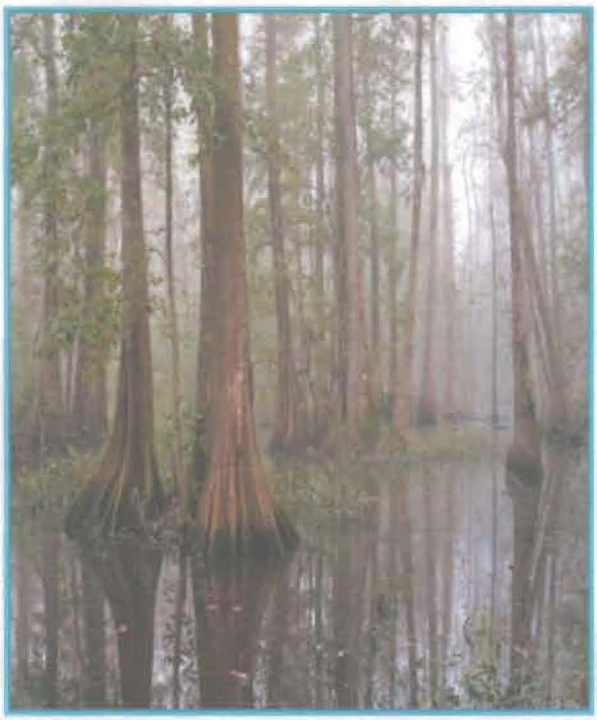

Louisiana's Nonpoint Source Management Plan 2011- 2016

Prepared by the
Louisiana Department of
Environmental Quality

Vermilion-Teche River Basin

The Vermilion-Teche River Basin includes Vermilion River and Bayou Teche, which flow through south Louisiana. The upper end of the basin lies in the central part of the state near Alexandria, and extends southward to Gulf of Mexico. The basin is bordered on the north and northeast by a low escarpment and the lower end of Red River Basin. Atchafalaya River Basin lies to the east and Mermentau River Basin lies to the west of Vermilion-Teche River Basin. The Vermilion-Teche River Basin is comprised of forty four water quality sub-segments, which is the scale that LDEQ utilizes for permitting, water quality standards, assessment, and the ambient water quality monitoring network.

Water Quality Assessment

The 2008 IR indicated that of these forty-four watersheds, Vermilion River from its headwaters to LA 3073 Bridge was the only water body that was not meeting designated uses for contact recreation and FWP. There were thirty-five watersheds fully meeting primary and secondary contact recreation uses, but were not meeting FWP. West Cote Blanche Bay, East Cote Blanche Bay, Vermilion Bay, Marsh Island, Spring Creek and Bayou Teche from Charenton Canal to Wax Lake Outlet were meeting all of their designated uses. Seventh Ward Canal, located in Lower Vermilion River watershed, was not assessed for contact recreation but was not meeting FWP because of mercury. The draft 2010 IR indicates water quality has improved in Vermilion-Tech River Basin. Spring Creek, Cocodrie Lake, Chicot Lake, and portions of Bayou Teche indicated reductions in sedimentation and turbidity. Several of these water bodies also indicated improvements in DO concentrations.

Municipal point sources and municipal separate storm sewers are problems identified as contributing to those water bodies impaired with fecal coliform bacteria. Irrigated and non-irrigated crop production, sand and gravel mining, natural and unknown sources were identified as contributing sediment, nutrients and organic material to water bodies impaired for DO.

Define Water Quality Goals

LDEQ and USEPA Region 6 developed TMDLs for six watersheds in Vermilion-Teche River Basin, including Bayou Teche (060205, 060301, 060401), Bayou Teche (060401 and 060501), Bayou Boeuf (060208), Vermilion River (060801, 060802), Bayou Cocodrie Watershed (060102, 060201, 060203, which includes Cocodrie Lake, Bayou Cocodrie and Chicot Lake), Bayou Courtableau (060204), Lake Fausse Point and Dauterive Lake (060702). Two pollution problems associated with these water bodies included fecal coliform bacteria and/or DO. Bayou Teche, Bayou Boeuf and Vermilion River had TMDLs developed for fecal coliform and DO, whereas Bayou Cocodrie, Courtableau and Lake Fausse Point/Lake Dauterive only had problems with DO. NPS load reductions ranged from 17-68% and included agriculture, urban runoff, rural residences, home sewerage systems and hydromodification as contributing sources. A table on pages 205-212 includes information on which water bodies have had TMDLs completed for them, where WIPs have been completed or currently are being developed, where implementation activities are being conducted and delistings have occurred for one or more water quality parameters.

