

The background of the entire cover is a photograph of a calm body of water, likely Lake Providence, reflecting a dense forest of trees with vibrant autumn foliage in shades of orange, yellow, and brown. The sky is a clear, pale blue.

Lake Providence Watershed Council

MANAGING LAKE PROVIDENCE WATERSHED RESOURCES

2025 Update

An Annual Report to the Louisiana Legislature

April 2025

*To the Distinguished Members of the House Committee on Natural Resources and
Environment and Senate Committee on Environmental Quality of the Louisiana Legislature,
and to the People of the Great State of Louisiana*

April 30, 2025

Dear Senators and Representatives:

We, the members of the Lake Providence Watershed Council, have completed this Annual report in accordance with House Concurrent Resolution No. 96 of the Regular Session 2020.

Specifically, the Lake Providence Watershed Council provides this update to the watershed management plan submitted to the legislature in April 2021. It is the intent of this Council, interested stakeholders, and all those involved in the project to preserve, protect, and enhance the quality of Lake Providence located in East Carroll Parish - now and for generations to come.

The citizens of Louisiana deserve to have a restored and viable Lake Providence. The lake restoration and revitalization can be accomplished through engineering, education, enticement, as well as, enforcement of existing and new regulations focused on best management practices.

This update report describes the on-going activities and efforts by the Lake Providence Watershed Council, East Carroll Parish Police Jury and local stakeholders, and offers background information, graphs, charts and maps, and further recommendations for your review. We look forward to any further guidance or feedback as we press forward with managing the Lake Providence Watershed Resources Project.

We appreciate the support of the Louisiana Legislature as we move forward with this plan of action.

Sincerely yours,

The Members of the Lake Providence Watershed Council

Lake Providence Watershed Fact Sheet

Lake Providence Watershed:

- East Carroll Parish
- Total area: ~17,000 acres
- Cultivated area: ~11,000 acres (64%)
- Developed area: ~1,600 acres (14%)
- Forested/Other Use area: ~2,700 acres (12%)
- Open water: ~1,700 acres (10%)
- Average Annual Precipitation: ~57 inches

Lake Providence

- Owned by the State of Louisiana
- Oxbow/horseshoe lake – abandoned meander of the Mississippi River
- Area: ~1,380 acres (3,200 acres with associated wetlands)
- Shoreline (including the Chute): ~74,000 feet (14 miles)
- Developed shoreline: ~46,000 feet (9 miles)
- Pool stage: ~90 feet above mean sea level (NGVD)
- Maximum depth: ~37 feet
- Average depth: ~12 feet
- Primary Outfall - Tensas Bayou spillway
- Secondary Outfall - Baxter Bayou Structure

Sources: LDWF, LDENR, LDOTD, NRCS

Note: Front cover picture of Lake Providence is courtesy of Francis Lensing.

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This Fifth annual report update is submitted to the Louisiana Legislature, specifically the House Committee on Natural Resources and Environment, and the Senate Committee on Environmental Quality in accordance with HCR 96 of 2020. Ongoing Activities, Concerns and Maintenance Issues by the Lake Providence Watershed Council (LPWC) are as follows:

1. Meetings of the Lake Providence Watershed Council

The LPWC met by conference call on July 17, 2024 and in person in Lake Providence on October 23, 2024. The agendas and minutes of the council meetings can be found on the LPWC webpage on the Louisiana Department of Energy and Natural Resources (LDENR) website at <http://www.dnr.louisiana.gov/index.cfm?md=pagebuilder&tmp=home&pid=1316>.

2. Flood of April 2024

In April 2024, Lake Providence experienced a flooding event resulting in the closing of the lake and some damage to the newly constructed Tensas Bayou weir (see Appendix A).

3. Water Quality and Fisheries

The Louisiana Department of Wildlife and Fisheries and Louisiana Department of Environmental Quality prepared a summary report entitled “Lake Providence: water quality and fish improvements following changes in agricultural practices.” The report can be found in Appendix B.

4. Hydrographs of Lake Providence and Tensas Bayou

The lake monitoring gage installed at the former swimming pier by the Louisiana Geological Survey was moved to a new location in September 2021 after a portion of the pier received damaged (e.g. collapse) during the June 2021 flood resulting in the gage no longer being able to be access from shore. The new location of the gage is on a private pier. Due to the pandemic restrictions and because the gage was not accessible for an extended period of time, some data (most of 2021) was lost, including that for the flood on June 2021 (Figure 1). Similarly due to the replacement of the pier and removal of the gage, some data (most of 2024-25) was lost. To display the data of the 2024 flood, Figure 2 shows the stream stage data from the Corps gage on Tensas Bayou at Transylvania, LA.

