LOUISIANA COASTAL NONPOINT PROGRAM
NOAA/EPA DECISION ON CONDITIONS OF APPROVAL

FOREWORD

The Coastal Nonpoint Pollution Control Program, set forth in Section 6217 of the Coastal Zone Act Reauthorization Amendments of 1990 (CZARA), 16 U.S.C. § 1455b, addresses nonpoint source pollution problems in coastal waters. Section 6217 directs states and territories with approved coastal zone management programs to develop and implement management measures for nonpoint pollution control to restore and protect coastal waters (coastal nonpoint programs).

This document provides the bases for the determination by the National Oceanic and Atmospheric Administration (NOAA) and the United States Environmental Protection Agency (EPA) (collectively, Federal agencies) that Louisiana has met the conditions that the Federal agencies had identified in the earlier approval with conditions of Louisiana's coastal nonpoint program on June 30, 1998, pursuant to CZARA (1998 findings). In this document, the Federal agencies describe how the State program modifications satisfy each of the conditions identified in the 1998 findings.

DECISION

The Federal agencies issued findings on June 30, 1998, approving Louisiana's coastal nonpoint program submission subject to conditions. Those findings are available at https://coast.noaa.gov/data/czm/pollutioncontrol/media/findla.txt. Since that time, Louisiana has undertaken a number of actions to address each of the identified conditions. Based on those actions and the materials provided by the State that document how its program has met each condition, NOAA and EPA find that Louisiana has satisfied all conditions on its coastal nonpoint program.

INTRODUCTION

CZARA directed EPA to develop technical guidance to assist states and tribes in designing coastal nonpoint programs. On January 19, 1993, EPA issued that guidance in the document, titled *Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters*, 840-B92-002 (January 1993), which addresses five major source categories of nonpoint pollution: (1) agriculture; (2) forestry; (3) urban; (4) marinas and recreational boating; and (5) hydromodification. The guidance also addresses nonpoint source pollution issues associated with the loss or damage to wetlands and riparian areas. The guidance is commonly referred to as the 6217(g) guidance because the statutory direction to EPA appears in CZARA Section 6217(g).

This document is organized following the same structure that was used for the Federal agencies' 1998 findings to support approval of Louisiana's program, with conditions, grouping together the conditions related to each major nonpoint source category or subcategory, as well as conditions related to Louisiana's boundary and strategy for monitoring. The structure for each condition follows a standard format. Each original finding and condition identified in 1998 is repeated,

followed by the Federal agencies' rationale for how the State has met each condition. A list of acronyms is included at the end of this document.

For further understanding of terms in this document, please refer to the following:

- *Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters* (EPA, January 1993).
- *Coastal Nonpoint Pollution Control Program: Program Development and Approval Guidance* (NOAA/EPA, January 1993).
- *Flexibility for State Coastal Nonpoint Programs (NOAA/EPA, March 1995);*
- *Final Administrative Changes to the Coastal Nonpoint Pollution Control Program Guidance for Section 6217 of the Coastal Zone Act Reauthorization Amendments of 1990 (CZARA)* (NOAA/EPA, October 1998) ("Final Administrative Changes").
- *Policy Clarification on Overlap of 6217 Coastal Nonpoint Programs with Phase I and II Storm Water Regulations* (NOAA/EPA, December 2002).

The Federal agencies rely on, but do not repeat here, except as relevant to the findings, extensive information that the State included in various submittals to support its coastal nonpoint program. Further information and analysis are contained in the administrative record for this decision and are available upon request at the following locations:

U.S. EPA Headquarters, Office of Water
Nonpoint Source Management Branch
1200 Pennsylvania Ave., NW (4503-T)
Washington, DC 20460
Contact: Don Waye (202/566-1170)

NOAA, Office for Coastal Management
SSMC-4, N/OCM6
1305 East-West Highway
Silver Spring, MD 20910
Contact: Allison Castellan (240/533-0799)

U.S. EPA Region 6, Water Division
Marine, Coastal and Nonpoint Source Section
1201 Elm St., Suite 500
Dallas, TX 75270-2733
Contact: Patty Taylor (214/665-6403)

I. BOUNDARY

1998 FINDING: As described in the program submittal, Louisiana's proposed Coastal Nonpoint Pollution Control Program area excludes existing land and water uses that have or are reasonably expected to have a significant impact on the coastal waters of the State.

1998 CONDITION: Within one year, the Louisiana Department of Natural Resources (LDNR), Louisiana Department of Environmental Quality (LDEQ), EPA, NOAA, and other appropriate State, local, and federal agencies will participate in a cooperative process to review relevant information and determine an appropriate coastal nonpoint program management area for Louisiana.

2022 DECISION: Louisiana has satisfied this condition.

RATIONALE: Louisiana worked cooperatively with NOAA and EPA to identify an appropriate boundary for the State's coastal nonpoint program. Louisiana's coastal nonpoint management area is composed of watersheds within and adjacent to the State's coastal zone and within the boundary of the Louisiana Coastal Wetlands Conservation Plan.[1] Watersheds are defined as Louisiana Department of Environmental Quality's (LDEQ) water quality management subsegments/watersheds. The management area includes all or part of 30 parishes and encompasses the entire coastal zone as well as areas beyond the coastal zone in most coastal watersheds, including the Calcasieu, Mermentau, Vermilion-Teche, Atchafalaya, and Lake Pontchartrain watersheds.

Louisiana originally proposed to use its coastal zone to meet this condition, which the State had previously established in accordance with the federal 1972 Coastal Zone Management Act and which was limited to all or part of 19 parishes. In 2010, the State expanded the boundary of its coastal nonpoint management area beyond the coastal zone to include additional areas inland that are reasonably expected to have significant impacts on Louisiana's coastal waters. Overall, the coastal nonpoint management area boundary encompasses the Mississippi River deltaic plain on the eastern side of the State to the western chenier plain and includes the coastal areas experiencing the highest rates of land loss. The current expanded coastal nonpoint management area incorporates additional forested and agricultural lands, areas experiencing urban runoff, and waterways which are reasonably expected to have significant impacts on coastal waters. This expanded boundary encompasses significantly more of the watersheds draining south toward Lake Pontchartrain, including large portions of several of the Florida parishes and portions of the Tangipahoa and Tickfaw River basins. It also includes additional lands surrounding and south of Baton Rouge, larger areas of the Barataria-Terrebonne watershed, Vermilion-Teche watersheds and additional lands in the White Lake and Lake Charles areas.

In the 1998 conditional approval findings, NOAA and EPA noted potential concerns about whether Louisiana had adopted sufficient enforceable policies and mechanisms for the urban management measures in the areas outside of its coastal zone. The Federal agencies also raised concerns about the state's proposal to have different management schemes for the areas inside

[1] Louisiana Department of Natural Resources. *Map of Louisiana Coastal Nonpoint Program Boundary*. Accessed 9/7/2020. http://www.dnr.louisiana.gov/assets/OCM/Interagency/CoastalNonpoint/BoundarywebCZreva.jpg

and outside the coastal zone management boundary. As described further in the rationales for specific management measures in the following sections, LDNR, LDEQ and other State agencies have specific roles in implementing programs within the State's coastal nonpoint management area. Louisiana has now demonstrated that it has adequate enforceable mechanisms and policies to ensure implementation of the 6217(g) management measures, including the urban management measures, throughout the entire coastal nonpoint management area as needed. The State employs a mix of direct authorities as well as voluntary programs, backed by enforceable authorities. Louisiana has provided a legal opinion from LDEQ's General Counsel's office asserting that Title 33 Environmental Quality Part IX provides sufficient enforceable back-up authority for the voluntary programs used.

NOAA and EPA find that the current coastal nonpoint program boundary is sufficient to ensure implementation of management measures to restore and protect coastal waters. The revised boundary extends inland to the extent necessary to control nonpoint source pollution from land and water uses that, individually or cumulatively, have a significant impact on a state's coastal waters.

II. AGRICULTURE

1998 FINDING: Louisiana's program does not include management measures in conformity with the 6217(g) guidance. The State has identified back-up enforceable policies and mechanisms but has not yet demonstrated the ability of these authorities to ensure implementation throughout the coastal nonpoint program management area.

1998 CONDITION: Within three years, Louisiana will include in its program management measures for agricultural sources in conformity with the 6217(g) guidance. Within one year, Louisiana will develop a strategy to implement the agricultural management measures throughout the coastal nonpoint program management area. This strategy will include a description and schedule for the specific steps the State will take to ensure implementation of the management measures, describe how existing or new authorities can be used to ensure implementation where voluntary efforts are unsuccessful, and identify measurable results which, if achieved, will demonstrate the State's ability to achieve implementation of the management measure using the described approach.

2022 DECISION: Louisiana has satisfied this condition.

RATIONALE: Louisiana meets the agriculture management measures largely through development of best management practice manuals for the agriculture sectors most prevalent in its coastal nonpoint management area and voluntary implementation of the management practices through the State's Master Farmer Program, technical assistance, and outreach programs. The LDEQ's General Counsel's office has provided a legal opinion that the State has the legal authority to prevent nonpoint pollution and to require implementation of the 6217(g) management measures if the State's voluntary efforts prove to be unsuccessful. The management measures are not applicable to operations at confined animal facilities regulated under National Pollutant Discharge and Elimination System (NPDES) permits.

With well over two million acres in agricultural production[2] across the State's coastal nonpoint management area, parishes in Louisiana's coastal nonpoint management area are among the most agriculturally productive in the State, particularly for sugarcane, rice, crawfish and other aquaculture, cattle, dairy, hay and horses.[3]

The Louisiana State University AgCenter (LSU AgCenter) developed a series of best management practices (BMP) manuals with endorsement by the U.S. Department of Agriculture's Natural Resource Conservation Service (USDA-NRCS), the Louisiana Farm Bureau, and the Louisiana Department of Agriculture and Forestry (LDAF) for the primary commodities farmed in the State's coastal nonpoint management area.[4] These include agronomic crops[5] (soybeans, cotton, wheat, corn and feed grains), sugarcane,[6] sweet potatoes,[7] sustainable

[2] USDA National Agricultural Statistics Service. 2019. *Census and County Data*. Accessed: 03/18/2020. https://www.nass.usda.gov/Publications/AgCensus/2017/index.php

[3] LSU AgCenter. 2018. *Highlights of Louisiana Agriculture.* Accessed: 03/02/2020. https://www.lsuagcenter.com/~/media/system/d/7/8/c/d78c489f32e9ccde2e2eb7128e14ccb8/highlights%20of%20louisiana%20agriculture%202018pdf.pdf

[4] LSU AgCenter's *Online Repository for Louisiana-Specific Agricultural BMP Manuals*. Accessed: 05/03/2021. https://www.lsuagcenter.com/portals/our_offices/departments/wa-callegari-environmental-center/bmp/bmp-manuals

[5] LeBlanc, B., Sheffield, R., Kruse, J., and Nix, K. 2011. *Environmental Best Management Practices for Agronomic Crops: Soybeans, Cotton, Wheat, Corn, and Feed Grains*. Accessed: 12/20/2019. https://www.lsuagcenter.com/~/media/system/5/1/8/0/518069797dc2aead6927bea08040af34/pub2807agronomiccropsbmplowres.pdf

[6] Gravois, K., LeBlanc, B., Sheffield, R., and Nix, K. 2011. *Sugarcane Environmental Best Management Practices*. Accessed: 12/20/2019. https://www.lsuagcenter.com/~/media/system/f/2/6/a/f26a3c1e49e142a87ea8d1dfee611c4b/pub2833_sugarcanebmp.pdf

[7] Smith, T., Villordon, A., Sheffield, R., LeBlanc, B., and Nix, K. 2012. *Environmental Best Management Practices for Sweet Potato Cultivation*. Accessed: 12/20/2019. https://www.lsuagcenter.com/~/media/system/0/3/7/e/037eccc50a8bfcda2ed149aa5545be5b/pub2832sweetpotatobmphires.pdf

rice,[8] aquaculture,[9] crawfish,[10] swine,[11] poultry,[12] and sustainable dairy[13] and beef production.[14] The State's BMP manuals provide practical guidance to landowners, land managers, farmers, ranchers and the agricultural industry to avoid and minimize polluted runoff from agricultural activities. The manuals describe many BMPs that are consistent with the 6217(g) management measures for agriculture (Erosion and Sediment Control, Confined Animal Facility Management, Nutrient Management, Pesticides, Grazing and Irrigation). Examples of some of the practices that address these management measures are described below. Also supporting the implementation of the 6217(g) management measures for agriculture are the State's various voluntary education, outreach, and technical assistance programs. Where relevant, information on these programs is also provided below.

Erosion and Sediment Control Management

This management measure reduces erosion from cropland by utilizing the installation of management and physical practices to capture and settle out sediment delivered via runoff from storms up to and including the 10-year, 24-hour event.[15] Alternatively, the erosion component of a Conservation Management System may be applied to satisfy the requirements of the erosion and sediment control management measure where these practices are not applied.

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[8] Saichuk, J., Sheffield, R., LeBlanc, B., Girouard, E., Hollier, C., and Nix, K. 2011. *Sustainable Rice Best Management Practices*. Accessed: 12/20/2019. https://www.lsuagcenter.com/~/media/system/b/4/d/0/b4d0f0a36d09b8b00a78f669747500c3/pub2805ricebmplowres.pdf

[9] Lutz, G., LeBlanc, B., Sheffield, R., and Nix, K. 2011. *Aquaculture Environmental Best Management Practices*. Accessed: 12/20/2019. https://www.lsuagcenter.com/~/media/system/0/5/a/f/05afcbd7cdb94fddd10a78effd58a35c/pub2894aquaculturebmplowres.pdf

[10] Lutz, G., Romaire, R., LeBlanc, B., Sheffield, R., and Nix, K. 2011. *Crawfish Environmental Best Management Practices*. Accessed: 12/20/2019. https://www.lsuagcenter.com/~/media/system/4/2/3/9/4239cc5236a1a77a65c0c1f20def8227/pub3186crawfishbmp.pdf

[11] Sheffield, R., Page, T., LeBlanc, B., and Nix, K. 2012. *Environmental Best Management Practices for Louisiana Swine Production*. Accessed: 12/20/2019. https://www.lsuagcenter.com/~/media/system/e/b/9/e/eb9e760c32d8d1bdcce396f52f45d3e8/pub2835swinebmpsjan2012lowres.pdf

[12] Lavergne, T., Sheffield, R., LeBlanc, B., and Nix, K. 2011. *Poultry Environmental Best Management Practices*. Accessed: 12/20/2019. https://www.lsuagcenter.com/~/media/system/c/b/2/e/cb2edb08b8c71279649b837445f4f0d5/pub2806poultrybmplowres1.pdf

[13] Sheffield, R., LeBlanc, B., Moreira, V., and Twidwell, E. 2010. *Sustainable Dairy Production Best Management Practices*. Accessed: 12/20/2019. https://www.lsuagcenter.com/~/media/system/8/c/f/d/8cfd790bf1cc39487b07f3699a7a5a0e/pub2823dairybmphighres.pdf

[14] Sheffield, R., Harborth, K., Scaglia, G., LeBlanc, B., Nix, K., and Pope, K. 2012. *Sustainable Best Management Practices for Beef Production*. Accessed: 12/20/2019. lsuagcenter.com/~/media/system/c/f/1/6/cf1624fa7391138c9a9fa5ff206ee88f/pub2884beefbmppublowres.pdf

[15] Per the 6217(g) guidance, the 10-year, 24-hour event is defined as "[a] rainfall event of 24-hour duration and 10-year frequency that is used to calculate the runoff volume and peak discharge rate to a BMP or conservation practice."