Bayou Boeuf receives runoff from agricultural fields and urban runoff from Alexandria. Vermilion River receives runoff from agricultural fields, urban runoff from Lafayette and runoff from pastures and home sewerage systems. Bayou Cocodrie receives agricultural and forestry runoff and portions of it have been modified for drainage. Bayou Courtableau also receives agricultural runoff and has been extensively modified.

Water Quality Improvements

LDEQ and USEPA have continued to focus resources and time in Vermilion-Teche River Basin and collected water quality data to determine whether water quality was improving as a result of these activities. Water quality data is collected continuously on Vermilion River and Bayou Teche. These data indicate fluctuations in DO concentrations from year to year with lower values in 2007. Water quality improved in Vermilion River and Bayou Teche in 2009/2010 with portions of these water bodies removed from the 303(d) list.

Water quality improved in Vermilion River from 2005 to 2010 with lower concentration of fecal coliform bacteria. Similarly, water quality improved in Bayou Teche, Bayou Cocodrie and Chicot Lake since 2004. LDEQ continues to analyze water quality data from these water bodies to determine if improvements are sufficient to delist them and develop a NPS Success Stories.

Watershed Implementation

There has been extensive implementation in Vermilion River watershed of agricultural BMPs for sugarcane, pastures, rice and crawfish operations. BMPs have been implemented and data has been collected from edge of the fields. Monitoring has indicated these practices are effective in reducing NPS pollutants entering the river. Bayou Vermilion District partnered with LDEQ on a watershed approach to reduce NPS loads entering the river. ULL and local SWCDs have implemented watershed projects to increase acres of BMPs implemented and quantified effectiveness of BMPs in reducing edge-of-field and in-stream NPS loads.

USDA's EQIP has consistently been active in this part of the state, with approximately 20,000 acres of BMPs implemented annually. In addition to EQIP, BMPs were also implemented through CRP, WRP and WHIP. The OSWC implemented Vermilion/Mermentau Section 319 project in which approximately 60,000 acres of BMPs were implemented. LDEQ continues to implement projects through the Section 319 program to reduce NPS pollutants from agricultural lands, home sewerage systems and urban areas.

LDEQ utilized the watershed approach to implement WIPs developed for Vermilion River. Water quality data indicated improvements in 2005-2006, but those improvements were not sustained during 2007 for DO, turbidity and organic carbon. These parameters were actually higher in 2006 than they were in 2005. Water quality data in 2006 IR indicated improved water quality in Vermilion River from New Flanders Bridge to Intracoastal Waterway. This section of the river improved from not meeting SCR to fully supporting that use, which means concentrations of fecal coliform bacteria declined in the river. LDEQ continues to monitor water quality to evaluate improvements resulting from projects that were implemented.

During the past few years, the NPS Program implemented the following projects in Vermilion-Teche River Basin:

- Vermilion-Teche River Basin Water Quality Monitoring Project, Phase 2;
- Evaluating Effects of Reduced Cultivation and Elimination of Burning of Combine-Harvest Residue on Soil and Water Quality and Sugarcane Profitability in Louisiana; and
- Lower Vermilion River Watershed 319 NPS Project.

The results of these projects were included in LDEQ's NPS Annual Reports and final reports located on LDEQ's NPS website. These projects provided information on types of BMPs effective in reducing NPS pollutants from sugarcane fields, pastures and urban residential areas. These results can be utilized in WIPs developed and revised for impaired water

bodies in Vermilion-Teche River Basin. The same process described for Mermentau Basin is being utilized in this basin; detailed land-use information was completed in 2010 for the entire basin. This information, combined with water quality data and information on BMP implementation that occurred over the past 5 years can be the basis for prioritizing "high priority areas" for BMP implementation.