5. Louisiana Watershed Initiative

The East Carroll Parish Police Jury has had a representative participating in the Louisiana Watershed Initiative meetings since the onset of the program.

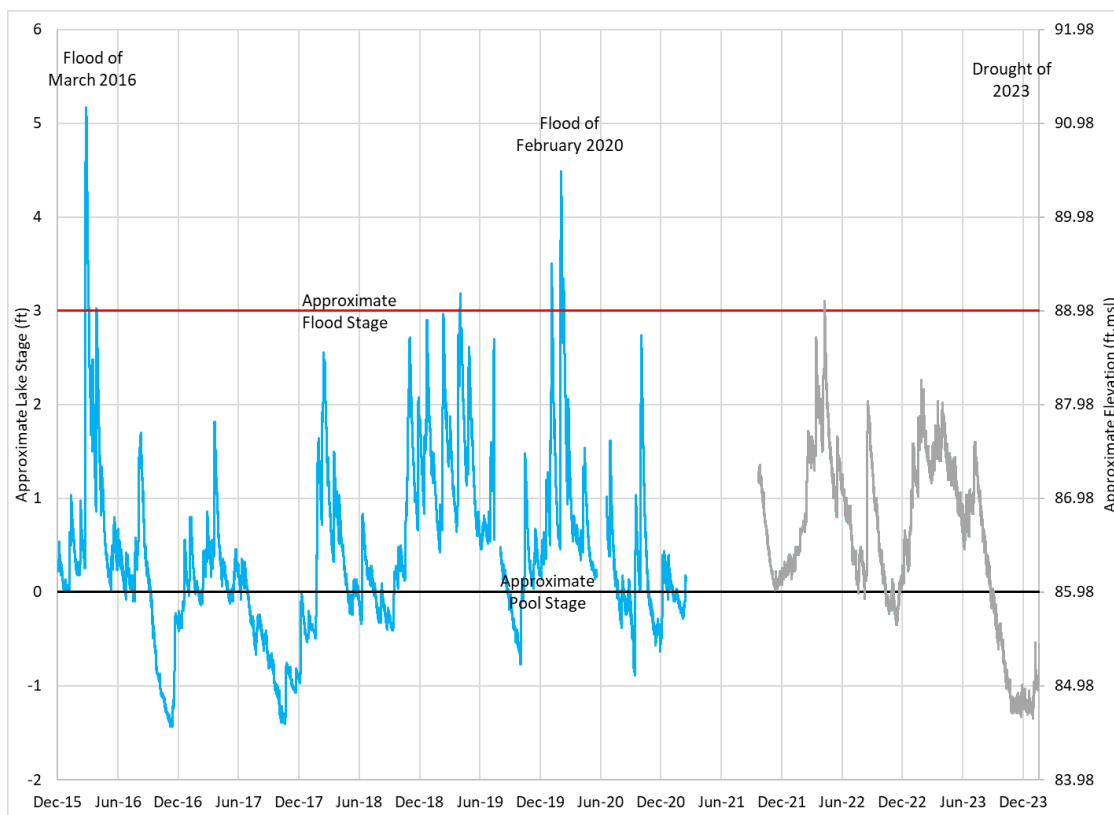


Figure 1: Recorded lake stage in feet above approximated pool stage (~90 ft.NAVD29).

