



# NONPOINT SOURCE SUCCESS STORY

## Louisiana

### Full Participation in Conservation Practice Implementation Restores Water Quality in Lake Providence

#### Waterbody Improved

Runoff pollution from nearby agricultural land led to an impairment of fish and wildlife propagation (FWP) in Lake Providence, an oxbow lake in northeast Louisiana. During 2013–2014, Louisiana Department of Environmental Quality (LDEQ) ambient monitoring data showed high total dissolved solids (TDS) and an impairment of FWP in the lake. Working with producers in the watershed, the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) and partners garnered 100 percent participation in conservation practice implementation, which restored water quality.

#### Problem

Lake Providence, a 1,400-acre recreational lake in East Carroll Parish, lies in the Ouachita River Basin. An abandoned meander of the Mississippi River, the lake is surrounded by flat cropland and borders the town of Lake Providence (Figure 1). Data collected in 2013–2014 at the LDEQ ambient monitoring site at the Tensas Bayou bridge indicated that TDS concentrations exceeded the state’s water quality standard for FWP at Lake Providence. As a result, in 2016 LDEQ added the Lake Providence TDS impairment to its Integrated Report. The assessment identified agriculture as the primary suspected source. Additionally, the Lake Providence Watershed Council stakeholder group identified soil erosion from cultivated areas as a concern to water quality in the lake in a 2016 report, *Managing Lake Providence Watershed Resources, An Interim Report to the Louisiana Legislature*. Soybeans, corn and cotton are prevalent in the watershed, and agriculture comprises 68 percent of land use in the subsegment. Runoff flows into drainage canals and tributaries that meander through farmland and drain into the lake.

#### Story Highlights

In 2015, the Louisiana State Legislature created the Lake Providence Watershed Council to address degraded water quality and other local concerns related to sedimentation. The Council named USDA NRCS as a federal partner for agricultural best management practice (BMP) implementation. Lake Providence

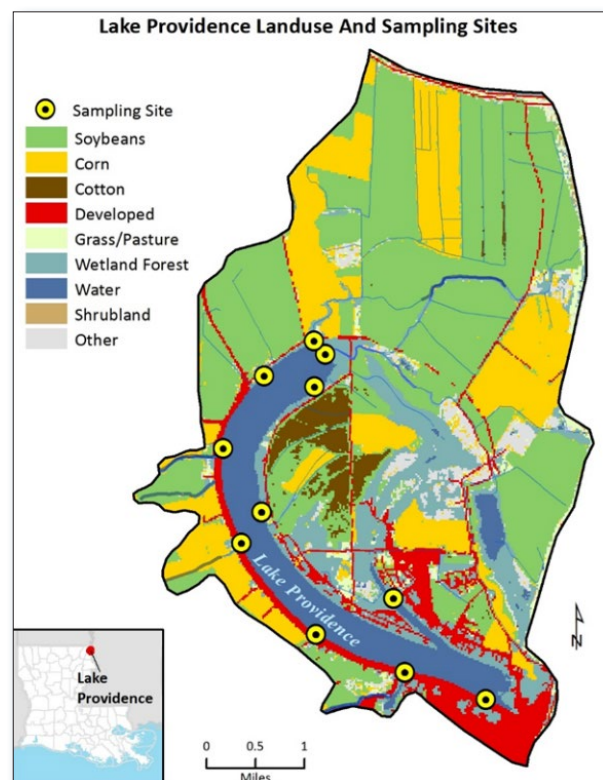


Figure 1. Lake Providence drains an agricultural watershed in northeast Louisiana.

is one of NRCS’ Mississippi River Basin Healthy Watershed Initiative (MRBI) watersheds. LDEQ also was named as a partner and, through its Nonpoint Source Pollution Program and Water Surveys, monitored and

analyzed water quality at 11 sites around the lake to help target conservation practices.

MRBI goals include reducing soil loss and improving nutrient management through methods such as reducing fall tillage, using cover crops and/or residue, and employing better nutrient management techniques. NRCS worked with soil and water conservation districts (SWCDs) in the area to develop outreach plans and implement BMPs to reduce runoff. LDEQ monitored water quality at several sites throughout the lake and presented results periodically to inform stakeholders about water quality trends and to inform partners where pollutant concentrations were highest.

From October 2016 through 2020, NRCS cooperated with the East Carroll SWCD and the Louisiana Department of Agriculture and Forestry (LDAF) to garner 100 percent producer participation in BMP implementation on cropland draining to the lake. Because of this work, LDEQ monitoring data shows that levels of TDS have declined, which indicates the lake once again can support its FWP designated use.

## Results

NRCS, along with SWCDs and other partners, developed targeted outreach plans to reach producers. After conservation practice implementation in the Lake Providence watershed, monitoring results show water quality improvement (Figure 2). Project data and ambient data show restoration, and LDEQ removed the Lake Providence TDS water quality impairment from its 2020 draft water quality assessment.

## Partners and Funding

The U.S. Environmental Protection Agency, LDEQ, USDA NRCS, the East Carroll Parish SWCD, LDAF, the Lake Providence Watershed Council, stakeholders and producers are responsible for improving the water quality in Lake Providence. NRCS has expended \$2,157,876 for contracts for conservation practices on 12,393 acres; LDEQ has allocated approximately \$224,876 (\$134,926 federal and \$89,950 matching funds) for nonpoint source staff activities, water quality monitoring and analysis.

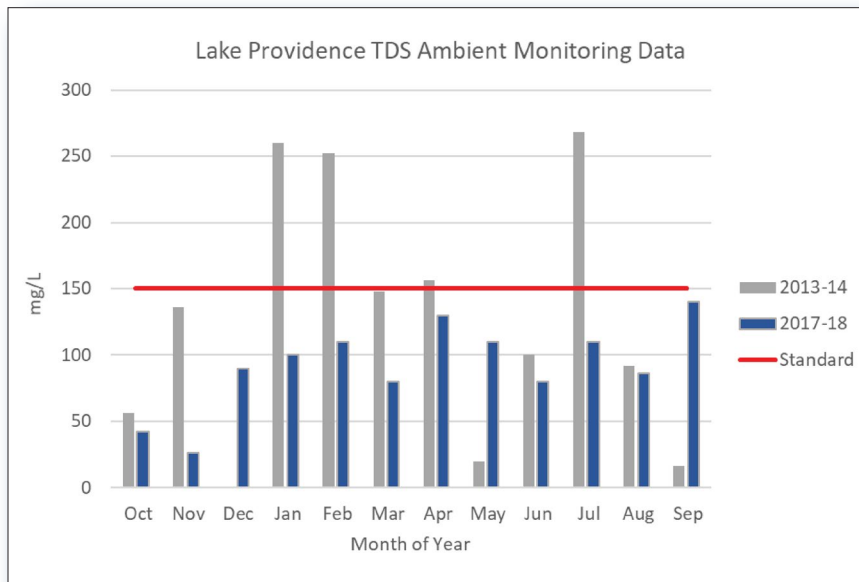


Figure 2. Ambient monitoring data show that total dissolved solids levels have declined in Lake Providence.



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