Currently, LDEQ has a watershed coordinator in this basin to partner with local stakeholders on restoring designated uses for Bayou Teche. LDEQ's NPS staff is revising WIPs developed several years ago, to comply with USEPA's 9 key elements, include current water quality data and land-use information. Sub-segments will be divided into 12 digit HUCs as a smaller scale to implements BMPs and monitor resulting water quality improvements.

Bayou Vermilion District has partnered with LDEQ to improve water quality in that bayou, through several projects related to agricultural runoff, clearing debris and implementing green infrastructure practices such as rain gardens and porous pavements. These are the type of actions that should be taken to restore the bayou and protect it for recreational purposes.

Goals and Objectives of the NPS Management Program for the Vermilion-Teche River Basin

The Vermilion-Teche River Basin continues to be a high priority for LDEQ. Therefore, it will continue to be a focus area for the NPS Program during the next 5—10 years. Due to a large percentage of the basin being utilized for crop production, there will continue to be an emphasis placed on implementing agricultural BMPs on cropland, pastures, rice and crawfish operations. Cade Farm has hosted several NPS projects and provides a local setting for farmers and landowners to learn more about BMPs and their advantages on production and water quality. The NPS Staff participate with students each year on Envirothon Camp to raise local awareness of environmental problems that exist and how they can become more involved in helping to solve those problems.

The process for implementing future objectives included these steps:

- Continue to implement NPS WIPs for agriculture, home sewerage, urban runoff, forestry, sand and gravel mining, etc. (2011-2016);
- Determine aspects of WIPs that are not sufficiently understood for full implementation of corrective actions (for example: hydromodification, riparian protection) (2011-2016);
- Revise satellite imagery based on detailed land-use data for Vermilion-Teche River Basin (2010-2011);
- Revise WIPs to include new land-use information, water quality data and results of watershed projects implemented in the basin (2011-2016);
- Design projects that clarify remaining NPS problems in the watershed and monitor their effectiveness for NPS pollutant reduction (2011-2016);
- Host educational workshops and field days in watersheds, providing information on implementation activities, water quality data, progress in restoring water bodies and new technologies for solving NPS problems (2011-2016);
- Seek input and involvement from local communities on effectiveness of watershed implementation, new or existing ordinances that need to be enforced and additional problems that need to be

addressed to restore these water bodies (2011-2016);

- Continue to work toward full watershed implementation for each land-use identified as contributing to NPS water quality problems (2011-2016);
- Continue to evaluate progress in implementation of BMPs for the watershed and report on progress made and problems encountered to watershed stakeholders, local communities and USEPA (2011-2016);
- Continue to monitor water quality (chemical, physical and biological components) to determine if watershed implementation has been effective in reducing nutrients, sediment, fecal coliform and organic enrichment in bayous and rivers of the basin (2011-2016);
- Continue to report on progress made or problems encountered with achieving goals of water quality improvement to partners and the local community (2011-2016);
- If water quality improvement is made and designated uses restored, continue maintenance of watershed projects. If water quality improvement is not sufficient to restore designated uses, determine additional actions necessary to reach water quality goals in Vermilion-Teche River Basin (2011-2016);
- Cooperate with local community and stakeholder to implement these additional measures (2011-2016); and
- Continue to evaluate progress in watershed implementation and improvements to water quality and report results to partners and local communities (2011-2016).

Timeline for Milestones: October 2011-September 2016

The goals and objectives of Vermilion-Teche Watershed Strategy are to implement each of the tasks outlined above and reduce NPS pollutant loads calculated through the TMDL process. As these loads are reduced, water quality should improve and designated uses for fishing and swimming should be restored. The table included on pages 205-212 includes information on current levels of NPS activities in Vermilion-Teche River Basin. LDEQ will continue to partner with stakeholders to improve water quality for water bodies in this basin.

Stakeholders

LSU AgCenter watershed coordinators and LDAF OSWC partner with LDEQ to implement comprehensive WIPs in Vermilion-Teche River Basin, to improve water quality and meet goals and objectives of this plan. Federal agencies often provide funding to implement WIPs. Other state and local agencies could partner to leverage programs and resources for watershed planning and implementation. Benefits of these partnerships include bringing all levels of government together for a shared goal of improving water quality, wildlife habitat, and conservation of soil resources. Whereas this process may have occurred on an informal level, formalizing that process and including measurable goals, objectives and milestones allows LDEQ to evaluate whether water quality problems are being solved.