All of the above listed Louisiana's Best Management Practices Manuals include a chapter which describes general farmstead management practices. Examples of practices in these manuals that are in conformity with the erosion and sediment control management measure include:

- Protection of heavy-use areas, including the use of geotextile fabrics and gravel to reduce muddy conditions; locating dirt lots away from perennial and intermittent streams or swales; strategic placement of vegetative buffers and terraces; diversion of surface water around dirt lots; and placement of earthen or concrete settling basins at the lowest edge of dirt lots (agronomic crops, sweet potatoes, sugarcane, rice, swine, poultry, beef, dairy, crawfish).
- Planting of critical areas such as levees, cuts, or gullies with perennial plants to control erosion (agronomic crops, sweet potatoes, sugarcane, rice, swine, poultry, beef, dairy, crawfish).
- Implementing conservation tillage practices as part of a conservation management system to reduce sheet and rill erosion (agronomic crops, sugarcane, rice, swine, poultry, dairy, crawfish).
- Planting cover crops to provide seasonal soil loss protection[16] (agronomic crops, sweet potatoes, sugarcane, beef).
- Reshaping the landscape with precision land forming to planned grades to improve surface drainage, control runoff, and reduce erosion (agronomic crops, sweet potatoes, sugarcane).
- Planting filter strips and buffers along drainage ways, streams, and other bodies of water to reduce sediment, organic material, nutrients and chemicals carried in runoff (agronomic crops, sweet potatoes, sugarcane, rice, swine, poultry, beef, dairy, crawfish).
- Constructing grassed waterways to carry runoff without causing erosion and to filter some suspended sediment (agronomic crops, sweet potatoes, sugarcane, rice, swine, poultry, beef, dairy, crawfish).
- Retaining and planting riparian forest buffers adjacent to and/or uphill from waterbodies, wetlands and groundwater recharge areas to remove, reduce, or buffer the effects of nutrients, sediment, organic material and other pollutants before entry into surface water and groundwater recharge systems (agronomic crops, sweet potatoes, rice, swine, beef, dairy).
- Managing roof runoff using gutters and downspouts to direct runoff from the roofs of barns or other structures away from areas of concern and onto the ground surface with velocity dissipation systems such as rock pads, rock-filled trenches, or concrete to prevent erosion and to ensure ground infiltration (dairy, swine, poultry).

Louisiana also has several technical assistance resources that further support the voluntary implementation of the erosion and sediment control management measure. Specifically, in addition to encouraging erosion and sediment control practices through the BMP manuals, the LSU AgCenter also holds annual "Soil Health" meetings to promote erosion and sediment

[16] Per the Natural Resources Conservation Service, "[t]he term 'green manure' refers to cover crops that are tilled into the soil. Green manures are mainly grown to increase soil organic matter." NRCS. 2012. *Technical Note (TN PLANT MATERIALS NO. 55).* Accessed: 10/30/2020.
https://www.nrcs.usda.gov/Internet/FSE_PLANTMATERIALS/publications/nvpmctn10965.pdf

control practices, creates newsletters, hosts workshops, and updates relevant publications on the web annually.[17] The LSU AgCenter also has an extension office in every parish in the State that promotes the BMPs and can provide farmers with additional assistance, when needed. Furthermore, the NRCS provides technical support to farmers to develop voluntary conservation plans, which address soil loss from erosion.

Facility Wastewater and Runoff from Confined Animal Facility Management (Small and Large) The management measures are designed to ensure that operators of small confined animal facilities design and implement systems that collect solids, reduce contaminant concentrations, and reduce runoff to minimize the discharge of contaminants in both facility wastewater and runoff from storms up to and including the 25-year, 24-hour event. These management measures call for operators of large confined animal facilities to store wastewater and runoff caused by storms up to and including the 25-year, 24-hour event and manage stored waste through a waste utilization system. Per the 6217(g) guidance, the Facility Wastewater and Runoff from Confined Animal Facility Management Measures are not applicable to operations at confined animal facilities subject to NPDES permits. The State's beef, dairy, swine and poultry BMP manuals describe practices that are in conformity with the 6217(g) guidance.

The BMP manuals for the dairy, swine, and poultry operations that are subject to the coastal nonpoint source management program (rather than NPDES permit requirements) each describe components of waste management systems that can be used to appropriately store, separate, or treat livestock waste. Examples include:

- Gravity settling basins, which are shallow basins with concrete floors and walls and a porous dam or perforated pipe outlet capable of removing 50 percent or more of the solids from liquid manure (dairy and swine).
- Anaerobic lagoons, which are earthen-lined lagoons that are generally used for partial treatment of manure and which are designed to contain the 25-year, 24-hour storm (dairy and swine).
- Litter/manure storage facilities designed in accordance with the USDA NRCS guidelines (poultry).
- Farmstead management practices such as heavy use area protection, roof runoff management (dairy, swine, and poultry), and filter strips and field borders (dairy, swine, beef, and poultry) discussed in the preceding section.

The BMP manual for beef does not include detailed discussion of waste management systems. This is appropriate because, according to the State, beef cattle in Louisiana are typically grazed on pastures, not in the confined facilities that the management measure is designed to address. Furthermore, herd sizes are typically small, ranging from 20-50 cows, and finishing cattle at feedlots is not generally practiced in the State.[18] The management measure for facility wastewater and runoff from confined animal facility management (small) is intended to be applied to all existing confined animal facilities that contain 50-299 head of beef cattle. As a

[17] LSU AgCenter. February 6, 2020. *AgCenter soil workshop, field day set for Feb. 26 in St. Joseph* (website). Accessed: 11/17/2020. https://www.lsuagcenter.com/profiles/rbogren/articles/page1581005477597.
[18] LSU Ag Center. 2016. *Beef Cattle Production in Louisiana*. Accessed: 02/28/2020. https://www.lsuagcenter.com/~/media/system/8/f/6/2/8f62ca300609f178e9ea965b239f0b4f/pub2836intro.pdf

result, the typical beef cattle operation in Louisiana would be just at or below the threshold for applicability and would not contain confinement facilities that would fall within the scope of the management measure, meaning the management measure is of little relevance to Louisiana beef cattle farming operations.

The BMP manuals for dairy, beef, swine and poultry also contain guidance on appropriate waste utilization practices. For example, the BMP manual for dairy states that manure application should be limited or completely avoided on erodible soils, wet soils or above soil infiltration rate.

Nutrient Management
The nutrient management measure is primarily concerned with the application of nutrients to cropland and requires the development and implementation of nutrient management plans so as to prevent nutrient pollution from root zone leaching and edge-of-field delivery. Louisiana's Best Management Practices Manuals for field crops, including agronomic crops, sugarcane, and sweet potatoes, encourage farmers to implement comprehensive nutrient management plans which are consistent with the 6217(g) nutrient management measure. Specifically, these manuals recommend that nutrient management plans include the following:

- An evaluation of nutrient needs based on:
    - A detailed farm map showing property lines, field identification, soils, surface waters, and directions of surface flows indicating the direction of flow from the farm.
    - A list of crops to be grown on each field and realistic yield goals for each crop.
    - The location of critical areas that are sensitive to nutrient pollution such as waterbodies (buffer zones where nutrient use will be reduced or eliminated should be created around these areas and indicated on the detailed farm map).
    - Soil testing for essential plant nutrients such as nitrogen, phosphorus, and potassium.
    - An estimate of the nutrient needs (i.e., lime, nitrogen, phosphorus, and potassium) of the crop for each field based on the results of soil testing.
- An inventory of nutrient supply including the amount of nutrients already present in the soil and crop residues.
- A nutrient balance based on estimated nutrient supply and demand.
- A detailed schedule and records regarding calibration of spraying and spreading equipment, crop yields, as well as nutrient application rates, methods, and timing.

The State's BMP manuals also describe several sound nutrient management practices which can help to reduce nutrient pollution by enhancing nutrient use efficiency. These include:

- Testing soil for nutrient status and pH to determine the amounts of additional nutrients needed to reach designated yield goals and the amount of lime needed to correct soil acidity problems, determining the organic matter concentration to decide how much of these nutrients the particular soil is capable of holding, optimizing farm income by avoiding excessive fertilization and reducing nutrient losses from leaching and runoff, and identifying other yield limiting factors such as high levels of salts or sodium that may affect soil structure, infiltration rates, surface runoff and, ultimately, groundwater quality. It is recommended that soil tests be taken at least every three years or at the beginning of a different crop rotation. (agronomic crops and sweet potatoes).

- Basing fertilizer applications on soil test results, realistic yield goals, moisture prospects, crop nutrient requirements, past fertilization practices and previous cropping history (agronomic crops and sweet potatoes).
- Basing nitrogen application on location-specific research conducted in Louisiana, since nitrogen rates in sweet potatoes can vary depending on soil type, geographic location and variety planted. (sweet potatoes).
- Timing nitrogen applications to correspond with crop uptake patterns to increase nutrient use and minimize off-site losses (agronomic crops and sweet potatoes).
- Injecting fertilizers or incorporating surface applications in conventionally tilled systems when possible to increase accessibility of fertilizer nutrients to plant roots and reduce nutrient losses from erosion and runoff (agronomic crops, sweet potatoes, and sugarcane).
- Using legumes, where appropriate, to replace part or all of crop needs for commercial nitrogen fertilizer and reduce erosion and nutrient losses (agronomic crops, sweet potatoes, and sugarcane).
- Controlling nutrient losses in erosion and runoff by using appropriate structural controls, adopting conservation tillage practices where appropriate, properly managing crop residues, leveling land, using filter strips where possible and implementing other soil and water conservation practices (agronomic crops and sweet potatoes).
- Testing for the amount of soluble nitrogen and the amount of nitrogen expected to be mineralized from the organic fraction during the growing season, when organic materials are used as a nitrogen source (agronomic crops, sweet potatoes, and sugarcane).
- Testing for the amount of phosphorus when organic materials are used as a phosphorus source (agronomic crops, sweet potatoes, and sugarcane).

Additionally, the BMP manuals for dairy, beef, swine and poultry contain guidance on appropriate waste utilization practices. For example, the dairy, beef, swine and poultry BMP manuals encourage farmers to consider environmental issues along with materials-handling and economic factors when selecting and operating manure/litter application equipment. These manuals discuss the importance of nitrogen conservation, soil compaction, and the timeliness of manure nutrient application. The manuals also discuss the importance of maintaining spreaders to apply manure uniformly, providing consistent application rates between loads, and maintaining calibration of spreaders and irrigation systems.

These BMP manuals also include environmental ratings for many types of manure/litter application systems on a variety of factors including uniformity of application, nitrogen conservation, odor nuisance, soil compaction, and timeliness of manure application. These include solid systems (dairy, beef, swine, poultry) such as box spreaders, flail-type spreaders, side discharge spreaders, and dump trucks; surface spread liquid systems (dairy, swine) such as liquid tankers with splash plates and center pivot or big gun irrigation systems; and incorporation liquid systems (dairy, swine) such as tankers with knife injectors or shallow incorporation and drag hoses with shallow incorporation.

The BMP manual for dairy states that manure application should be limited or completely avoided on erodible soils, wet soils, or soils with high infiltration rates. It also states that realistic yield expectations or actual yields, soil and manure analyses, soils slopes, proximity to surface waters, and climatic conditions should all be taken into consideration before determining

application rates for manure and other fertilizers. The manual stresses the centrality of following agronomic recommendations for establishing application rates for manure and other fertilizers.

Louisiana addresses the nutrient management measure for rice production through a suite of voluntary guidance manuals and technical assistance resources. While nutrient management plan development is not explicitly addressed in the LSU AgCenter's Sustainable Rice BMP Manual,[19] two additional voluntary guidance manuals describe sound nutrient management practices that are consistent with the intent of the 6217(g) guidance. Specifically, in Rice Varieties and Management Tips,[20] a publication which the LSU AgCenter publishes and updates annually, brief guidelines regarding the timing, types, and quantities of nutrients to apply rice crops, as well as timely updates on rice crop management are described. The Rice Varieties and Management Tips guidebook incorporates by reference the State's Rice Production Handbook,[21] which includes an in depth-discussion of rice nutrient needs, mechanisms for efficient delivery, nutrient application timing, best practices for soil fertility testing, and best practices for application of poultry litter as fertilizer. Taken together, the documents ensure that rice producers have the information necessary to ensure that nutrients are applied efficiently and at the appropriate time. Finally, both the NRCS and LSU AgCenter provide technical assistance to develop farm-specific conservation plans, which may include comprehensive nutrient management plans.

Pesticide Management

The pesticide management measure seeks to reduce contamination of surface waters and groundwater by outlining a series of steps that agricultural producers should follow when managing pesticides. Louisiana's best management practices manuals for dairy, beef, poultry, swine, agronomic crops, rice, sugarcane, and sweet potatoes describe practices that are consistent with the 6217(g) pesticide management measure. Some examples include:

- Assessing all of the environmental factors involved in all of the areas surrounding the application site prior to pesticide application.
- Considering timing of pesticide application, such as avoiding application of pesticides right before a rainfall event.
- Using pesticides only when needed to prevent economic loss of a crop;
- Calibrating spray equipment at the beginning of every spray season and periodically thereafter.
- Considering the solubility, adsorption, volatility, and degradation characteristics as well as potential effects on beneficial insects, nontarget organisms, and the general environment when selecting a pesticide.

[19] Saichuk, J., Sheffield, R., LeBlanc, B., Girouard, E., Hollier, C., and Nix, K. 2011. *Sustainable Rice Best Management Practices*. Accessed: 12/20/2019. https://www.lsuagcenter.com/~/media/system/b/4/d/0/b4d0f0a36d09b8b00a78f669747500c3/pub2805ricebmplowres.pdf

[20] LSU AgCenter. 2020. *Rice Varieties and Management Tips*. Accessed: 02/28/2020. https://www.lsuagcenter.com/~/media/system/8/1/e/1/81e17e54a628e198b585df0213ccfb7d/p2270_2020ricevarietiesmgmttipsrev_rh1219dharrellpdf.pdf

[21] LSU AgCenter. n.d. *Louisiana Rice Production Handbook*. Accessed: 02/28/2020. https://www.lsuagcenter.com/~/media/system/9/0/e/9/90e93160aba5daccea90c6d955299f74/pub2331riceproductionhandbook2014completebook.pdf

- Basing pesticide selection on its registered uses and its ability to give the quality of pest control required.
- Siting pesticide storage locations so as to minimize the chance of pesticides escaping into the environment. Specifically, by avoiding areas that are susceptible to flooding or where soil characteristics would allow escaped chemicals to percolate into groundwater.
- Maintaining air gaps when filling spray tanks to prevent back-siphoning.

Grazing Management
The grazing management measure seeks to protect range, pasture and other grazing lands from physical disturbance by requiring the implementation of specific practices in riparian areas and the development and/or implementation of plans to protect non-riparian areas. Louisiana's best management practices manuals for sustainable dairy and beef production describe several practices that are consistent with the 6217(g) grazing management measure. Some examples include:

- Developing off-stream water systems, such as placing water sources such as troughs or tanks away from streams to prevent the direct deposition of animal waste into waterbodies and damage to the banks of ponds, streams, and rivers.
- Placing ramps that limit animal access to water bodies and stabilizing access points, thereby preventing erosion and direct deposition of animal waste (beef).
- Protecting streams and streambanks from the impacts of cattle movement by improving lanes and stock trails using gravel and/or geotextile fabric and locating them as far away from streams as possible, and maintaining streambank integrity by improving stream crossings where cattle must cross.
- Fencing livestock out of streams, wetlands, or spring-fed water sources when water quality or streambanks have been or will be adversely impacted by their presence.

Irrigation Water Management
The purpose of the irrigation water management measure is to reduce nonpoint source pollution resulting from irrigation by enhancing the efficiency of irrigation practices and minimizing discharge from chemigation systems. The Louisiana Best Management Practices Manuals for agronomic crops, sweet potatoes, and rice each describe irrigation water management practices which are in conformity with the 6217(g) guidance. Because the irrigation techniques of field crops (such as agronomic crops and sweet potatoes) are considerably different from those of other crops (like rice), each is addressed separately below.

The Louisiana best management practices manuals for agronomic crops and sweet potatoes explain that proper irrigation water management means "timing and regulating water applications in a way that will satisfy the needs of a crop and efficiently distribute the water without applying excessive amounts of water or causing erosion, runoff or percolation losses." The irrigation manuals also describe best management practices that are consistent with the 6217(g) guidance. Some examples include:

- For sweet potatoes and agronomic crops, having a good understanding of the factors that influence proper irrigation scheduling and water management (i.e., basing the timing of irrigation and the total amount of water applied per irrigation on real-time information

such as the crop's water consumption, the moisture content of the soil, and expected rainfall, rather than at pre-established intervals).

- For sweet potatoes and agronomic crops, reducing pollutants in irrigation return flows from furrow irrigation systems by eliminating or reducing surface runoff, eliminating or reducing soil loss, or reducing pollutants' return flow (i.e., properly designing, operating, and managing irrigation systems, adopting a production system that encourages the accumulation of organic matter, and/or implementing practices such as grass buffer strips, artificial wetlands, or settling basins and ponds to reduce pollutant-bearing sediments).
- Applying water when the crop has used about half the available water capacity in the root zone and advising not to completely fill or overfill the root zone which leaches chemicals such as nitrate/nitrogen, wastes water, and increases costs (sweet potatoes and agronomic crops).
- Basing irrigation management plan for sweet potatoes on optimizing soil moisture during the critical storage root initiation period and for supporting maximum storage root bulking until harvest (sweet potatoes).

