the physical, chemical and biological functions of those waters.

C. Continue to cooperate with the State as required in Sections 401 and 319 of the Clean Water Act.

D. Continue to review water resource development proposals and recommend measures to mitigate adverse project effects on water quality. Mitigation measures would typically include preservation, restoration, or creation of forested wetlands, marshes and other wetland areas that enhance the quality of ground water and surface water and provide important fish and wildlife habitat.

E. Work with the State Nonpoint Source Management Program to incorporate best management practices into projects that impact areas that fall under the auspices of the Corps' jurisdiction in order to reduce sediment erosion and loss of riparian habitat along water bodies.

F. Utilize best management practices on all Corps of Engineers construction projects to minimize runoff into receiving waters.

UNITED STATES ARMY CORPS OF ENGINEERS

Alvin B. Lee

Date 8-19-2008

Alvin B. Lee
Colonel, U.S. Army
Commander, New Orleans District

Date 30 SEP 08

Michael C. Wehr
Colonel, U.S. Army
Commander, Vicksburg District