Louisiana Department of Environmental Quality (LDEQ)

LDEQ is lead agency for the state's NPS Management Program and coordinates many of the agencies and activities involved in watershed planning and management. LDEQ also serves as co-lead for CNPCP with LDNR-

OCM. LDEQ currently applies for Section 319 base funds and other federal grant funds that can assist with watershed planning and implementation. LDEQ reports on progress made in NPS program and water quality improvement to the NPS Interagency Committee other partners and USEPA.

Natural Resource Conservation Service (NRCS)
NRCS has made recommendations on BMPs that could be implemented and evaluated at ULL's Cade Farm for sugarcane, pasturelands and crawfish farms. They also provided technical assistance to LDEQ and other cooperating agencies on AnnAGNPS watershed models. As BMPs are implemented throughout Vermilion-Teche River Basin, they will be involved in all levels of technical assistance, watershed planning and management programs.

Farm Services Agency (FSA)
FSA partners with NRCS to provide cost-share funds for farmers and landowners to participate in programs that reduce NPS pollutants from their agricultural operations.

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

Louisiana Department of Agriculture and Forestry (LDAF)
LDAF houses OSWC, LOF, and Office of Pesticides, all of which are important partners in watershed implementation. The OSWC participates with local SWCDs to ensure they are sufficiently funded to implement BMPs and educational outreach programs identified for the watershed or basin. Office of Pesticides monitors water quality to determine if there are pesticide problems in the water body. They cooperate with LDEQ on BMPs and educational programs for pesticides associated with agricultural production. The LOF implements educational programs and statewide BMP surveys to determine if forestry BMPs have been implemented. Each of these stakeholders in LDAF is an important partner in the NPS Management Program and has worked extensively to ensure continued implementation of BMPs in Vermilion-Teche River Basin.

Louisiana Department of Health and Hospitals (LDHH)
LDHH is responsible for home sewerage systems in Vermilion-Teche River Basin and will be included in educational programs and demonstration projects implemented there. The educational video and brochure, which describe the types of home sewerage systems approved in Louisiana, were developed in cooperation with LDHH.

Louisiana Department of Natural Resources - Office of Coastal Management (LDNR-OCM)
LDNR-OCM has continued to partner with LDEQ's NPS Program on development and implementation of CNPCP in coastal watersheds of Louisiana. In Vermilion-Teche River Basin, several watersheds have been identified as having NPS pollution discharging to coastal waters. LDEQ and LDNR partner with local communities on programs to address these pollutants and utilize Coastal NPS management measures as guidance for implementation to reduce NPS pollutants identified in the 303(d) list of impaired waters.

Local Police Jury and Drainage Boards
These local governing boards respond to citizen's concerns on drainage, roads, flooding and a host of other issues. As LDEQ focuses at the local level to implement WIPs, drainage boards and police juries should be involved. If changes are necessary to improve local drainage practices, local decision-makers should be included in the process. Local police juries and drainage boards will be major stakeholders in educational outreach programs in Vermilion-Teche River Basin.

City and Parish Officials
City and parish officials are important partners for LDEQ and other stakeholders involved in watershed protection programs. As USEPA and the State implement storm water regulations, NPS BMPs and CZARA management measures, local communities should participate in the implementation process. Sharing information on project implementation goals, objectives and timelines are key components for a successful project. LDEQ cooperates with local decision-makers on water quality solutions for their community.

LSU AgCenter
LSU AgCenter partners with farmers, landowners and the school system to provide information to the public on NPS pollution, watershed protection and BMPs. Their parish offices provide a location for dissemination of educational materials and also for a local contact with people who live in watersheds prioritized for NPS implementation. Their expertise and experience form a critical link with the local community and utilized in all aspects of watershed education in Vermilion-Teche River Basin.

University of Louisiana at Lafayette (ULL)
ULL provides local expertise on many watershed issues slated for water quality improvement. They have partnered with LDEQ on animal waste issues and been actively involved in watershed protection programs for Vermilion-Teche River Basin. They have hosted a series of demonstration projects on Cade Farm to evaluate effectiveness of BMPs in reducing sediment, nutrients, and pesticides from agricultural activities such as pastureland management, sugarcane and aquaculture. They have implemented educational outreach programs, sharing results of demonstration projects with farmers and landowners who live in Vermilion-Teche River Basin.