The BMP manuals for sweet potatoes and agronomic crops also discuss the merits of furrow and sprinkler irrigation systems. Specifically, the manuals discuss factors that affect the performance of these irrigation systems, relative control over uniformity of irrigation, common pitfalls, and recommendations to ensure efficient irrigation and reduce runoff.

The BMP manual for sustainable rice production[22] also makes recommendations that are in conformity with the 6217(g) guidance. For example, this BMP manual recommends that producers:

- Apply the water needed for each irrigation application in the most efficient manner.
- Apply water at a rate and in such a manner that it will not cause excessive soil and water loss.
- Install water control structures and grade stabilization structures to facilitate water application and release.
- Install and maintain grade stabilization structures such as pipe drops to reduce erosion.
- Use an established irrigation scheduling method when using a center pivot irrigation system.

The BMP manual for sustainable rice production also discusses ways to improve the efficiency of flood irrigation systems (e.g., intermittent or alternating wet-dry irrigation, multiple- or side-inlet irrigation, etc.) as well as rice cultivation using center pivot irrigation.

Element 2 of the 6217(g) irrigation water management measure calls for using backflow preventers for wells during chemigation in order to minimize release of chemigated waters from the edge of the field and to control deep percolation. The installation of backflow preventers is

[22] Saichuk, J., Sheffield, R., LeBlanc, B., Girouard, E., Hollier, C., and Nix, K. 2011. *Sustainable Rice Best Management Practices*. Accessed: 12/20/2019. https://www.lsuagcenter.com/~/media/system/b/4/d/0/b4d0f0a36d09b8b00a78f669747500c3/pub2805ricebmplowres.pdf

considered a best practice for dedicated irrigation wells. Farmers that wish to improve their irrigation systems may seek assistance through NRCS conservation practice programs. According to the State, all irrigation-related assistance provided through these programs would require the use of approved backflow prevention devices on all pipelines in which fertilizer, liquid manure, pesticides or other chemicals are added to the water supply and where backflow may contaminate the source water supply or groundwater. Also, backflow prevention methods or devices must be used as directed by the water supplier or government official to isolate specific water supply system customers, including irrigation systems with fertilizer injection, from the water supply system's mains when such action is deemed necessary to protect the water supply system from potential contamination (LAC 17:I §111, 608.18). To ensure that waters of the State are protected from pesticide contamination, the Louisiana Department of Agriculture and Forestry operates a surface and groundwater monitoring program. As of June 2020, Louisiana estimates that there are 20 surface water sites and 13 groundwater sites that are strategically located throughout the coastal nonpoint management area to monitor areas most likely to be affected by agricultural pesticide and herbicide use.[23]

Strategy for Addressing the Agriculture Management Measures
To promote the use of these agriculture BMP manuals, Louisiana operates a technical assistance and outreach program through the LSU AgCenter. The LSU AgCenter has extension agents in every parish within the coastal nonpoint management area who participate in the promotion of BMPs contained within the manuals discussed above. In addition, the LSU AgCenter's Master Farmer Program, discussed in detail below, convenes 30-40 meetings, workshops, field days, and conventions statewide each year, many of which draw participation from farmers from the coastal nonpoint management area. Conventions, such as the Louisiana Farm Bureau convention, and popular field days draw on the order of 3000 participants per event. The program and related BMPs are also promoted annually through publications such as *Farm and Ranch Magazine* and newsletters. Interest in LSU AgCenter resources is high across the State; according to LSU Ag Center's Master Farmer Program Coordinator, the LSU AgCenter receives 15-20 calls daily regarding program resources and events.

In addition, as laid out in Louisiana's 2019 Nonpoint Source Management Plan (NPS Plan), LDAF and LDEQ work together to implement the agricultural BMPs in watersheds where Total Maximum Daily Loads (TMDLs) and Watershed Implementation Plans (WIPs) have been developed.[24,25] Specifically, LDEQ and LDAF have developed a process for working together on watershed planning and implementation to restore the water bodies to their designated uses. Specifically:

1. LDEQ meets with LDAF to discuss the list of impaired waters that are in watersheds with significant agricultural drainage.

[23] LA Department of Agriculture and Forestry. n.d. *Pesticide and Environmental Programs*. Accessed: 03/02/2020. http://www.ldaf.state.la.us/ldaf-programs/pesticide-environmental-programs/
[24] LSA AgCenter. N.d. *Louisiana Master Farmer Program.* Accessed: 11/3/2020. https://www.lsuagcenter.com/topics/environment/conservation/master_farmer
[25] LDEQ. N.d. *Addendum.* Accessed: 12/29/2020. UpdatedGoalsandPriorityWatershedsforLouisianasManagementPlan2018-2022.pdf

2. LDAF identifies which watersheds represent opportunities for further progress in BMP implementation.
3. LDEQ determines whether there has been a TMDL and WIP written to help them identify critical source areas are in the watershed.
4. LDEQ and LDAF develop the WIP if one does not exist, revise one if it does not meet the nine elements of watershed-based planning required by CWA section 319 grant guidance or utilize a completed plan as the basis for partnering with local stakeholders on BMP implementation.
5. LDAF creates the work plan that implements the WIP, describing the area where the agencies focus their resources.
6. LDEQ and LDAF select a 12-digit Hydrologic Unit Code (HUC) or set of HUCs that contain critical source areas from agriculture in the watershed where BMPs need to be implemented.
7. The agricultural areas are the priority sites for partnering with farmers and landowners on BMP implementation.
8. LDEQ partners with LDAF and local stakeholders to determine what type of water quality monitoring may be necessary to evaluate whether BMP implementation is achieving water quality goals of restoring designated uses.
9. Stakeholders partner with LDEQ and LDAF to implement BMPs in critical areas of the watershed.
10. LDEQ and LDAF meet routinely to determine if BMP implementation is proceeding effectively and discuss results of water quality data that has been collected.

The process of BMP implementation and education/outreach continues until water quality goals of the project are met and a nonpoint source success story can be submitted to EPA. The nonpoint source plan includes a schedule for expanding the number of TMDLs and WIPs.

The LSU AgCenter also operates the Louisiana Master Farmer Program which seeks to help agricultural producers to voluntarily address environmental concerns by teaching them about environmental stewardship, conservation-based production techniques, and resource management. To be fully certified as a Master Farmer, program participants must complete three phases of training. During Phase I, participants attend a six-hour course on environmental stewardship issues. The sessions include material on the Clean Water Act, national water quality criteria, Louisiana water quality standards, TMDLs, the effects of nonpoint source pollution on the coastal zone and the Gulf of Mexico, BMPs, the role of conservation districts, Farm Bill conservation programs, and spill prevention control and countermeasures. Phase II of the program features a conservation-based field day where commodity-specific BMPs are demonstrated and discussed. For example, in 2019, the Master Farmer Program offered field-days on a variety of commodities, including beef production, beef and forage field, cattle production, poultry, rolling crops, wheat, oats, and cover crops, rice, and sugar cane. Finally, to complete Phase III, a producer must develop and implement a farm-specific Resource Management System-level conservation plan with support from their NRCS district conservationist and the LSU AgCenter. Master Farmer Certification is granted for five years, with six hours of continuing education required per year. As a result of the success of the Louisiana Master Farmer program, the Master Cattle Producer Program was developed to help beef cattle and forage producers enhance their production and profitability through a 10-week, educational curriculum-based program.

As of 2019, the Master Farmer Program has trained 1,568 farmers in the coastal nonpoint management area, including 177 who are fully certified Licensed Master Farmers (e.g., have completed all three phases of training). This number is a notable increase from the 36 farmers that were fully certified in 2011. Based on the rise of farmer interest, the LSU AgCenter projects that participation in the Master Farmer program will continue to grow.

Louisiana has provided a legal opinion from the LDEQ General Counsel's Office explaining that the Louisiana Environmental Quality Act (La. R.S. 30:2001, *et seq*.) and Louisiana Water Quality Regulations (LAC Title 33:Part IX) provide adequate legal authority for the State to ensure the implementation of the 6217(g) agriculture management measures throughout the coastal nonpoint management area, as needed. The State has described the mechanisms that link the implementing agency (LDAF) with the enforcing agency (LDEQ) and is committed to using LAC Title 33:Part IX to implement the 6217(g) management measures, including agriculture, when needed. Louisiana tracks implementation of the agriculture BMPs through its Nonpoint Source Management Plan, including tracking participation in the Master Farmer Program.

III. FORESTRY

1998 FINDING: Louisiana has not provided sufficient justification to support a categorical exclusion of forestry from its coastal nonpoint program.

1998 CONDITION: Within three years, Louisiana will demonstrate the ability to achieve widespread implementation of the forestry management measures throughout the coastal nonpoint management area using credible survey tools.

2022 DECISION: Louisiana has satisfied this condition.

RATIONALE: Louisiana meets the forestry management measures through its voluntary forestry practices guidebook coupled with other technical assistance and outreach efforts. The State also provided a legal opinion explaining that Louisiana has adequate back-up authority to require implementation of the State's forestry management measures.

The Louisiana Forestry Association (LFA), the Louisiana Department of Environment Quality (LDEQ), and the Louisiana Department of Agriculture and Forestry (LDAF) partnered to develop *Recommended Forestry Best Management Practices for Louisiana.*[26] The document is a field guide that provides practical guidance to forest landowners, logging contractors and the forestry industry to avoid and minimize polluted runoff during forestry operations. The guide recommends a variety of best management practices (BMPs) that are consistent with the 6217(g) forestry management measures. Examples of some of the practices that address the management measures include:

[26] Louisiana Department of Agriculture and Forestry. *Recommended Forestry Best Management Practices for Louisiana.* Accessed 9/14/2020. http://www.ldaf.state.la.us/wp-content/uploads/2014/04/BMP.pdf

- Pre-harvest planning: During pre-harvest planning, consider topography, soil type, hydrology, and sensitive areas, such as streamside management areas, steep slopes and erosive areas when planning forestry activities.
- Streamside management areas: Avoid and limit forestry activities within streamside management areas. Recommends streamside management widths of 50-100 feet for perennial streams, depending on the width of the stream, and 35 feet for intermittent streams.
- Road construction/reconstruction and road management: Minimize the number of stream crossings, ensure drainage structures are adequately sized and sloped to avoid siltation. Conduct routine maintenance of drainage structures to remove debris and silt. Close and stabilize temporary roads after use.
- Timber harvesting: Locate skid trails to avoid nonpoint source pollution issues such as avoiding sensitive areas and erosive soils, not locating trails directly up or down steep slopes, and locating landing areas outside of streamside management areas.
- Site preparation and forest regeneration and revegetation of disturbed areas: Follow the natural contour of the land when re-planting harvested and other disturbed areas. Avoid windrows that funnel runoff to streams and extensive site preparation on erosive soils.
- Fire management: Ensure fire breaks have water control structures to minimize erosion, and do not conduct prescribed burns over highly erosive soils.
- Forest chemical management: Plan ground and aerial spraying of herbicides and pesticides to avoid entry into streams and spraying when aerial drift is likely.

In addition to the recommended BMPs, the guide also includes 15 mandatory practices and additional voluntary practices to address the management measure for wetlands forest management. The mandatory practices apply to forested roads in jurisdictional wetlands in order to comply with Clean Water Act Section 404, 40 CFR 232.3, which provides an exemption for forest roads as long as they comply with mandatory BMPs provided in the regulation. These practices include locating all roads (temporary and permanent) sufficiently far from streams or other waterbodies (except where they must cross waterbodies) to minimize the discharge of dredged or fill material to waters of the United States, including wetlands. These mandatory wetland protection practices are complemented by additional voluntary recommendations such as avoiding forestry activity in wetlands, harvesting timber during dry periods to avoid rutting, and using special machinery to avoid soil compaction.

In 2004, due to concern over the loss and adverse impacts of Louisiana's coastal wetland cypress forests from sea level rise, forestry activities, and other hydrologic modifications, the Governor commissioned the Coastal Wetland Forest Conservation and Use Science Working Group to provide an assessment of the State's coastal wetland forests and provide additional guidance, beyond the BMP guide, for the long-term use, conservation and protection of these forests. The resulting report, *Conservation, Protection and Utilization of Louisiana's Coastal Wetland Forests*, released in 2005, provides science-based guidelines for the regeneration of cypress forests.[27] In 2015, the Louisiana Society of American Foresters issued a follow up report,

[27] Conner, William; Chambers, Jim L.; Day, John W. Jr; Faulkner, Stephen P.; Gardnier, Emile S.; Hughes, Melinda S.; Keim, Richard F.; King, Sammy L.; McLeod, Kenneth W.; Miller, Craig A.; Nyman, John Andrew; and Shaffer,

Recommendations for Sustainable Management of Cypress Forests in Coastal Areas of Louisiana, which builds on the recommendations from the 2005 assessment.[28]

Louisiana has several technical assistance and outreach programs for timber harvesters and others in the State's forestry industry that encourage the adoption of its forestry BMPs and other best practices, including specific recommendations for cypress wetland forests. The LFA, LDAF, LDEQ, and the LSU AgCenter provide training to landowners, managers, and timber harvesters in the use of these forestry BMPs through one-on-one assistance, in-person training workshops, and online training videos. The LFA also operates a Louisiana Sustainable Forestry Initiative to promote responsible forestry practices, including reducing polluted runoff.[29] The Sustainable Forestry Initiative's Master Logger Program recognizes loggers that have completed two full days of training in various aspects of forestry management, including BMPs. As of January 2019, 971 individuals have a certified Master Logger designation. Master Loggers must complete six hours of continuing education each year to maintain their title.

Louisiana has provided a legal opinion from the LDEQ General Counsel's office asserting that the Louisiana Environmental Quality Act (La. R.S. 30:2001, et seq.) and Louisiana Water Quality Regulations (LAC Title 33:Part IX) provide adequate legal authority for the State to ensure the implementation of the 6217(g) forestry management measures throughout the coastal nonpoint management area, as needed. The State has demonstrated how LDAF, the lead implementing agency, and LDEQ, the enforcing agency, work together to ensure implementation of the forestry management measures and LDEQ has committed to using LAC Title 33:Part IX to implement the 6217(g) management measures, including forestry, when needed. LDAF, LDEQ and the LSU AgCenter also conduct routine compliance surveys on the implementation and effectiveness of the voluntary forestry best management practices. The 2015 survey audited 205 logging tracts across the state and found a 96 percent BMP compliance rate.[30]

IV. URBAN

A. NEW DEVELOPMENT

1998 FINDING: Louisiana's program includes management measures in conformity with the 6217(g) guidance and enforceable policies and mechanisms to ensure implementation, except the management measures and authorities do not apply throughout the coastal nonpoint program management area or to all applicable activities, and Louisiana's program does not include management measures to reduce the average annual loadings of total suspended solids (TSS) by 80 percent. For areas and activities not covered by the State's existing program, Louisiana has

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Gary P., 2005. *Conservation, Protection and Utilization of Louisiana's Coastal Wetland Forests*. Publication No. 4-30-2005. Accessed 11/7/2019. https://tigerprints.clemson.edu/cgi/viewcontent.cgi?article=1008&context=ag_pubs

[28] Louisiana Society of American Foresters. 2015. *Recommendations for Sustainable Management of Cypress Forests in Coastal Area of Louisiana*. 8/13/2015.

[29] Louisiana Forestry Association. *Website for Louisiana Sustainable Forestry Initiative*. Accessed 11/7/2019. https://www.laforestry.com/sustainable-forestry

[30] Louisiana Department of Agriculture and Forestry. *2015 Forestry BMP Survey Results.* Accessed 11/7/2019. http://www.ldaf.state.la.us/wp-content/uploads/2016/01/2015-BMP-Results.pdf

identified backup enforceable policies and mechanisms but has not yet demonstrated the ability of these authorities to ensure widespread implementation throughout the coastal nonpoint program management area.