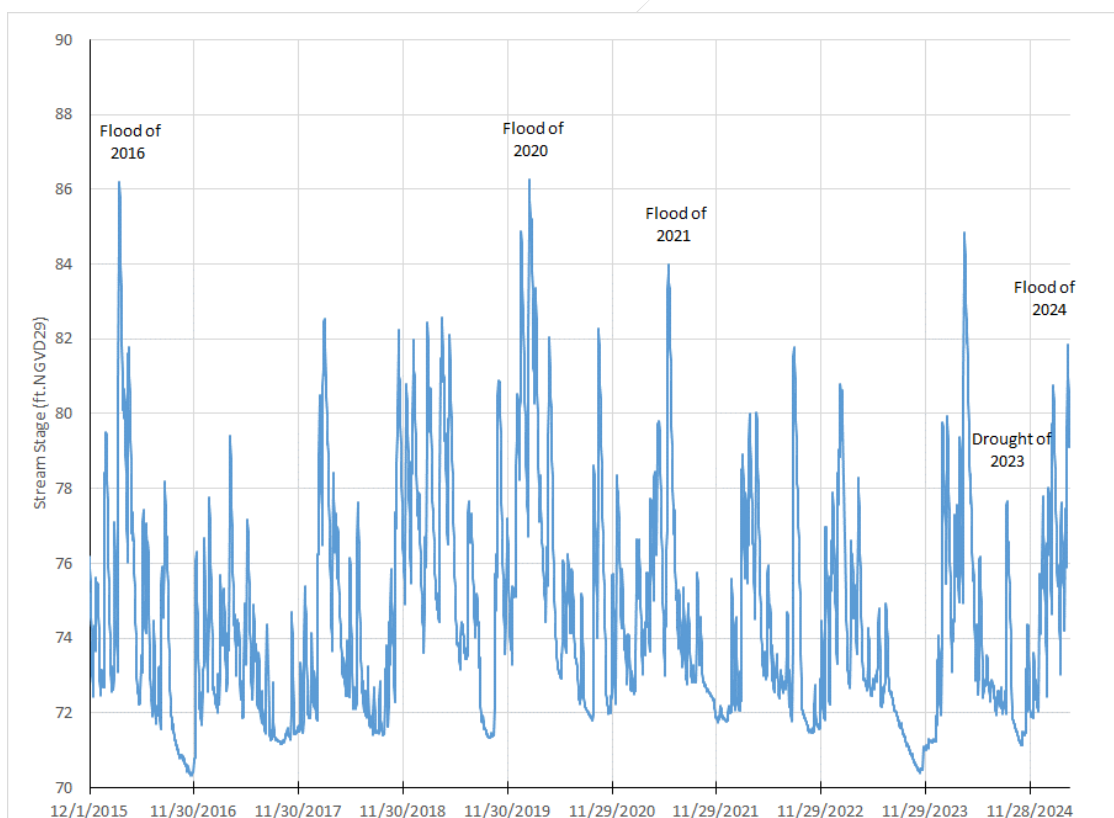


Figure 2: Recorded stream stage in feet (NAVD29) at the gage on Tensas Bayou at Transylvania.

6. U.S. Army Corps of Engineers Project Cleaning Bayou Macon, Big Colewa Bayou and Tensas River

The USACE in Coordination with the Fifth Levee District continued the Tensas River clean out southwest of Lake Providence.

7. Christmas Tree Aquatic Reefs Project

Since 2023, LDWF sank numerous Christmas trees throughout the lake. The trees were donated by the public and local garden marts. The trees were sank individually or in 2 – 3 tree bundles placed near the shoreline between depths of 3 to 15 ft. They will provide needed cover for young-of-year fish and for feeding opportunities for Largemouth Bass, crappie, and sunfish. They can also be utilized by anglers as fish attractors. The trees have been deployed at a over 20 locations thus far and will hopefully provide a preferred alternative habitat in the absence of native aquatic vegetation, which is a limiting factor of sport fish production in Lake Providence.

8. Other Funding Sought and Supported

12.1 Capital Outlay

East Carroll Parish Police Jury submitted an \$400,000 (\$100,000 Priority 1 and \$300,000 Priority 5) request through capital outlay for the Spillway Structure Repairs for Lake Providence Lake and 3 Cleaning of Outfall Canal from the Lake Downstream, 4 Planning and Construction for FY24-25.

Bibliography:

Lake Providence Watershed Council, 2016. An Interim Report to the Louisiana Legislature May 2016: report submitted to the House Committee on Natural Resources and Environment and the Senate Committee on Environmental Quality, pp. 125.

Lake Providence Watershed Council, 2020. An Interim Report to the Louisiana Legislature April 2020: report submitted to the House Committee on Natural Resources and Environment and the Senate Committee on Environmental Quality, pp. 42.

Lake Providence Watershed Council, 2021. An Annual Report to the Louisiana Legislature April 2021: report submitted to the House Committee on Natural Resources and Environment and the Senate Committee on Environmental Quality, pp. 19.

Lake Providence Watershed Council, 2022. An Annual Report to the Louisiana Legislature April 2022: report submitted to the House Committee on Natural Resources and Environment and the Senate Committee on Environmental Quality, pp. 41.

Lake Providence Watershed Council, 2023. An Annual Report to the Louisiana Legislature April 2023: report submitted to the House Committee on Natural Resources and Environment and the Senate Committee on Environmental Quality, pp. 28.

Lake Providence Watershed Council, 2024. An Annual Report to the Louisiana Legislature April 2023: report submitted to the House Committee on Natural Resources and Environment and the Senate Committee on Environmental Quality, pp. 30.

Appendix A

Photographs of the April 2024 Flood



Photo A1: Picture of the Tensas weir prior and during the April 2024 flood. Note damage to the weir embankment armoring. Photo taken by Larry Brock



Photo A2: Photograph of the Chute boat launch. Photo taken 4/17/2024 by Francis Lensing.



