



## Section 319

# NONPOINT SOURCE PROGRAM SUCCESS STORY

# Louisiana

## Agencies and Farmers Coordinate to Reduce Bacteria

### Waterbody Improved

Runoff from agricultural lands and leaking home sewage tanks transported fecal coliform, suspended solids and turbidity to the Bayou Plaquemine Brule, impairing contact recreational uses. As a result, the Louisiana Department of Environmental Quality (LDEQ) added the Bayou Plaquemine Brule to the Clean Water Act (CWA) section 303(d) list of impaired waters in 1998. From 2004 to 2008, farmers implemented agricultural best management practices (BMPs) on more than 70,000 acres within the watershed. In addition, the Louisiana Department of Health and Hospitals worked with homeowners to install more than 3,300 aerobic treatment systems with effluent-reduction systems to reduce the problems associated with home sewage systems. As a result, LDEQ determined that Bayou Plaquemine Brule had attained bacteria standards and removed it from the CWA section 303(d) list for fecal coliform in 2008.

### Problem

Bayou Plaquemine Brule flows for 55 miles through southwestern Louisiana's prairie region (Figure 1). It joins the Mermentau River before flowing into the Gulf of Mexico. Several tributaries flow into Bayou Plaquemine Brule, including Hazelwood Gully, Coles Gully, Long Point Gully, Bayou Wikoff, Bayou Blanc and North Coulee Trief. The upper portion of the watershed consists primarily of pasture and hay lands, which contribute fecal coliform, suspended solids and turbidity to this slow-moving waterway (Figure 2). The lower portion of the watershed supports numerous rice farms.

Fecal coliform concentrations were extremely high in the late 1980s, with an average annual concentration as high as 37,000 cells per 100 milliliter (mL) sample. LDEQ's data indicate that the values remained high through 1997. As a result, LDEQ added 55 miles of the Bayou Plaquemine Brule to the state's 1998 CWA section 303(d) list for fecal coliform. The water quality standard for primary contact recreation requires that no more than 25 percent of the total samples collected monthly or near monthly exceed a fecal coliform density of 400/100 mL. The primary contact recreation criterion applies during the defined recreational period of May 1 through October 31. From November 1 through April 30, the criterion for secondary contact recreation applies, which requires that no more than 25 percent of the total samples collected annually exceed 2,000/100 mL.

LDEQ completed a total maximum daily load (TMDL) for fecal coliform bacteria in Bayou Plaquemine Brule in 2001. LDEQ found that fecal coliform bacteria would need to be reduced by



Figure 1. The Bayou Plaquemine Brule watershed is in southwestern Louisiana.



Figure 2. The waters of the slow-moving Bayou Plaquemine Brule are often turbid.

83 percent to meet the primary contact recreation water quality standard during the recreational season and by 73 percent to meet the secondary contact recreation standard during non-recreational period. Edge-of-field and in-stream data collected for the TMDL indicate that a rotational grazing strategy would result in a 58 percent reduction in total solids, a 65 percent reduction in turbidity and a 49 percent reduction in total phosphorus.

## Project Highlights

Stakeholders completed a watershed plan in 2000 and launched a series of projects to help local landowners implement BMPs to reduce nonpoint source pollutant loads. The St. Landry and Acadia Soil and Water Conservation Districts (SWCDs) estimate that the Bayou Plaquemine Brule watershed supports approximately 330 farms. The U.S. Department of Agriculture (USDA) implemented more than 70,656 acres of BMPs in the Bayou Plaquemine Brule watershed between 2004 and 2008.

In addition to USDA's efforts, LDEQ directed CWA section 319 funds to St. Landry and Acadia SWCDs to implement BMPs in Cole Gully and Bayou Wikoff. The most common BMPs implemented include irrigation water management and drill planting of rice, rotational grazing and fencing for pasture lands. The water management practices for rice allow the sediment and bacteria to remain on the rice fields rather than be discharged to the bayous. Rotational grazing allows grasses to revegetate and reduces overgrazing by livestock. In addition, the Louisiana Department of Health and Hospitals inspected more than 3,500 homes and helped homeowners install more than 3,300 new individual aerobic treatment units to reduce the pollution problems associated with home sewage systems.

Within the Cole Gully watershed, 40 farmers participated and implemented BMPs on 4,438 acres through a CWA section 319 cost-share program. In addition to the section 319 funds, USDA provided funds through the Environmental Quality Incentive Program (EQIP) to assist the same producers with structural practices such as underground irrigation pipelines, grade stabilization structures, well decommissioning and irrigation land-leveling. The federal and matching funds helped to offset the costs accrued by the farmers for the management practices.

The major objective of this cost-share project was to demonstrate that agricultural nonpoint source loads in Bayou Plaquemine Brule could be reduced to prescribed levels by implementing BMPs. The Bayou Wikoff and Cole Gully watersheds were monitored at the edge-of-field level and at the in-stream/watershed level.

## Results

Monitoring data show a significant decline in bacteria levels from 1998 to 2007, with annual average fecal coliform counts of 164 cells per 100 mL sample (Figure 3). Bayou Plaquemine Brule meets both the primary and secondary contact recreation designated uses, prompting LDEQ to remove the entire 55-mile segment from the CWA section 303(d) list of impaired waters in 2008.

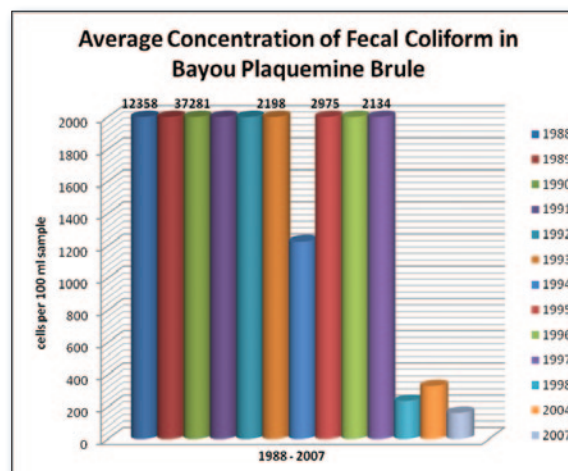


Figure 3. Monitoring data in the Bayou Plaquemine Brule watershed from 1998 to 2007 shows a significant decline in bacteria counts.

## Partners and Funding

Partners used approximately \$234,979 in CWA section 319 funds in the cost-share program to help farmers pay to install agricultural BMPs. Section 319 funds were also used to pay a portion (60 percent) of the salary of one staff member who wrote the watershed implementation plan and managed the projects implemented within the watershed. EQIP provided an additional \$235,815 for cost-share of BMPs.



U.S. Environmental Protection Agency  
Office of Water  
Washington, DC

EPA 841-F-10-001C  
March 2010

## For additional information contact:

Jan R. Boydston  
Louisiana Department of Environmental Quality  
225-219-3606 • [jan.boydstun@la.gov](mailto:jan.boydstun@la.gov)