1998 CONDITION: Within three years, Louisiana will include in its program management measures to reduce average annual loadings of total suspended solids (TSS) by 80 percent. Within one year, Louisiana will develop a strategy to implement the new development management measure throughout the coastal nonpoint program management area. This strategy will include a description and schedule for the specific steps the State will take to ensure implementation of the management measure, describe how existing or new authorities can be used to ensure implementation where voluntary efforts are unsuccessful, and identify measurable results which, if achieved, will demonstrate the State's ability to achieve implementation of the management measure using the described approach.

2022 DECISION: Louisiana has satisfied this condition.

RATIONALE: Louisiana has developed a strategy to address the new development management measure throughout the coastal nonpoint program management area through a multi-pronged approach relying on its statewide NPDES permits for stormwater discharges from construction activities, its Coastal Use Permit (CUP), and voluntary education and outreach efforts backed by enforceable policies and mechanisms.

The New Development Management Measure is intended to accomplish the following:

(1) decrease the erosive potential of increased runoff volumes and velocities associated with development-induced changes in hydrology;
(2) remove suspended solids and associated pollutants entrained in runoff that result from activities occurring during and after development;
(3) retain hydrological conditions to closely resemble those of the pre-disturbance condition; and
(4) preserve natural systems including in-stream habitat.

First, portions of Louisiana's coastal nonpoint management area, such as the urbanized areas in and around New Orleans, Baton Rouge, Lafayette, and Lake Charles, are designated as municipal separate storm sewer system (MS4) areas subject to Phase I or Phase II NPDES MS4 permits. State coastal nonpoint programs are no longer required to include the new development management measure in urbanized areas subject to these permits because these regulations are redundant with this management measure for those permitted areas. See NOAA and EPA's 2002 memorandum, *Policy Clarification on Overlap of 6217 Coastal Nonpoint Programs with Phase I and II Storm Water Regulations*.[31] Under the 2002 policy clarification, management measures in conformance with the 6217(g) guidance are still necessary for new developments occurring outside of NPDES-permitted urbanized areas.

[31] NOAA and EPA. 2002. *Policy Clarification on Overlap of 6217 Coastal Nonpoint Programs with Phase I and II Stormwater Regulations*. Accessed 11/7/2019.
https://coast.noaa.gov/data/czm/pollutioncontrol/media/NPDES_CZARA_Policy_Memo.pdf

Outside of exempted MS4 areas, Louisiana requires compliance with its statewide NPDES permit (referred to as LPDES permit) for stormwater discharges from construction activities of five acres or more (LAR100000).[32] This permit incorporates requirements for implementing all aspects of the new development management measure. In February 2020, Louisiana revised the Notice of Intent (NOI) requirements for LAR1000000 to require applicants to certify that the new development management measure will be implemented to control post-construction stormwater runoff.[33] Statewide, most development activity is likely to disturb five acres or more and thus would trigger implementation of the new development management measure.

Similarly, stormwater discharges associated with small construction activities (between one and five acres) are also regulated through another statewide LPDES general permit, LAR200000.[34] Although entities subject to this general permit are not required to file an NOI before construction begins, each must file a completion report (CR) within 60 days of completing each project and final site stabilization has occurred. Similar to the February 2020 revisions made to the NOI for LAR100000, the State revised the CR language for general permit LAR200000 so that each general permittee will be required to certify that the new development management measure is implemented to control post-construction stormwater runoff.[35] The state has approved the revised language and has committed to incorporating it into the general permit upon re-issuance in 2023.

The LDEQ Permits Sections tracks NOI certifications through LDEQ's Electronic Document Management System (EDMS).[36] If a prospective general permittee does not certify to implementation of controls on an NOI, the LDEQ Permits Section will first refer them to the LDEQ NPS Unit for directed technical assistance and education on the measures to be installed and/or practices to be implemented for control of stormwater runoff after completion of the new development. If, after directed technical assistance, the same entity again fails to certify to implementing these controls, the permittee is referred to the LDEQ Water Enforcement Section for enforcement actions under Louisiana's Water Quality Regulations (LAC 33:IX.1109.A.2), which require permittees to protect State waters for the attainment of State water quality goals. Specifically, the section requires that "[a]ny new, existing, or expanded point source or nonpoint source discharging into state waters, including any land clearing which is the subject of a federal permit application, shall be required to provide the necessary level of waste treatment to protect state waters as determined by the administrative authority." Though the State program currently

[32] Louisiana Department of Environmental Quality. *General Permit for Discharges of Storm Water from Construction Activities Five (5) Acres or More. Master General Permit No. LAR 100000*. October 1, 2019. Accessed 06/29/2020. https://deq.louisiana.gov/assets/docs/Permits/LAR100000.pdf

[33] Louisiana Department of Environmental Quality. *Stormwater Permit Notice of Intent: Stormwater Discharges Associated with Construction Activity 5 acres of greater (LAR100000).* February 28, 2020. Accessed: 06/29/2020. https://www.deq.louisiana.gov/assets/docs/Permits/CSW-G.pdf

[34] Louisiana Department of Environmental Quality. *Storm Water General Permit Small Construction Activities. Master General Permit No. LAR 200000*. March 20, 2018. Accessed 10/3/2019 https://deq.louisiana.gov/assets/docs/Permits/LAR200000.pdf

[35] Final draft language for the Small Construction Activity Completion Report for LAR200000 is available upon request from NOAA and EPA.

[36] Louisiana Department of Environmental Quality. *Electronic Data Management System* (Website). Undated. Accessed 11/4/2020. https://edms.deq.louisiana.gov/app/doc/querydef.aspx

satisfies the approval condition, Louisiana further intends to track and enforce CR certifications for small construction LPDES permittees through the same process after the permit language is incorporated into the general permit upon renewal in 2023.

To complement its certification tracking through the EDMS and to assess the effectiveness of its nonpoint source management program, the State has committed to analyzing data from ambient water quality monitoring stations near newly developed areas every five years. Ambient monitoring analyses will help the State to assess not only compliance with the LPDES construction permit certification but also new development requirements and to understand where targeted education and/or enforcement action may be needed to address water quality problems from new development.

Louisiana has also developed an education and outreach strategy to educate contractors, developers, homeowner associations, and others about the forthcoming LAR200000 and new LAR100000 certification requirements and various best management practices that can achieve the new development management measure. As part of this strategy, beginning in 2019, LDEQ has partnered with the Lake Pontchartrain Basin Foundation, the Barataria-Terrebonne Estuary Program, the Bayou Vermillion District, the Amite River Basin Commission, and parish and local governments to develop and distribute education materials, provide training, and carry out demonstration projects to illustrate the efficacy of various techniques to reduce polluted runoff to achieve 80 percent total suspended solids reduction and post-development runoff volume no greater than pre-development rates. The State has targeted zero noncompliance with the new development management measure requirements and has described how it is identifying and targeting priority areas for education and outreach during the next four years (2020-2023) and will continue to evaluate the effectiveness of its certification process and track water quality data during the following ten years.

In addition to the NPDES construction permit requirements, Louisiana further implements the new development management measure in areas subject to its CUP (LAC 43:I.723). Many development activities, including the siting, construction or operation of residential, commercial, industrial, and governmental structures and transportation facilities, occurring less than five feet above sea level and within the State's coastal zone management program boundary must obtain a CUP from LDNR's Office of Coastal Resources Management. LDNR requires that all CUP applicants provide a Hydrologic Modification Impact Analysis, which is a review of adverse impacts resulting from modifications to hydrology.[37] In preparing such analysis, the developer would need to review each CUP for adherence to the specific requirements of the new development management measure.

Louisiana's 2003 legal opinion demonstrates how its Water Quality Regulations (LAC 33:IX) provide adequate legal authority for the State to ensure the implementation of the 6217(g) new development management measure, as needed. Louisiana has described how LDEQ's Permits Section, NPS Unit, and Water Enforcement Section work together to ensure implementation of the NPDES construction permits and the new development management measure and has

[37] Louisiana Department of Natural Resources. *Hydrologic Modification Impact Analysis*. Accessed 11/7/2019. http://www.dnr.louisiana.gov/assets/OCM/permits/NAJ/HMIA.pdf

committed to taking enforcement action, when needed. The State has also described how it tracks and evaluates the implementation of the new development management measure through its EDMS database and ambient water quality monitoring.

B. SITE DEVELOPMENT

1998 FINDING: Louisiana's program includes management measures in conformity with the 6217(g) guidance and enforceable policies and mechanisms to ensure implementation, except the management measure and authorities do not apply throughout the coastal nonpoint program management area or to all applicable activities. For areas and activities not covered by the State's existing program, Louisiana has identified backup enforceable policies and mechanisms but has not yet demonstrated the ability of these authorities to ensure widespread implementation throughout the coastal nonpoint program management area.

1998 CONDITION: Within one year, Louisiana will develop a strategy to implement the site development management measure throughout the coastal nonpoint program management area. This strategy will include a description and schedule for the specific steps the State will take to ensure implementation of the management measure, describe how existing or new authorities can be used to ensure implementation where voluntary efforts are unsuccessful, and identify measurable results which, if achieved, will demonstrate the State's ability to achieve implementation of the management measure using the described approach.

2022 DECISION: Louisiana has satisfied this condition.

RATIONALE: Louisiana has met the site development management measure through a variety of means including State Natural and Scenic Rivers designations, LPDES general stormwater permits for construction activities, and local parish ordinances. These programs and authorities collectively: protect areas that provide important water quality benefits; limit increases of impervious area, except where necessary; limit land disturbance activities such as clearing, grading, and cut and fill to reduce erosion and sediment loss; and limit disturbance of natural drainage features and vegetation. Therefore, Louisiana will rely on these mechanisms as its strategy for implementing the site development management measure.

The goal of this management measure is to reduce the generation of nonpoint source pollution and to mitigate the impacts of urban runoff and associated pollutants from all site development. These controls and policies are necessary to ensure that development occurs so that nonpoint source concerns are incorporated during the site selection and the project design and review phases and are intended to apply to individual sites rather than at a watershed- or regional-scale.

As discussed in NOAA and EPA's 1998 conditional approval findings, for those portions of the coastal nonpoint management area that fall within the State's coastal zone management program boundary, Louisiana uses its Coastal Use Permit (CUP) (LAC 43:I.723) process to accomplish these objectives. The CUP includes development guidelines that are consistent with the site development management measure Specifically, Louisiana's Guidelines for Surface Alterations (LAC 43:I.711) call for site clearing to be limited to those areas immediately required for physical development; location of surface alterations away from critical wildlife and vegetation

areas; and protection of wetland areas; to the maximum extent practicable. The State's general guidelines (LAC 43:I.701) further calls for all activities to be planned, sited, designed, and constructed to avoid detrimental discharges of suspended solids into coastal waters as well as reductions or blockage of flow into or circulation within critical drainage areas, such as estuarine systems or wetland forests, to the maximum extent practicable. In accordance with LAC 43:I.723.C. 8, a CUP "shall be issued only for those uses which are consistent with the guidelines..." among other things. Therefore, conformance with these guidelines is required in order to obtain a CUP.

Additionally, Louisiana's Natural and Scenic Rivers System serves to preserve, protect, develop, reclaim and enhance the wilderness qualities, scenic beauties and ecological regimes of designated free-flowing rivers and streams. There are 1,116 miles of Louisiana designated Natural and Scenic Rivers within the State's coastal nonpoint program management area. Louisiana promotes a minimum vegetated buffer width of 100 feet between development and any designated river or streambank and requires a permit for any proposed development within this buffer. The purposes of this riparian buffer are to protect water quality, provide wildlife habitat and wildlife corridors, provide shade to lower water temperatures for improved aquatic organism habitat, maintain bank stability, and attenuate flood flow.

The State's LPDES general permit for stormwater associated with construction sites greater than five acres, issued in October 2019 (LAR100000), requires that a 100-foot natural buffer be maintained from designated Outstanding Natural Resource Waters (included in the Louisiana Natural and Scenic Rivers System), unless infeasible.[38] A similar 50-foot natural buffer is required for any waterbody listed on the State's integrated report as impaired "for sedimentation/siltation or turbidity AND where the suspected source is site clearance…, unless infeasible." LPDES general permit LAR100000 also requires buffers "of sufficient width to reduce pollutant discharges and minimize erosion… between disturbed areas and all waters of the State," again, unless infeasible. LAR100000 also notes that the stormwater best management practices selected for the site need to minimize the amount of soil exposure and disturbance of steep slopes. Beyond this, the permit requires regulated development to "maintain post development peak runoff rate and average volume at levels that are similar to predevelopment levels … to the extent practicable." This requirement is intended to reduce the effective impervious area for all development sites over five acres statewide. Louisiana also included language in its LPDES general stormwater permit for construction sites between one and five acres (LAR200000) to require a 100-foot buffer for discharges to waters designated as Outstanding Natural Resource Waters and a 50-foot buffer for discharges to waters designated as impaired where the suspected source is site clearance.[39]

C. WATERSHED PROTECTION

[38] Louisiana Department of Environmental Quality. *General Permit for Discharges of Storm Water from Construction Activities Five (5) Acres or More. Master General Permit No. LAR 100000*. October 1, 2019. Accessed 06/29/2020. https://deq.louisiana.gov/assets/docs/Permits/LAR100000.pdf

[39] Louisiana Department of Environmental Quality. *Storm Water General Permit Small Construction Activities. Master General Permit No. LAR 200000*. March 20, 2018. Accessed 10/3/2019 https://deq.louisiana.gov/assets/docs/Permits/LAR200000.pdf

1998 FINDING: Louisiana's program includes management measures in conformity with the 6217(g) guidance, except it does not include management measures to… preserve, enhance and establish buffers along water bodies and their tributaries. In addition, the management measures only apply to a limited area. The program includes enforceable policies and mechanisms to ensure implementation, except that they do not apply throughout the coastal nonpoint program management area or to all applicable activities. For areas not covered by the State's existing program, Louisiana has identified backup enforceable policies and mechanisms to implement the management measures, but the State has not yet demonstrated the ability of these authorities to ensure implementation throughout the coastal nonpoint program management area.

1998 CONDITION: Within three years, Louisiana will include in its program management measures in conformity with the 6217(g) guidance to… enhance and establish buffers along water bodies and their tributaries. In addition, within one year, Louisiana will develop a strategy to implement the watershed protection management measure throughout the coastal nonpoint program management area. This strategy will include a description and schedule for the specific steps the State will take to ensure implementation of the management measure, describe how existing or new authorities can be used to ensure implementation where voluntary efforts are unsuccessful, and identify measurable results which, if achieved, will demonstrate the State's ability to achieve implementation of the management measure using the described approach.

2022 DECISION: Louisiana has satisfied this condition.

RATIONALE: The purpose of this management measure is to reduce the generation of nonpoint source pollutants and to mitigate the impacts of urban runoff and associated pollutants that result from new development or redevelopment, including the construction of new and relocated roads, highways, and bridges. The measure is intended to provide general goals for states and local governments to use in developing comprehensive programs for guiding future development and land use activities in a manner that will prevent and mitigate the effects of nonpoint source pollution. Louisiana preserves, enhances, and establishes protective buffers around water bodies and fully satisfies all requirements of watershed protection management measure through a variety of approaches including State and federal land protection programs, levee and stormwater construction permits, Natural and Scenic Rivers designations and local ordinances. The State will rely on these approaches as its strategy for implementing the watershed protection management measure over time.

Both State and federal governmental entities have enacted protections from development to preserve areas within Louisiana's coastal nonpoint program management area that provide water quality habitat by creating National Wildlife Refuges, State Wildlife Management Areas, and State Preservation Areas. Specifically,

- The U.S. Fish and Wildlife Service has designated 10 National Wildlife Refuges within Louisiana's coastal nonpoint program management area to protect and manage natural resources.
- Louisiana has set aside an extensive network of State Wildlife Management Areas and State Wildlife Refuges within its coastal nonpoint program management area to protect certain lands and waters that are critical for wildlife. Policies are enforced by the

Louisiana Department of Wildlife and Fisheries (LDWF). LDWF also manages the White Lake Wetlands Conservation Area, also within the State's coastal nonpoint program management area.