Local Community
The local community is an important partner for workshops and public meetings on TMDLs and watershed management projects. The community will benefit from improved water quality and should be kept informed on actions taken and programs being implemented to reach the goal of restoring designated uses to bayous, lakes and estuaries in Vermilion-Teche River Basin. As watershed management strategies are implemented, they need to be involved and partner with LDEQ and other agencies in gaining support for watershed strategies. By involving the local community in water quality and watershed management initiatives, there is a greater likelihood of long-term commitment to goals and objectives of the program.

Environmental Organizations
The environmental community has already expressed interest in seeing water quality improvement in Vermilion-Teche River Basin. They have voiced concern about existing levels of fecal coliform bacteria in their bayous and are interested in participating in watershed management programs. There are many opportunities for their involvement through watershed educational programs, demonstration projects and support of local ordinances that require implementation of BMPs for urban development and construction activities.

Federal Consistency

There are opportunities for LDEQ and LDNR-OCM to partner with Corps of Engineers on federal consistency issues in Vermilion-Teche River Basin. Several water bodies included on the 303(d) list indicated hydromodification and loss of riparian habitat as problems in the watershed. LDEQ will be participating with the Corps, local police juries and drainage boards on incorporation of BMPs and coastal NPS management measures in projects that involve dredging and channel alteration. There needs to be consistency between federal mandates from USEPA and NOAA and Corps federal requirements for flood control and navigation. LDEQ will continue through 401 Water Quality Certification Program to ensure this consistency.

Program Evaluation

Each of the stakeholders, including federal, state, and local partners involved in Vermilion-Teche Watershed Protection Programs assist LDEQ in evaluating progress made in project implementation. Quarterly progress reports are required for stakeholders that receive federal grant funds through Section 319 of CWA. Additionally, LDEQ would like to see other federal and state agencies assist in evaluating progress made in implementation of educational programs, watershed management strategies, BMPs and management measures.

LDEQ will be monitoring water quality in Vermilion-Teche River Basin to determine whether in-stream water quality is improving and NPS pollutants are being reduced. The TMDL process resulted in data collection and analysis for each water body in Vermilion-Teche River Basin included on the 1999 court ordered TMDL schedule. The NPS Program continued to monitor water bodies targeted for watershed management strategies. These data have provided a method to track in-stream water quality improvement during implementation. Other agencies also collect water quality data, which can be examined to determine if NPS pollution was adequately addressed throughout the basin. LDEQ has worked with LDAF, U.S. Geological Survey and other agencies that collect water quality and habitat data to determine if these data can assist in program evaluation. These data are compiled, analyzed and included in annual reports submitted to USEPA, presented to NPS Interagency Committee and included on LDEQ's NPS website.

The steps involved in program evaluation are outlined below:

1. Evaluate progress made on actions outlined in WIPs for Vermilion-Teche River Basin (short and long-term);
2. Continue to report on BMPs implemented as a result of Section 319, EQIP, or other sources of cost-share and technical assistance in the watershed (short and long-term);
3. Evaluate progress in reducing NPS pollutants, such as solids, nutrients, and organic carbon from various land-uses (agricultural, urban storm water runoff and home sewerage systems) in the watershed (short and long-term);
4. Evaluate water quality improvement in bayous (i.e. lower concentration of total organic carbon, total dissolved and suspended solids, nitrogen, phosphorus, and higher concentration in DO) (short and long-term);
5. Document progress as a result of program evaluation to NPS Interagency Committee, local stakeholders and USEPA (short and long-term);

6. Submit semi-annual and annual reports to USEPA which summarize results of watershed implementation (short and long-term); and
7. Revise LDEQ's web-site to include information on progress made in watershed implementation, NPS pollutant load reduction, and water quality improvement in bayous (short and long-term).

For more information on water bodies impaired or fully meeting designated uses in Vermilion Tech River Basin, please refer to LDEQ's IR:
http://www.deq.louisiana.gov/portal/DIVISIONS/WaterPermits/WaterQualityStandardsAssessment/WaterQualityInventorySection305b/2010WaterQualityIntegratedReport.aspx