- Louisiana also has an extensive system of State parks, historic sites and State preservation areas, many of which are within the State's coastal nonpoint program management area, that are protected from development. A State preservation area must be of sufficient size to allow preservation of major features of the park and the use of the features by the visitors, the inclusive area must be large enough to completely include the scenic natural or ecological features which the area was established to protect; provide sufficient buffer area against outside disturbances and encroachments; provide an undisturbed habitat for native wildlife; and permit development of public areas, if these can be developed without impairing the scenic, natural or ecological features of the area.
- There are 16 parishes covered under the Barataria-Terrebonne National Estuary Program (BTNEP). BTNEP's Comprehensive Conservation and Management Plan (CCMP) provides guidance for the preservation and restoration efforts throughout the Barataria-Terrebonne Estuary over the next 25 years to protect areas that provide important water quality benefits.[40]

Additionally, the topography of the State's coastal nonpoint program management area provides a natural barrier to urban development because the vast coastal wetlands make development cost-prohibitive. In all, more than half of Louisiana's coastal nonpoint program management area is undevelopable due to state and federal protections or natural barriers, including open waters.

Additional riparian protections are described in the site development rationale and summarized here:

- The State's expansive system of levees, battures and adjacent buffer areas along many of its rivers are off-limits to development as a result of federal oversight under the National Flood Insurance Program to maintain the integrity of the levee system per 44 CFR Parts 59 and 60.[41]
- The State places protective buffers around its designated Natural and Scenic Rivers to preserve, protect, develop, reclaim, and enhance the wilderness qualities, scenic beauties and ecological regimes of designated free-flowing rivers and streams. The purposes of this riparian buffer are to protect water quality, provide wildlife habitat and wildlife corridors, provide shade to lower water temperatures for improved aquatic organism habitat, maintain bank stability, and attenuate flood flow.
- Louisiana's LPDES general permit for stormwater associated with construction sites greater than five acres (LAR100000) requires a 100-foot natural buffer between any disturbance and all edges of the receiving waters for all designated Outstanding Natural

[40] Barataria-Terrebonne National Estuary Program. *Comprehensive Conservation and Management Plan.* 2018. Accessed 10/3/2019. https://ccmp.btnep.org/wp-content/uploads/sites/14/2018/08/00000-BTNEP-CCMP-2018-8.3.2018-stb.pdf

[41] Federal Emergency Management Agency's National Flood Insurance Program. *44 CFR Parts 59 and 60.* Accessed May 4, 2021. https://www.fema.gov/pdf/floodplain/nfip_sg_appendix_e.pdf

Resource Waters, unless infeasible.[42] A similar 50-foot natural buffer is required for any waterbody listed on the State's integrated report as "impaired for sedimentation/siltation or turbidity AND where the suspected source is site clearance…, unless infeasible."

- Louisiana's LPDES general permit for stormwater associated with construction sites between one and five acres (LAR200000) requires a 100-foot buffer for discharges to waters designated as Outstanding Natural Resource Waters and a 50-foot buffer for discharges to waters designated as impaired where the suspected source is site clearance.[43]

Of the 18 parishes outside of the coastal zone, but within the larger coastal nonpoint management area, 11 have ordinances that restrict development in designated floodplains.

D. EXISTING DEVELOPMENT

1998 FINDING: Louisiana's program includes management measures in conformity with the 6217(g) guidance, except it does not include management measures to identify priority watershed pollutant reduction opportunities or establish a schedule for implementing appropriate controls. In addition, the management measure only applies to a limited area. The program includes enforceable policies and mechanisms to ensure implementation, except that they do not apply throughout the coastal nonpoint program management area or to all applicable activities. For areas not covered by the State's existing program, Louisiana has identified backup enforceable policies and mechanisms to implement the management measures, but the State has not yet demonstrated the ability of these authorities to ensure implementation throughout the coastal nonpoint program management area.

1998 CONDITION: Within three years, Louisiana will include in its program management measures in conformity with the 6217(g) guidance to identify priority watershed pollutant reduction opportunities and establish a schedule for implementing appropriate controls. In addition, within one year, Louisiana will develop a strategy to implement the existing development management measures throughout the coastal nonpoint program management area. This strategy will include a description and schedule for the specific steps the State will take to ensure implementation of the management measure, describe how existing or new authorities can be used to ensure implementation where voluntary efforts are unsuccessful, and identify measurable results which, if achieved, will demonstrate the State's ability to achieve implementation of the management measure using the described approach.

2022 DECISION: Louisiana has satisfied this condition.

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[42] Louisiana Department of Environmental Quality. *General Permit for Discharges of Storm Water from Construction Activities Five (5) Acres or More. Master General Permit No. LAR 100000*. October 1, 2019. Accessed 06/29/2020. https://deq.louisiana.gov/assets/docs/Permits/LAR100000.pdf

[43] Louisiana Department of Environmental Quality. *Storm Water General Permit Small Construction Activities. Master General Permit No. LAR 200000*. March 20, 2018. Accessed 10/3/2019 https://deq.louisiana.gov/assets/docs/Permits/LAR200000.pdf

RATIONALE: The purpose of the existing development management measure is to protect and improve surface water quality by the development and implementation of watershed management programs. States are expected to develop and implement watershed management programs to reduce runoff pollutant concentrations and volumes from existing development. These programs should pursue the following objectives: (1) identify priority local and/or regional watershed pollutant reduction opportunities, e.g., improvements to existing urban runoff control structures; (2) contain a schedule for implementing appropriate controls; (3) limit destruction of natural conveyance systems; and (4) where appropriate, preserve, enhance, or establish buffers along surface waterbodies and their tributaries.

Louisiana has met the existing development management measure by developing a strategy to support priority BMP retrofit projects to address polluted runoff from existing development. The strategy includes several funding mechanisms, including reliance on federal grants under Clean Water Act Section 319 and under the Clean Water Act State Revolving Fund, to support retrofit projects as well as a multi-pronged outreach effort to promote innovative designs to reduce polluted runoff and achieve water quality improvement goals.

Like the new development management measure, NOAA and EPA's 2002 *Policy Clarification on Overlap of 6217 Coastal Nonpoint Programs with Phase I and II Storm Water Regulations*,[44] clarifies that coastal nonpoint programs need not include the existing development management measure in Phase I and II NPDES MS4 communities, such as the urbanized areas in and around New Orleans, Baton Rouge, Lafayette, and Lake Charles. Urbanized areas are defined by the U.S. Census as having a certain population density and a population of 50,000 or greater.

Outside of these areas, Louisiana has identified priority watershed pollutant reduction opportunities to address impacts from existing development and has established a 15-year schedule to address these opportunities across the breadth of its coastal nonpoint program management area. The strategy relies on a commitment to use a portion of Clean Water Act section 319(h) grant funds each year for 15 years beginning with the FY2017 grant cycle, to support priority BMP/retrofit projects that address impacts from existing development across each of 16 urban cluster areas across the State's coastal nonpoint program management area. An urban cluster is defined by the U.S. Census Bureau as an area with a certain population density that has at least 2,500 and less than 50,000 people. The 16 urban clusters within Louisiana's coastal nonpoint program management area are: Vinton, Welsh, Lake Arthur, Kaplan, Abbeville, Jeanerette, Franklin, Morgan City, Pierre Part, Donaldsonville, Gramercy, South Vacherie, Galliano-Larose-Cutoff, Jean Lafitte, Buras, and Amite City. Louisiana plans to focus on at least one urban cluster during each annual grant cycle. In the initial years, focus will be put on urban clusters in the coastal nonpoint program management area that overlap with the 33 watersheds that Louisiana identified as nonpoint source priorities for restoration in its 2019 Nonpoint Source Management Plan update, but within 15 years all 16 urban cluster areas will be addressed.

[44] NOAA and EPA. 2002. *Policy Clarification on Overlap of 6217 Coastal Nonpoint Programs with Phase I and II Storm Water Regulations*. Accessed: 07/09/2020.
https://coast.noaa.gov/data/czm/pollutioncontrol/media/NPDES_CZARA_Policy_Memo.pdf

In addition to applying CWA Section 319(h) nonpoint grant funds to these priorities, Louisiana plans to use its Clean Water State Revolving Funds (CWSRF) to augment this effort. As amended by the Water Resources Reform and Development Act of 2014, the Clean Water Act now includes section 603(c)(5), which allows that each state CWSRF may provide financial assistance for measures to manage, reduce, treat, or recapture stormwater or subsurface drainage water. Louisiana provides low-interest loans for projects that conserve land and improve water quality, which includes green infrastructure projects and traditional BMPs for water quality treatment of stormwater runoff. Apart from Clean Water Act Section 319 funds and CWSRF, additional implementation may be supported through municipal/parish budgets.

To further support efforts to address impacts from existing development, Louisiana has a multi-pronged outreach component. Over the next 15 years, the State will continue to disseminate educational materials and videos to urban areas to address water quality impacts of existing development. Messages include controlling residential fertilizers and pesticides, creating BMPs for urban runoff conveyance systems, and installing rain gardens. In addition to educating the general public, Louisiana encourages drainage boards, police juries (parish government bodies), local departments of public works, and local planning commissions to participate in training workshops on general and specific information on urban nonpoint source pollution and BMPs. The State will continue to partner with city planners, engineers, developers, and builders on innovative designs that incorporate urban forests, wetland detention, grassed swales, and other environmentally sensitive practices to reduce urban pollutants and adjust their programs to meet water quality improvement goals. Louisiana plans to partner across key state agencies and with LSU, municipal associations, and others to advance urban stormwater education. Additional outreach efforts that reach areas outside of regulated MS4s include:

- Storm Drain Marking – In cooperation with the City of New Iberia and LDEQ, a Boy Scout Troop installed 255 storm drain markers in New Iberia to discourage people from dumping any waste down storm drains.
- Golf Course Manual – The Louisiana-Mississippi Chapter of Golf Course Superintendents Association of America, along with the LSU AgCenter and LDEQ teamed up to develop a BMP manual for reducing excess nutrients from golf courses statewide. The manual provides guidance for proper turf maintenance and includes strategies for reducing nutrient losses based on Louisiana's ecoregions.[45]
- LDNR, LDEQ, and EPA have developed a brochure titled *BMPs for Coastal Louisiana NPS Pollution* to assist coastal areas.[46]

Louisiana will track progress on implementing its 15-year schedule to address priority watershed pollutant reduction opportunities across the 16 urban clusters in the coastal nonpoint program management area through the following mechanisms:

[45] Beasley, Jeffrey, Strahan, Ronald E., and Brian D. LeBlanc. *Nutrient BMPs for Golf Courses in Louisiana and Mississippi*. March 2018. LSU AgCenter Pub. 3611. Accessed 10/3/2019. https://www.lsuagcenter.com/profiles/bneely/articles/page1522097918331

[46] Louisiana Department of Natural Resources. *Urban Storm Water Runoff: Best Management Practices (BMPs) for Coastal Louisiana Nonpoint Source Pollution.* 2008. Accessed 10/3/2019. http://dnr.louisiana.gov/assets/docs/coastal/interagencyaff/nonpoint/urban/Urban-BMP-brochure.pdf

- CWA section 319 annual reports from the State, which will track implementation of the CZARA management measures across the coastal nonpoint management area.
- EPA's Grants Reporting and Tracking System (GRTS), which is an online database for CWA section 319 projects used by all states and territories. LDEQ utilizes GRTS as a back up to the 319 Grant reports maintained by EPA.
- CWSRF reports. The CWSRF requires reporting on projects that receive funding. The State will work to collect the reports for BMPs implemented in the urban cluster areas in the coastal nonpoint program management area.

E. CONSTRUCTION SITE EROSION AND SEDIMENT CONTROL AND CHEMICAL CONTROL

1998 FINDING: Louisiana's program does not include management measures in conformity with the 6217(g) guidance for construction site erosion and sediment and chemical control. The program includes enforceable policies and mechanisms to ensure implementation, except that they do not apply to all applicable activities and only apply to a limited area. Louisiana has identified backup enforceable policies and mechanisms, but the State has not yet demonstrated the ability of these authorities to ensure implementation of the management measures throughout the coastal nonpoint program management area.

1998 CONDITION: Within three years, Louisiana will include in its program management measures in conformity with the 6217(g) guidance for construction site erosion and sediment and chemical control. Within one year, Louisiana will develop a strategy to implement the construction site erosion and sediment and chemical control management measures throughout the coastal nonpoint program management area. This strategy will include a description and schedule for the specific steps the State will take to ensure implementation of the management measures, describe how existing or new authorities can be used to ensure implementation where voluntary efforts are unsuccessful, and identify measurable results which, if achieved, will demonstrate the State's ability to achieve implementation of the management measure using the described approach.

2022 DECISION: Louisiana no longer needs to meet this condition.

RATIONALE: State coastal nonpoint programs need no longer include the construction site erosion and sediment control or construction site chemical control management measures because the NPDES permit application regulations for stormwater associated with industrial activities, including construction activity, apply nationwide (including the coastal nonpoint management areas of the various coastal states and territories) and have thus rendered the CZARA management measures for these areas redundant. See NOAA and EPA's 2002 memorandum, *Policy Clarification on Overlap of 6217 Coastal Nonpoint Programs with Phase I and II Storm Water Regulations*.[47]

[47] NOAA and EPA. 2002. *Policy Clarification on Overlap of 6217 Coastal Nonpoint Programs with Phase I and II Stormwater Regulations*. Accessed 11/7/2019. https://coast.noaa.gov/data/czm/pollutioncontrol/media/NPDES_CZARA_Policy_Memo.pdf

F. NEW ONSITE DISPOSAL SYSTEMS AND OPERATING ONSITE DISPOSAL SYSTEMS

1998 FINDING: Louisiana's program includes management measures in conformity with the 6217(g) guidance and enforceable policies and mechanisms to ensure implementation throughout the coastal nonpoint program management area, except the program does not include measures for (1) nitrogen-limited surface waters, (2) adequate separation distances between OSDS and groundwater that is closely hydrologically connected to surface waters, and (3) the inspection of OSDS at a frequency to ascertain whether OSDS are failing.

1998 CONDITION: Within three years, Louisiana will include in its program management measures in conformity with the 6217(g) guidance for (1) protection of nitrogen-limited surface waters, (2) adequate separation distances between OSDS system components and groundwater that is closely hydrologically connected to surface waters, and (3) the inspection of OSDS at a frequency to ascertain whether OSDS are failing.

2022 DECISION: Louisiana has satisfied this condition.

RATIONALE: Louisiana has met the Onsite Disposal Systems (OSDS) management measures through a mix of direct regulatory authorities and voluntary programs that protect nitrogen-limited surface waters and ensure adequate separation distances and routine inspection of operating OSDS to prevent failing systems. The State's approach 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.

Louisiana has met the first part of this condition related to protection of nitrogen-limited surface waters through a combination of approaches. The management measure elements for the protection of nitrogen-limited surface waters apply only where nitrogen loading from OSDS is a significant source of the overall nitrogen loadings to such waters. Nitrogen from failing systems has been cited as probable sources of impairments in and around Lake Pontchartrain as well as elsewhere across the coastal nonpoint management area. Orleans Parish, along the shores of Lake Pontchartrain, has established a moratorium on new OSDS and requires connection to public sewer when sewer extensions become available.[48] These requirements restrict nitrogen increases from new OSDS and take existing OSDS off-line over time. Livingston[49] and

[48] *Orleans Parish Ordinance Ch. 26, Art. III, §26-114*.
https://library.municode.com/la/new_orleans/codes/code_of_ordinances?nodeId=PTIICO_CH26BUBUREHOST_ARTIIIPL_S26-114PLREWHSESYEX. Accessed 6/4/2021.
[49] *Livingston Parish Ordinance Art. VI, §70.303*.
https://library.municode.com/la/livingston_parish_council/codes/code_of_ordinances?nodeId=PTIICOGEOR_CH70UT_ARTVIUTOP_S70-303COSEWASE. Accessed 6/4/2021.

Tangipahoa[50] parishes along the Lake Pontchartrain shoreline, as well as Lafayette[51] and West Baton Rouge[52] parishes, have similar requirements for sewer connections. Additionally, Louisiana is encouraging the use of denitrifying systems through education and outreach provided through a contract with Louisiana Rural Water Association (LRWA) funded by Section 319 funds and by employing the use of denitrifying systems in areas experiencing pollution problems due to OSDS-generated nitrogen loadings. Specifically, LRWA held and continues to hold workshops in coastal watersheds that drain to nitrogen-limited waters and have a substantial number of OSDS. The State is following up with identification of priority retrofits and cost-share funding opportunities and is tracking the success of these efforts to increase the number of denitrifying systems in watersheds that drain to nitrogen-limited waters biennially over time.

Regarding the second part of this condition, adequate separation distance, the Public Health Sanitary Code (Title 51) now states that, "The maximum elevation of the ground water table should be at least 2 feet below the bottom of the proposed trench system." Section 717(C) stipulates that unless the separation distance condition is satisfied, "the site is unsuitable for a subsurface sewage disposal system, and an alternative method must be utilized." This separation distance is sufficient for meeting the 6217(g) management measure requirement providing adequate separation distances between OSDS and groundwater.

Louisiana meets the third part of this condition, inspect OSDS at a frequency adequate to ascertain whether OSDS are failing, through several efforts. Currently, three parishes have ordinances in place that directly satisfy this measure element. Calcasieu Parish has an ordinance that requires OSDS inspections by a qualified parish inspector once every three years and Livingston and Tangipahoa parishes each have local ordinances that provide for time-of-transfer inspections of OSDS. The two time-of-transfer ordinances require inspections of OSDS by a State health officer or agent each time the occupancy changes, whether for owners or for renters, to ensure the operation of such systems "will not create a nuisance or public health hazard," and further, that electrical power will not be connected until the OSDS approval is issued.

Louisiana has a significant number of OSDS that are mechanical onsite treatment systems, also referred to as aerobic treatment units, or ATUs. For all mechanical systems installed since 2000, the State requires ongoing maintenance via service contracts for the life of the system (LAC 51:XIII.725.M.2). For mechanical systems installed prior to 2000 outside the three parishes noted above, Louisiana has committed to contracting with four organizations to inspect approximately 3,500 OSDS per year over a 15-year period, sufficient to inspect at least 90 percent of the OSDS that Louisiana Department of Health's (LDH) estimates to exist across the remainder of the State's coastal nonpoint management area. These State-funded inspections will

[50] *Tangipahoa Parish Ordinance Ch. 23, §23-27*. https://library.municode.com/la/tangipahoa_parish_council/codes/code_of_ordinances?nodeId=PTIICOOR_CH23UT_ARTIISE_S23-27REFACOSESY. Accessed 6/4/2-21.

[51] *Lafayette City-Parish Ordinance O-037-204, §94-515*. https://library.municode.com/la/lafayette_city-parish_consolidated_government/codes/code_of_ordinances?nodeId=LACIRICOGOCOOR_CH94UT_ARTVISESEDI_DIV3PRSEDI_S94-515DIWHPUSEBEAV. Accessed 6/4/2021.

[52] *West Baton Rouge Parish Ordinance Ch. 86, Art IV, §86-114*. https://library.municode.com/la/west_baton_rouge_parish/codes/code_of_ordinances?nodeId=PTIICOOR_CH86UT_ARTIVSE_DIV2SETS_S86-114COSESYRE. Accessed 6/4/2021.

also cover any conventional systems in this area, which comprise less than four percent of the total inspection target.

To fund these inspections of existing OSDS, Louisiana will rely on State funding, as well as pursue funding opportunities with EPA and NOAA, and use of Deepwater Horizon Natural Resource Damage Restoration Funds to Restore Water Quality through Nutrient Reduction. With regard to CWA Section 319 funding for a portion of this strategy, EPA Region 6 considers it a priority for the State to fund these inspections with the CZARA set-aside established in the Agency's Section 319 grant guidelines (the lesser of five percent of a state's federal allocation, or $100,000, in Section 319 funds annually). The State will track progress toward meeting this commitment through LDH's OSDS database and report on its progress through its CWA Section 319 Annual Reports to EPA. As of April 2017, 52,123 systems have been documented in the LDH database across the area targeted for these inspections. The database will be updated as State contractors perform their door-to-door inspections and provide reports to the State.

Louisiana has already worked with the local community around Bayou Lafourche to inspect some OSDS and provide some financial assistance for low-income residences for system repairs, and additional projects are planned to address the most critical areas around Bayou Lafourche. Louisiana is also committed to working systematically with local parishes throughout the coastal nonpoint management area to improve ordinances that will provide better OSDS management and increase the number of inspections and septic tank pump-outs.

In addition to these steps, LDH currently offers certification classes to homeowners with individual home sewage systems that have been referred and found in violation of the health code. LDEQ is working with LDH to offer the classes to other areas of the State where LDEQ has inspection projects to improve property owner education.

Lastly, Louisiana is working with mortgage lenders and others in the real estate community to encourage or require OSDS inspections during home sales. Currently, the Louisiana Real Estate Commission requires that licensed real estate agents use standardized forms for closing home purchases. These "Louisiana Residential Agreement to Buy or Sell" forms include a protective mechanism for home buyers. The provision ensures the return of deposit if the seller is unable to provide the buyer with an approved sewerage inspection report as required by the Private Water/Sewerage Addendum to the form for the sale of any home not connected to a central sewer system. Although this does not guarantee that OSDS inspections will occur, the provision provides an effective incentive for inspection. Louisiana will work with the Commission to update the form with a requirement that the OSDS inspection report be less than three years old.

H. ROAD, HIGHWAYS, AND BRIDGES

1998 FINDING: For federally and State funded roads, highways and bridges, Louisiana's program includes management measures in conformity with the 6217(g) guidance, except for the operation and maintenance and runoff systems management measures. For local roads, highways and bridges subject to the coastal use permit program, Louisiana's program includes management measures in conformity with the 6217(g) guidance, except for the construction site erosion and sediment and chemical control measures. Louisiana's program includes enforceable

policies and mechanisms to ensure implementation, except for local roads, highways and bridges outside of the area subject to the coastal use permit program. Louisiana has identified backup enforceable policies and mechanisms but has not yet demonstrated the ability of these authorities to ensure implementation throughout the coastal nonpoint program management area.

1998 CONDITION: Within three years, Louisiana will include in its program management measures for federally and State funded roads, highways and bridges in conformity with the 6217(g) guidance for the operation and maintenance and runoff systems measures. Within three years, the State will include in its program management measures for local roads, highways and bridges subject to the coastal use permit program in conformity with the 6217(g) guidance for the construction site erosion and sediment and chemical control measures. Within three years, for local roads, highways and bridges outside of the area subject to the coastal use permit program, the State will include in its program management measures in conformity with the 6217(g) guidance for all of the roads, highways and bridges management measures.

Within one year, Louisiana will develop a strategy to implement the management measures for roads, highways and bridges that are located in the coastal nonpoint program management area but are outside of the area subject to the coastal use permit program. This strategy will include a description and schedule for the specific steps the State will take to ensure implementation of the management measures, describe how existing or new authorities can be used to ensure implementation where voluntary efforts are unsuccessful, and identify measurable results which, if achieved, will demonstrate the State's ability to achieve implementation of the management measure using the described approach.

2022 DECISION: Louisiana has satisfied this condition.

RATIONALE: Louisiana has met this condition through a mix of regulatory and voluntary programs including its NPDES Phase I and II Stormwater Program, guidance and policy documents such as its *Road Design Manual, Bridge Design and Evaluation Manual, Hydraulics Manual, Vegetation Management Policy* and *Best Management Practices for Coastal Louisiana Nonpoint Source Pollution—Urban Stormwater Runoff: Roads, Highways and Bridges*, outreach efforts, and development of a prioritization process for roadway improvement projects to address polluted runoff.

Since a change in NOAA and EPA policy effective December 20, 2002, State coastal nonpoint programs no longer need to include: (1) the management measure for road, highway and bridge construction projects; and (2) the management measure for construction site chemical control, because the NPDES stormwater permit requirements for industrial activities on construction sites apply nationwide and therefore throughout Louisiana's coastal nonpoint management area. See NOAA and EPA's 2002 memorandum, *Policy Clarification on Overlap of 6217 Coastal Nonpoint Programs with Phase I and II Storm Water Regulations*.[53] Additionally, Louisiana's coastal nonpoint program no longer needs to include the management measure for road,

[53] NOAA and EPA. 2002. *Policy Clarification on Overlap of 6217 Coastal Nonpoint Programs with Phase I and II Stormwater Regulations*. Accessed 11/7/2019.
https://coast.noaa.gov/data/czm/pollutioncontrol/media/NPDES_CZARA_Policy_Memo.pdf

highway, and bridge operation and maintenance or the management measure for runoff systems in Louisiana's urbanized areas that are subject to Phase I or Phase II NPDES MS4 permits.

As noted in the 1998 findings document, Louisiana had satisfied the management measure for planning, siting and developing roads and highways, and the management measure for bridges for state roads throughout the coastal nonpoint management area as well as local roads within Louisiana's Coastal Use Permit Program jurisdiction (i.e., the coastal zone management boundary) and designated MS4 areas. For local roads, highways and bridges outside of the CUP Program jurisdiction and designated MS4 areas, Louisiana relies on a suite of standard operating procedures and guidance manuals that include best practices in conformity with the roads, highways and bridges management measures. The Louisiana Department of Transportation and Development (LDOTD) works in collaboration with other state agencies and local communities to plan, design and implement roads, highways and bridges projects in the state, including operation and maintenance activities. All activities including construction, operation and repairs are defined as "new construction" activities and must comply with certain requirements, including LDOTD's *Bridge Design and Evaluation Manual*, *Hydraulics Manual*, and its *Policy for Roadside Vegetation Management*.[54,55,56] All federal, state and locally funded projects are required to adhere to the standard operating procedures and best practices contained within these manuals and policy documents. LDOTD uses activity codes to track all activities, including operation and maintenance activities such as catch basin repair and clean out, pavement patching, litter pick up, erosion control repair, and clean and maintain drainage structures.

The *Road Design Manual, Bridge Design and Evaluation Manual, Hydraulics Manual,* and *Erosion Control Guidelines* include practices and design standards to ensure roads, highways, and bridges are designed and sited to protect areas that provide important water quality benefits or that are susceptible to erosion.[57,58,59,60] They also include practices that reduce erosion and

[54] Louisiana Department of Transportation and Development. 2018. *Bridge Design and Evaluation Manual*. Accesses 11/7/2019.
http://wwwsp.dotd.la.gov/Inside_LaDOTD/Divisions/Engineering/Bridge_Design/Pages/BDEM.aspx
[55] Louisiana Department of Transportation and Development. 2011. *Hydraulics Manual.* Accessed 11/7/2019.
http://wwwsp.dotd.la.gov/Inside_LaDOTD/Divisions/Engineering/Public_Works/Hydraulics/Documents/Hydraulics%20Manual.pdf
[56] Louisiana Department of Transportation and Development. *Policy for Roadside Vegetation Management*. Accessed 11/7/2019.
http://wwwsp.dotd.la.gov/Inside_LaDOTD/Divisions/Engineering/Misc%20Documents/Policy%20For%20Roadside%20Vegetation%20Management.pdf
[57] Louisiana Department of Transportation and Development. 2009. *Road Design Manual.* Accessed 11/7/2019/
http://wwwsp.dotd.la.gov/Inside_LaDOTD/Divisions/Engineering/Road_Design/Pages/Road-Design-Manual.aspx
[58] Louisiana Department of Transportation and Development. 2018. *Bridge Design and Evaluation Manual*. Accessed 11/7/2019.
http://wwwsp.dotd.la.gov/Inside_LaDOTD/Divisions/Engineering/Bridge_Design/Pages/BDEM.aspx
[59] Louisiana Department of Transportation and Development. 2011. *Hydraulics Manual.* Accessed 11/7/2019.
http://wwwsp.dotd.la.gov/Inside_LaDOTD/Divisions/Engineering/Public_Works/Hydraulics/Documents/Hydraulics%20Manual.pdf
[60] Louisiana Department of Transportation and Development. 2007. *Erosion Control Guidelines.* Accessed 11/7/2019.

sediment loss and limit the disturbance of natural drainage features. For example, the *Road Design Manual* states that roadways need to be sited so that they "complement the surrounding terrain, while causing as little disruption to the surrounding environment and nature as possible" and that "drainage design on a project should not change existing drainage patterns."

The Louisiana *Vegetation Management Policy* also articulates specific policies for maintaining vegetation and limiting herbicide use along roadsides that are consistent with the 6217(g) guidance for roads, highways and bridges operation and maintenance. For example, in addition to applying herbicides in accordance with the Federal Insecticide, Fungicide, and Rodenticide Act, Louisiana's policy is to revegetate bare areas as soil and climatic conditions allow.

In addition, the voluntary *Best Management Practices for Coastal Louisiana Nonpoint Source Pollution—Urban Stormwater Runoff: Roads, Highways and Bridges* includes a variety of roadway and bridge maintenance best practices such as routine street sweeping, removing road debris, maintaining shoulders and repairing potholes consistent with the management measure for operation and maintenance of roads, highways and bridges.[61]

To further support the use of the State manuals by local transportation personnel, LDOTD partners with the Louisiana Transportation Research Center's Local Technical Assistance Program to provide technical assistance and training to local transportation personnel. The Local Technical Assistance Program offers workshops, on-site training, publications (including newsletters) and other resources to help bridge the gap between local, state and federal transportation professionals and to ensure that local personnel understand the most current state and federal requirements for planning, designing, siting, and maintaining roads, highways and bridges, including LDOTD's various manuals and guidebooks discussed above.

To address the management measure for road, highway and bridge runoff systems outside of MS4 areas, Louisiana has developed a process and schedule for identifying and prioritizing pollution reduction opportunities for state and local roads within its coastal nonpoint program boundary. The State has updated the priority list as part of its five-year Nonpoint Source Management Plan update. Once a priority retrofit opportunity is identified, the project is typically implemented over the following 12-36 months. The State includes water quality monitoring before and after such retrofits to assess improvements in water quality. The State also takes advantage of other LDOTD routine road and bridge maintenance and inspection schedules to incorporate improvements to address nonpoint source pollution problems during standard roadway and bridge repair activities. The LDOTD prioritizes road, highway and bridge projects located within watersheds identified on the State's CWA section 303(d) list of impaired waters.

Finally, Louisiana has developed a strategy to implement the roads, highways, and bridges management measures. Consistent with NOAA and EPA's *1998 Final Administrative Changes*

http://wwwsp.dotd.la.gov/Inside_LaDOTD/Divisions/Engineering/Road_Design/Erosion%20Control%20Guidelines/00%20La%20DOTD%20Erosion%20Control%20Guidelines%20(Full%20Text).pdf

[61] Louisiana Department of Natural Resources. *Best Management Practices for Coastal Louisiana Nonpoint Source Pollution—Urban Stormwater Runoff: Roads, Highways and Bridges.* Accessed 11/7/2019. http://www.dnr.louisiana.gov/assets/docs/coastal/interagencyaff/nonpoint/urban/Urban-RHB-BMP-brochure.pdf

for the Coastal Nonpoint Pollution Control Program Guidance memo,[62] Louisiana has provided a legal opinion from LDEQ's General Counsel Attorney General, which explains that the LDEQ has the authority to prevent nonpoint pollution and specifically requires implementation of the 6217(g) management measures for roads, highways and bridges, as necessary in accordance with the Louisiana Environmental Quality Act (La. R.S. 30:2001, et seq). LDEQ has also committed to using its authority to ensure implementation of the 6217(g) management measures when needed. LDEQ's Nonpoint Source Program also has a Memorandum of Understanding with LDOTD to cooperate in the implementation of construction and stormwater BMPs for all roads and highways in Louisiana, which demonstrates a link between the enforcing and implementing agencies.[63] The State has also described how it will track and evaluate over time the implementation of these coastal nonpoint program management measures through its annual reporting process for the State's Nonpoint Source Management Program.

V. MARINAS AND RECREATIONAL BOATING

1998 FINDING: Louisiana's program includes management measures in conformity with the 6217(g) guidance for siting and design, except that it does not include management measures for stormwater runoff and fueling station design. Louisiana's program includes management measures in conformity with the 6217(g) measures for marina and boat operation and maintenance, except for petroleum control, boat cleaning, maintenance of sewage facilities, and boat operation. Louisiana's program includes enforceable policies and mechanisms to ensure implementation of the measures, except for petroleum control, boat cleaning, maintenance of sewage facilities, and boat operation. Louisiana has identified backup enforceable policies and mechanisms to implement the petroleum control, boat cleaning, maintenance of sewage facilities, and boat operation management measures, but the State has not yet demonstrated the ability of these authorities to ensure implementation throughout the coastal nonpoint management area.

1998 CONDITION: Within two years, Louisiana will include in its program management measures in conformity with the 6217(g) measures for stormwater runoff, fueling station design, petroleum control, boat cleaning, maintenance of sewage facilities, and boat operation. Within one year, Louisiana will develop a strategy to implement the management measures for petroleum control, boat cleaning, maintenance of sewage facilities, and boat operation. This strategy will include a description and schedule for the specific steps the State will take to ensure implementation of the management measures, describe how existing or new authorities can be used to ensure implementation where voluntary efforts are unsuccessful, and identify measurable results which, if achieved, will demonstrate the State's ability to achieve implementation of the management measure using the described approach.

2022 DECISION: Louisiana has met this condition.

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[62] NOAA and EPA. *1998 Final Administrative Changes for the Coastal Nonpoint Pollution Control Program Guidance.* Accessed 11/7/2019. https://coast.noaa.gov/data/czm/pollutioncontrol/media/6217adminchanges.pdf

[63] *Memorandum of Understanding for Louisiana's Nonpoint Source Management Plan*, Appendix A to Louisiana's 2012 Nonpoint Source Management Plan. Dated 5/31/2012. Accessed: 11/9/2020. https://deq.louisiana.gov/assets/docs/Water/NPS_Management_Plan_1.pdf

RATIONALE: Louisiana relies on its voluntary clean marina program, backed by enforceable authorities, as well as other direct State authorities, including NPDES permits, to satisfy the marina management measures. The LDNR operates the Clean Marina Certification Program.[64] The program encourages marinas to adopt BMPs contained within the *Louisiana Clean Marina Guidebook* to protect water quality.[65] Louisiana Sea Grant, which produced the guidebook, also developed a summary pamphlet of the guidebook, *Good Environmental Management Practices in Louisiana's Marinas*.[66] Marinas that adopt a certain number of BMPs are certified as "clean marinas," are entitled to fly a "clean marina" burgee to advertise their certifications, and are promoted through the State's clean marina website. Marinas must undergo a recertification process every three years to maintain their clean marina certification. Beyond clean marinas, the State also sponsors a Clean and Resilient Marina program. Clean and resilient marinas have achieved both clean marina standards as well as additional resilience-related requirements. In addition to the guidebook, the State offers individual technical assistance to help marinas become clean marinas. Louisiana currently has 14 certified clean marinas and one Clean and Resilient Marina within its coastal nonpoint management area. The State encourages marinas to participate in the clean marina certification program when they come in for coastal use permits. The State also works with the twelve Local Coastal Management Programs to help to identify additional marinas to grow the program.

The marina siting and design management measure for stormwater runoff is addressed directly through the State's NPDES permit as well as the voluntary *Clean Marina Guidebook*. LDEQ requires all boatyards and other marina facilities that conduct outdoor boat cleaning and repair, including hull maintenance, to obtain a NPDES general permit (LAG030000). Once an activity is covered by a NPDES permit, it is excluded from the coastal nonpoint program. See NOAA and EPA's 1993 *Coastal Nonpoint Pollution Control Program: Program Development and Approval Guidance*[67] and NOAA and EPA's 2002 memorandum, *Policy Clarification on Overlap of 6217 Coastal Nonpoint Programs with Phase I and II Storm Water Regulations.*[68] Outside of the permit requirements, the guidebook also contains BMPs to address stormwater. For example, the "Siting Considerations for New and Expanding Marinas" chapter broadly notes that any activities that create detrimental discharges of suspended sediments or toxic substances should be avoided. The guidebook goes on to list specific BMPs to achieve this goal that are consistent with the 6217(g) guidance such as: maintain vegetated areas; minimize impervious surfaces; install structural stormwater controls; control stormwater runoff from dry-stacks and

[64] Louisiana Department of Natural Resources. *Louisiana Clean Marina Program* (website). Accessed 11/7/2019. http://www.dnr.louisiana.gov/index.cfm?md=pagebuilder&tmp=home&pid=124
[65] Louisiana Department of Natural Resources. 2004. *Louisiana Clean Marina Guidebook* Accessed 11/7/2019. http://www.dnr.louisiana.gov/assets/OCM/Interagency/CleanMarina/CleanMarinaGuidebook2004.pdf
[66] Barret-O'Leary, Michael Liffman, and Brian LeBlanc. *Good Environmental Management Practices in Louisiana's Marinas.* Accessed 11/7/2019. http://www.dnr.louisiana.gov/assets/OCM/Interagency/CleanMarina/GoodEnvironmentalManagementPracticesLAMarinas.pdf
[67] NOAA and EPA. 1993. *Coastal Nonpoint Pollution Control Program: Program Development and Approval Guidance.* Accessed 11/7/2019. https://coast.noaa.gov/data/czm/pollutioncontrol/media/6217progguidance.pdf
[68] NOAA and EPA. 2002. *Policy Clarification on Overlap of 6217 Coastal Nonpoint Programs with Phase I and II Stormwater Regulations.* Accessed 11/7/2019. https://coast.noaa.gov/data/czm/pollutioncontrol/media/NPDES_CZARA_Policy_Memo.pdf

parking areas; and establish designated hull maintenance areas that include stormwater collection systems to prevent pollutants from entering coastal waters.

The *Clean Marina Guidebook* also promotes practices consistent with the fueling station design and petroleum control management measures. The guidebook encourages installation of double-walled or vaulted above-ground fuel tanks or underground storage tanks with corrosion prevention and spill/overfill prevention equipment such as readily accessible shut off values and leak detection systems. The guidebook also calls for locating the above-ground storage tanks within a diked or impervious storage area capable of containing a volume greater than the tank holds, designing containment areas so that spills can easily be cleaned up, locating fuel docks in areas protected from waves and wakes, and installing automatic back-pressure shutoffs and vapor control nozzles. In addition, the guidebook includes various operation and maintenance BMPs for petroleum control such as maintaining a supply of oil absorbent pads and using them during fueling and boat maintenance activities that involve fuel or oil, inspecting fueling equipment regularly, fixing leaks immediately, and having a trained employee oversee fueling. All of these BMPs ensure that fueling stations are designed to allow ease of spill cleanup and reduce the amount of fuel and oil from boat bilges and fuel tank air vents entering marina and surface waters consistent with the 6217(g) management measures.

To address the boat cleaning management measure, the guidebook includes various vessel maintenance and repair BMPs to minimize the release of harmful cleaners, solvents and paint from in-water boat cleaning. The guidebook recommends that boats be removed from the water, if possible, and suggests marinas offer reduced mid-season hull-out rates to facilitate boat cleaning out of the water. If boat cleaning must occur while the boat is in the water, the guidebook promotes using environmentally friendly detergents sparingly and ensuring that the detergents are phosphate-free, biodegradable and nontoxic.

Louisiana addresses the sewage facility maintenance management measure through the Clean Marina Program and guidebook, as well. The guidebook calls for installing pump-out facilities in accessible locations with good signage, providing 24-hour access to restrooms, and ensuring that pump-outs and restrooms are properly maintained and functioning which are consistent with the 6217(g) management measures.

The boat operation management measure in the 6217(g) guidance calls on state coastal nonpoint programs to establish programs to restrict boating activities when necessary to decrease turbidity and physical destruction of shallow-water habitats. LDWF oversees the State's boater education program. Any person born after 1984 must take a boating education course and carry proof of completion to operate boats of 10 horsepower or greater in Louisiana waters. LDWF's *Handbook of Louisiana Boating Laws and Responsibilities* includes boat operation practices to reduce environmental impacts to shallow-water habitat such as operating personal watercraft in at least 30 inches of water and at slow speeds in narrow streams or rivers to avoid bank erosion and sediment resuspension.[69] In addition, the Louisiana Office of State Park has authority through LAC Title 25:IX.307 to enforce no wake zones in waters on or adjacent to park property. No

[69] Louisiana Wildlife and Fisheries. 2019. *The Handbook of Louisiana Boating Laws and Responsibilities*. Accessed 11/7/2019. https://www.boat-ed.com/assets/pdf/handbook/la_handbook_entire.pdf

wake zones are found at state parks within the coastal area to reduce erosion and protect habitat such as at the Sam Houston Jones State Park and Lake Fausse Pointe State Park. Many parishes have also enacted ordinances watercraft speed restrictions specific to certain waterways. For example, St. Tammany Parish Section Article 2 Section 15.00600 defines geographic areas for watercraft speed limits in specific waterways within the parish.

Where voluntary programs are used to meet the marina management measures, Louisiana provided a legal opinion from the LDEQ general counsel's office explaining how the Louisiana Environmental Quality Act, (La. R.S. 30:2001, *et seq*.) and Louisiana Water Quality Regulations (LAC Title 33:Part IX) provide adequate legal authority to ensure implementation of the 6217(g) measures, including the marina management measures, throughout the coastal nonpoint management area. The State has described how LDEQ, which oversees the enforcement authorities, works with LDNR, which administers the Clean Marina Certification Program, to take enforcement action when needed and has demonstrated a commitment to use these back-up authorities, when needed. Voluntary adoption of the marina management measures is tracked through the certification program.

VI. HYDROMODIFICATION

1998 FINDING: Louisiana's program includes management measures in conformity with the 6217(g) guidance and enforceable policies and mechanisms to ensure implementation, except the management measures and enforceable policies and mechanisms apply only to a limited area and the State's program does not include: (1) a process to improve surface water quality and restore in-stream and riparian habitat through the operation and maintenance of existing modified channels; and (2) a process to identify and develop strategies to solve existing nonpoint source problems caused by streambank or shoreline erosion that do not come up for review under existing permit authorities. For areas outside of the area subject to control by the Coastal Use Permit Program, Louisiana has identified backup enforceable policies and mechanisms, but has not yet demonstrated the ability of these authorities to ensure implementation throughout the coastal nonpoint management area. Louisiana has provided sufficient justification to support a categorical exclusion for dams within the State's existing coastal management area.

1998 CONDITION: Within three years, Louisiana will include in its program management measures in conformity with the 6217(g) guidance for the physical and chemical characteristics of surface waters, in-stream and riparian habitat, and eroding streambanks and shorelines management measures within the State's existing coastal zone. Within one year, Louisiana will develop a strategy to implement the management measures for hydromodification, including dams, in areas outside of the area subject to the Coastal Use Permit Program. This strategy will include a description and schedule for the specific steps the State will take to ensure implementation of the management measures, describe how existing or new authorities can be used to ensure implementation where voluntary efforts are unsuccessful, and identify measurable results which, if achieved, will demonstrate the State's ability to achieve implementation of the management measure using the described approach.

2022 DECISION: Louisiana has met this condition.

RATIONALE: Louisiana has satisfied the conditions on its hydromodification management measures through its watershed planning process, *Louisiana's Comprehensive Master Plan for a Sustainable Coast*, and adoption and promotion of EPA's 2007 *National Management Measures to Control Nonpoint Source Pollution from Hydromodification,* among other initiatives. The State has also demonstrated it has strategies in place to use these voluntary programs, backed by legal authorities, to ensure implementation of the hydromodification management measures throughout the coastal nonpoint management area, when needed.

Although Louisiana had shown how it has programs in place to address elements 1 and 2 of the channelization and channel modification management measures (management measures for the physical and chemical characteristics of surface waters and instream and habitat restoration) within its coastal zone boundary at the time of the 1998 conditional approval, the State had not yet shown how it had programs in place to address these elements outside of its coastal zone.[70] Louisiana has since adopted EPA's 2007 *National Management Measures to Control Nonpoint Source Pollution from Hydromodification* (hydromodification guidance) as authoritative state guidance. The hydromodification guidance calls for evaluating the potential effects of proposed channelization and channel modifications on water quality and instream and riparian habitat, and planning and designing channelization and channel modifications to reduce undesirable impacts to water quality and instream and riparian habitat which is consistent with the 6217(g) management measures.

The State has developed and is implementing a strategy to promote the use of its hydromodification guidance throughout the coastal nonpoint management area. Both LDNR and LDEQ have included links to the guidance on their websites.[71] In addition, LDNR and LDEQ have demonstrated a commitment to promoting local implementation of the guidance and are actively integrating its hydromodification practices into programs and outreach to parishes, drainage boards, and watershed coordinators. The Annual Reports for Louisiana's Nonpoint Source Management Plan note ongoing efforts by LDEQ to provide technical assistance to parishes, watershed coordinators, and watershed groups on preventing water quality and habitat impacts from hydromodification projects such as channel modifications. For example, LDEQ provided a presentation on the guidance and hydromodification best practices at the Police Jury Association's Annual Meeting and utilizes watershed coordinators to work with local governments and drainage boards throughout the coastal nonpoint program management area to ensure implementation of the management measures.[72] In addition, LDEQ's Office of the Secretary Business Community Outreach and Incentives Division conducts environmental reviews of federally funded projects that frequently involve channel modifications. LDEQ refers the local parish police jury or drainage boards and their engineers that are undertaking the projects to EPA's hydromodification guidance to ensure the projects are planned, designed and

[70] NOAA and EPA. 1998. *Findings for the Louisiana Coastal Nonpoint Program, June 30, 1998*. Accessed 11/7/2019. https://coast.noaa.gov/data/czm/pollutioncontrol/media/findla.txt

[71] See http://www.dnr.louisiana.gov/index.cfm?md=pagebuilder&tmp=home&pid=109 and https://deq.louisiana.gov/page/nonpoint-source, respectively. Accessed 5/9/2019.

[72] According to the Police Jury Association of Louisiana, policy juries are akin to county boards of commissioners. For more information on the origins and functions of the police jury, please visit the Police Jury Association of Louisiana website: https://www.lpgov.org/page/ParishGovStructure.

implemented consistent with the 6217(g) channelization and channel modification management measures.

Regarding element 3 of the channelization and channel modification management measures (develop an operation and maintenance program for existing modified channels that include identification of opportunities to improve surface water quality and restore instream and riparian habitat in those channels), Louisiana relies on several programs, including its watershed planning process and several large-scale plans that address coastal restoration and hydromodification such as *Louisiana's Comprehensive Master Plan for a Sustainable Coast* (coastal master plan), the Louisiana Coastal Area Mississippi River Hydrodynamic and Delta Management Study, and the Southwest Coastal Louisiana Feasibility Study.[73,74,75]

As described in the State's EPA-approved Nonpoint Source Management Plan, updated most recently in 2019, through its watershed planning process the State is able to identify and implement opportunities to improve the physical and chemical characteristics of surface waters and restore instream and riparian habitat in modified channels. The State's nonpoint source annual reports document progress in implementing the watershed planning process, including evaluating the water quality improvements resulting from the implementation of hydromodification BMPs. For example, the Bayou Folse Watershed Implementation Plan includes a hydromodification component through a partnership with the Lafourche Parish Game and Fish Commission.

The coastal master plan is a plan for developing and implementing a long-term comprehensive coastal hydrologic and habitat protection and restoration strategy for coastal Louisiana. The plan identifies specific restoration, structural protection, and nonstructural risk reduction projects, that the State intends to implement throughout coastal Louisiana. The plan includes projects to improve existing modified channels, which are needed to maximize coastal sediment retention and overcome the legacy of an extensively modified hydrologic system. The first version of the coastal master plan was released in 2007 and was substantially updated in 2012 and 2017. It is currently undergoing another extensive revision to be published in 2023. The plan incorporates state-of-the-art ecosystem modeling for evaluating priority projects and practices that incorporate hydrologic and sediment management. Independent technical advisory committees of leading experts have provided recommendations on the programmatic and policy measures needed to implement the plan, as well as on improvements necessary to the tools needed to analyze changes to the landscape over time. Projects that have been identified and are being implemented through the coastal master plan that are consistent with the 6217(g) guidance for existing modified channels include the Bayou Dupont marsh and ridge restoration project and Calcaseiu Ship Channel salinity control measures. The Mississippi River flood control levee system

[73] Coastal Protection and Restoration Authority of Louisiana. 2017. *Louisiana's Comprehensive Master Plan for a Sustainable Coast*. Accessed 07/13/2020. http://coastal.la.gov/wp-content/uploads/2017/04/2017-Coastal-Master-Plan_Web-Single-Page_CFinal-with-Effective-Date-06092017.pdf
[74] Anonymous. N.d. *Mississippi River Hydrodynamic and Delta Management Study* (website). Accessed: 07/13/2020. https://www.lca.gov/Projects/22/Default.aspx
[75] U.S. Army Corps of Engineers. *Southwest Coastal Louisiana Feasibility Study* (website). Accessed: 07/13/2020. https://www.mvn.usace.army.mil/About/Projects/Southwest-Coastal/

prevented sediment from naturally flowing to the Bayou Dupont marsh, severely degrading the marsh system over the years. A three-phase restoration project undertaken through the coastal master plan was completed in 2016 and resulted in the creation of over 1,000 acres of marsh and 11,000 linear feet of restored ridge. The presence of the Calcaseiu Ship Channel and other navigation channels was exposing the Chenier Plain around Lake Charles to higher salinity levels, causing significant wetland loss and other impacts to the natural hydrological flow. A project underway now is working to prevent saltwater intrusion into Lake Charles and surrounding marshes from the navigation channels.

While the Coastal Master Plan is being used to guide the use of virtually all state and federal coastal protection, restoration and mitigation funding opportunities, including those for modified channels, several state and U.S. Army Corps of Engineers (USACE) studies also provide more focused recommendations for the Mississippi Delta and Southwest coastal regions. For example, the State partnered with USACE to carry out a comprehensive hydrologic and restoration planning process in southwestern Louisiana. The Southwest Coastal Louisiana Feasibility Study covers Vermillion, Calcasieu and Cameron parishes and includes recommendations for marsh restoration projects consistent with the instream and riparian habitat restoration management measure for channels and channelization. The study was completed in 2016 and recommends shoreline stabilization, including soft-stabilization methods such as oyster reef sills, and protecting existing streambank and shoreline features such as wetlands that play an important role in reducing nonpoint source pollution that are consistent with the 6217(g) management measure for shoreline and streambank erosion.[76,77] These recommendations are being implemented as local, state and federal funding becomes available.

NOAA and EPA granted Louisiana an exemption for the dam management measures within the coastal zone boundary as part of their 1998 conditional approval findings but found that the State still had to develop a strategy to address the dam management measures outside of the coastal zone.[78] In December 2002, NOAA and EPA issued a policy clarification, stating that state coastal nonpoint pollution control programs are no longer required to include the dam erosion and sediment control and chemical and pollutant control management measures because these management measures are now covered through the NPDES Phase I and II Stormwater Program.[79] Therefore, all states, including Louisiana, are exempt from the management measures for erosion and sediment control for dams and chemical and pollutant control for dams throughout their coastal nonpoint management areas.

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[76] USACE. 2016. *Fact Sheets and Maps for Features of the National Ecosystem Restoration Recommended Plan.* Accessed: 11/9/2020. https://www.mvn.usace.army.mil/Portals/56/docs/PD/Projects/SWCoastal/21%20Appendix%20K%20NER%20Fact%20Sheets.pdf

[77] USACE. 2016. *Southwest Coastal Louisiana: Integrated Final Feasibility Report and Environmental Impact Statement.* Accessed: 11/9/2020. https://www.mvn.usace.army.mil/Portals/56/docs/PD/Projects/SWCoastal/2016/SWC%20Main%20Report.pdf

[78] NOAA and EPA. 1998. *Findings for the Louisiana Coastal Nonpoint Program, June 30, 1998*. Accessed 11/7/2019. https://coast.noaa.gov/data/czm/pollutioncontrol/media/findla.txt

[79] NOAA and EPA. 2002. *Policy Clarification on Overlap of 6217 Coastal Nonpoint Programs with Phase I and II Stormwater Regulations*. Accessed 11/7/2019. https://coast.noaa.gov/data/czm/pollutioncontrol/media/NPDES_CZARA_Policy_Memo.pdf

Outside of its coastal zone boundary, Louisiana addresses the dam management measure for the protection of surface water quality and instream and riparian habitat through its promotion of EPA's hydromodification guidance, described above, which also contains practices consistent with the 6217(g) dam management measures. The State's watershed planning and implementation process further supports the implementation of this management measure. Through its watershed assessments, the State is able to evaluate potential improvements to water quality and instream and riparian habitat due to the operation of dams and significant nonpoint source pollution problems that result from excessive water withdrawals and develop implementation plans to carry out priority projects to address problem areas. In addition, LDOTD operates the Dam Safety and Regulatory Program for the State of Louisiana. The Program governs the construction, enlargement, alteration or repair, and maintenance and operation of all dams 25 feet or more in height and greater than 15 acre-feet capacity or 6 feet in height and greater than 50 acre-feet in capacity. This regulatory process includes coordination among local, state, and federal agencies which includes a review of environmental quality in design and engineering.

To address the management measure for eroding streambanks and shorelines, Louisiana also relies on EPA's hydromodification guidance, its watershed planning process, and large-scale restoration planning efforts. As previously described, these programs enable the State to identify and implement projects to stabilize eroding shorelines, protect streambank and shoreline features that have the potential to reduce nonpoint source pollution and protect streambanks and shorelines from erosion due to uses of adjacent uplands or surface waters. Examples of watershed plans and projects that address shoreline erosion include the Bayou Folse Watershed Implementation Plan which includes a shoreline protection component in which floating vegetation and shoreline terraces have been constructed to restore eroding shorelines and prevent further erosion. The coastal master plan includes projects to stabilize, restore, and prevent further loss of eroding shorelines including shoreline protection efforts along Freshwater Bayou, Vermilion Bay, and West Cote Branch Bay.

Louisiana also partners with the Center for Planning Excellence, a non-profit organization, to coordinate urban and rural planning efforts and to encourage adoption of model ordinances contained within the Coastal Land Use Tool Kit.[80] The toolkit is designed to be tailorable by communities to select the most appropriate ordinances and adopt them in whole or in part. One model ordinance addresses stormwater management and natural resource protection, including the protection of bioshields (i.e., trees canopies along waterways). Encouraging the adoption of stormwater ordinances to control polluted runoff and preserve riparian vegetation helps to ensure adjacent upland uses will not lead to streambank and shoreline erosion, consistent with the 6217(g) guidance. Outreach and technical assistance efforts continues with towns and parishes throughout the state of Louisiana.

Louisiana provided a legal opinion from the LDEQ general counsel's office asserting that the Louisiana Environmental Quality Act, (La. R.S. 30:2001, *et seq.*) and Louisiana Water Quality Regulations (LAC 33:Part IX) provide adequate legal authority to ensure implementation of the

[80] See https://www.cpex.org/coastal-land-use-toolkit (*Additional Ordinances* section). Accessed 5/8/2019.

6217(g) measures, including the hydromodification management measures, throughout the coastal nonpoint management area. The State has described how LDEQ, the enforcement agency, works with LDNR and other partners, to implement the management measures and has demonstrated a commitment to use these back-up authorities, when needed. Louisiana tracks and evaluates implementation of the hydromodification management measures through its Nonpoint Source Management Plan annual reports.

VII. WETLANDS, RIPARIAN AREAS AND VEGETATED TREATMENT SYSTEMS

1998 FINDING: Subject to the conditions in the boundary section, Louisiana's program includes management measures for protection of wetlands and riparian areas in conformity with the 6217(g) guidance. The program includes enforceable policies and mechanisms to ensure implementation within the existing coastal management area.

2022 RATIONALE: No specific condition was associated with the above finding, although it is linked to the 1998 condition on Louisiana's coastal nonpoint management program boundary. This rationale provides a basis for demonstrating that Louisiana has programs in place to address the management measure for the protection of wetlands and riparian areas throughout its coastal nonpoint management area once a federally approved boundary had been established. As discussed in the boundary section of this document, Louisiana has satisfied that condition by establishing a coastal nonpoint program management area that includes all or part of 30 parishes, encompassing the State's coastal zone as well as areas inland across most coastal watersheds, including the Calcasieu, Mermentau, Vermilion-Teche, Atchafalaya, and Lake Pontchartrain watersheds. The State addresses the management measure for the protection of wetlands and riparian areas across this area through programs such as its Coastal Use Permit Program, Section 401 water quality certifications, stormwater permits, and Natural and Scenic Rivers System designations, among others.

Louisiana has a number of programs dedicated to the protection of wetlands. The LDNR implements the Coastal Use Permit (CUP) program (LAC 43:I.723) to ensure the management and reasonable use of the State's coastal resources, including wetlands.[81] The CUP permit process makes sure that any activity affecting the coastal zone is performed in accordance with the *User's Guide to the Louisiana Coastal Resources Program,* which serves as the guidance for CUP program administration.[82] The guidance describes numerous general and specific requirements for the protection of wetlands and riparian areas that are codified in the LAC, in conformity with the coastal nonpoint program guidance. For example, the guidance includes Title 43, Part 1, Chapter 7 of the LAC which requires direct evaluation of the extent of impacts on existing, traditional and future uses for the area and adjacent habitat or special areas (LAC 43:I.701,F.11-12, 14). One of the primary goals of the CUP program is to regulate activities that may increase the loss of wetlands and aquatic resources to achieve no net loss of wetlands. The CUP process first seeks to avoid or minimize impacts to wetlands.

[81] See http://www.dnr.louisiana.gov/index.cfm?md=pagebuilder&tmp=home&pid=93. The CUP program is discussed in more detail in the New Development section above. Accessed 11/8/2019.
[82] Louisiana Department of Natural Resources. 2015. *A Coastal User's Guide to the Louisiana Coastal Resources Program.* Accessed 11/9/2020. https://data.dnr.la.gov/LCP/LCPHANDBOOK/FinalUsersGuide.pdf

In some cases, if adverse impacts are unavoidable, the implementation guidance requires compensatory wetland mitigation (LAC 43:I.724,B.1.c). In other words, the ecological value of wetlands, including their nonpoint source abatement functions, which are unavoidably lost due to a permitted activity must be replaced by the creation of an equal amount of ecological value.

Outside the jurisdiction of the Coastal Use Permit area, Louisiana protects wetlands and riparian areas through several programs including, the Natural and Scenic Rivers System and LDEQ's general stormwater permit. Along the 1,116 miles of designated Natural and Scenic Rivers within the coastal nonpoint management area, Louisiana protects riparian areas by promoting a minimum vegetated buffer of 100 feet through its *Best Management Practices for Scenic Rivers*.[83] Scenic River permits are required for all activities on or near designated waterways that may detrimentally impact the ecological integrity, scenic beauty or wilderness qualities of those rivers (LAC 76:IX.117). These permits, when granted, contain specific conditions aimed at preserving the waterway's natural character and quality.

In addition to the Scenic River permits, Louisiana's general stormwater permits for construction sites between one and five acres (LAR200000) and greater than five acres (LAR 100000) also includes protections for wetlands and riparian areas. These permits call for including natural buffers along waters of the state, including wetlands, and specifically require a 100-foot natural buffer setback from designated Outstanding Natural Resource Waters (included in the Natural and Scenic River System). LAR100000 and LAR200000 also require and 100- and 50-foot setback respectively from any waterbody listed on the State's integrated report as "impaired for sediments/siltation or turbidity and where the suspected source is site clearance," unless infeasible.

Louisiana further promotes the protection of wetlands and riparian areas through sector-specific BMP guides such as the *Recommended Forestry Best Management Practices for Louisiana* which are discussed in more detail in the Forestry section above. The Coastal Protection and Restoration Authority's Coastal Forest Conservation Initiative also works to protect important wetland forests. The initiative acquires land rights from willing landowners so long as the land provides direct storm reduction potential, has high ecological significance, or is in danger of conversion to non-forest uses.

These programs demonstrate that Louisiana has an approach that protects wetlands and riparian areas that serve significant nonpoint source abatement functions and maintains this function while protecting other existing functions of these wetlands and riparian areas throughout its coastal nonpoint management area.

VIII. ADMINISTRATIVE COORDINATION

1998 FINDING: Louisiana's program does not include mechanisms to improve coordination among State agencies and between State and local governments.

[83] Louisiana Department of Wildlife and Fisheries. *Best Management Practices for Scenic Rivers* (Website). Accessed 11/9/2020. https://www.wlf.louisiana.gov/page/bmps-for-scenic-rivers

1998 CONDITION: Within two years, Louisiana will include in its program mechanisms, such as the proposed Memoranda of Agreement (MOAs), to ensure administrative coordination among State agencies and between State and local governments.

2022 DECISION: Louisiana has satisfied this condition

RATIONALE: The Louisiana Coastal Nonpoint Program depends on coordination among several state agencies. In 2000 LDEQ signed a Memorandum of Understanding (MOU) with various state and federal agencies to establish policies and administrative procedures for additional cooperative efforts to implement the State's Nonpoint Source Management Program.[84] The portion describing the relationship between LDEQ and LDNR also emphasized each agencies' leadership in implementing the coastal nonpoint program. In addition to this MOU, State agencies have also signed various issue-specific MOUs to further improve coordination on specific nonpoint source management issues. For example, LDEQ and LDAF signed an MOU in 2015 regarding the use of best management practices for management of organic solid waste materials.[85]

Additionally, LDNR and LDEQ, the two agencies responsible for the coastal nonpoint program in Louisiana, have enhanced coordination through collaborative and cooperative tasks. An example of this coordination is the joint development of the "Louisiana Coastal Nonpoint Pollution Control Program BMP Manuals," as well as the development and delivery of training and outreach related to the manuals.[86] Also, LDNR coordinates routinely with local coastal programs and arranges specialized coordination for specific nonpoint efforts. Additional examples of State agencies coordinating with one another and/or local governments are captured in the rationales for specific management measures above.

XIII. MONITORING

1998 FINDING: Louisiana's program does not include a plan to assess over time the success of the management measures in reducing pollution loads and improving water quality.

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[84] *Memorandum of Understanding between the Louisiana Department of Quality, Louisiana Department of Agriculture and Forestry, Louisiana Department of Health and Hospitals, Louisiana Department of Wildlife and Fisheries, Louisiana Department of Transportation and Development, Louisiana Department of Natural Resources, the Louisiana State University Agricultural Center, U.S. Department of Agriculture Natural Resources Conservation Service, U.S. Department of Agriculture Farm Services Agency, Louisiana Forestry Association, U.S. Fish and Wildlife Service, U.S. Department of Agriculture Forest Service, U.S. Army Corps of Engineers, U.S. Geological Survey, and the Federal Emergency Management Agency*. 2000-2001.

[85] *Memorandum of Understanding between the Louisiana Department of Agriculture and Forestry and the Louisiana Department of Environmental Quality to establish and working partnership to promote best management practices (BMPs) for beneficially using organic solid waste*. April 2015 (https://deq.louisiana.gov/assets/docs/Land/MOU-LDEQ-LDAF2015.pdf)

[86] NOAA. 2011. *Final Evaluation Findings of the Louisiana Coastal Resources Program*. (https://coast.noaa.gov/czm/media/lacmp2011.pdf)

1998 CONDITION: Within one year, Louisiana will finalize and include in its program a plan that enables the State to assess over time the extent to which implementation of management measures is reducing pollution loads and improving water quality.

2022 DECISION: Louisiana has satisfied this condition.

RATIONALE: Louisiana has been implementing a plan for monitoring water quality statewide through the State's Integrated Report, which consists of the 305(b) Water Quality Inventory Report and the 303(d) list of impaired water bodies. Louisiana is committed to restoring some nonpoint source-impaired waterbodies in the coastal nonpoint program management area, along with others throughout the State, by target dates through a prioritized watershed approach. These priority watersheds are identified and listed in the State's 2019 Nonpoint Source Management Plan update, and restoration activities are described in specific nine-element watershed plans.

The State uses the annual reporting process for its State Nonpoint Source Management Plan to track, over time, the implementation of the coastal nonpoint program management measures. The State incorporated a new section in the annual report to provide information about the status of activities intended to demonstrate progress with Louisiana's Coastal Nonpoint Program. NOAA and EPA find that this approach, combined with its Integrated Report assessments, enables the State to assess over time the extent to which implementation of management measures is reducing pollution loads and improving water quality.

LIST OF ACRONYMS

6217(g)	Section 6217(g) of the Coastal Zone Act Reauthorization Amendments
BMP	Best Management Practice
CR	Completion Report
CUP	Coastal Use Permit
CWA	Clean Water Act
CWSRF	Clean Water State Revolving Funds
CZMA	Coastal Zone Management Act
EDMS	Electronic Document Management System
EPA	Environmental Protection Agency
GRTS	Grants Reporting and Tracking System
HUC	Hydrologic Code Unit
LDAF	Louisiana Department of Agriculture and 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
LRWA	Louisiana Rural Water Association
LSU	Louisiana State University
MOU	Memorandum of Understanding
MS4	municipal separate storm sewer system

NOAA	National Oceanic and Atmospheric Administration
NOI	notice of intent
NPDES	National Pollutant Discharge Elimination System
NPS	nonpoint source
OSDS	onsite disposal system
SWPPP	Stormwater Pollution Prevention Plan
TMDL	Total Maximum Daily Load
USACE	U.S. Army Corps of Engineers
WIP	Watershed Implementation Plan