Photo A3: Photograph of flooded pier. Photo taken 4/17/2024 by Francis Lensing

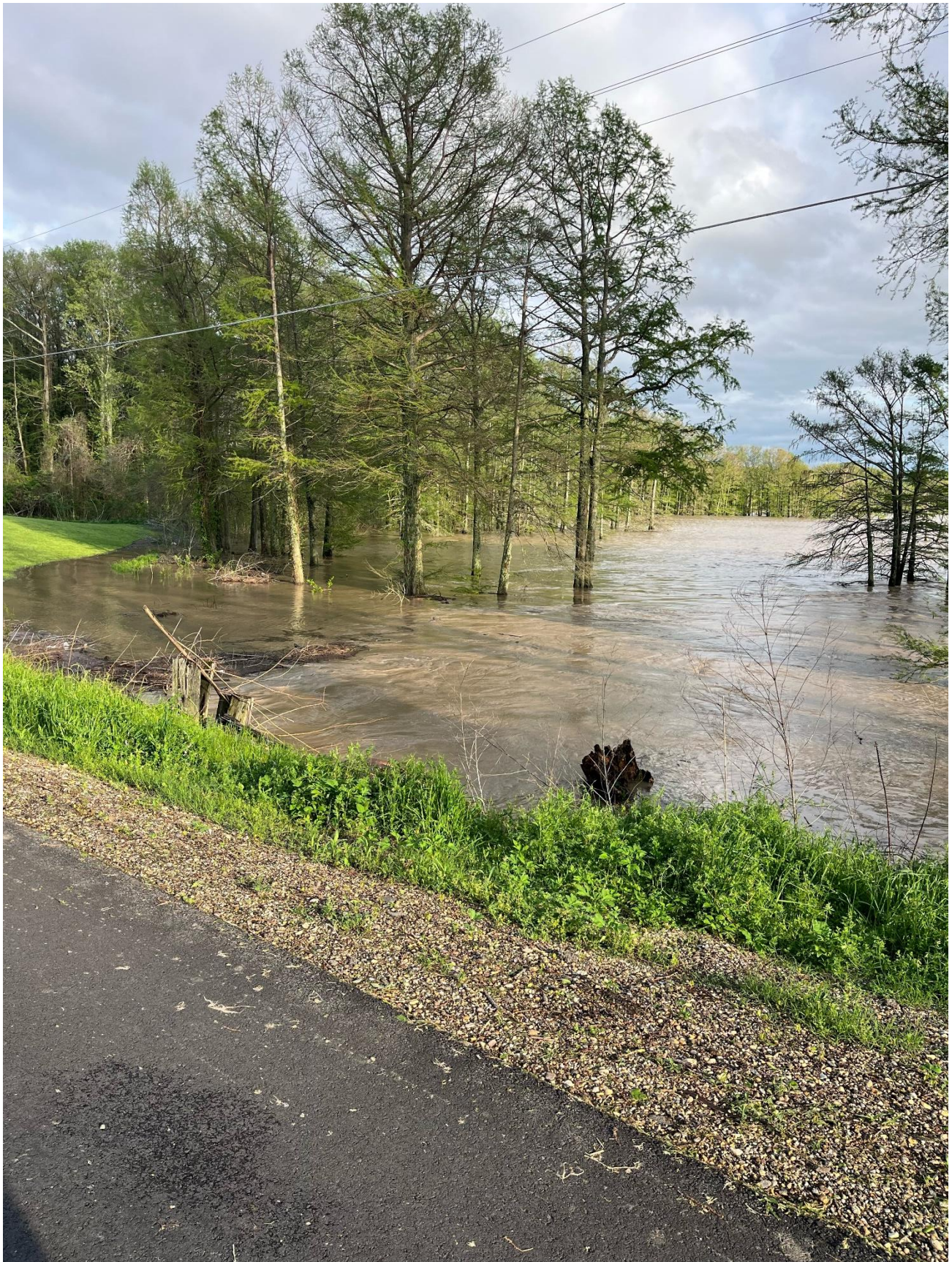


Photo A4: Photograph of flooded shoreline from April 2024. Photo taken 4/17/2024 by Francis Lensing



Appendix B

December 14, 2023 Providence Journal Article



Lake Providence: water quality and fish improvements following changes in agricultural practices

Ryan Daniel, Department of Wildlife and Fisheries, rdaniel@wlf.la.gov

Aimee Preau, Department of Environmental Quality, Aimee.Preau@la.gov

OVERVIEW: Lake Providence, a major recreational attraction and economic driver in northeast Louisiana, has experienced declines in the fishery and water quality conditions over the past decade, with the most recognized causes identified as increased turbidity, and decreased water depths and quality fish habitat in the lake. These conditions have affected recreational use and reduced the overall aesthetics of the lake, and are a result of excessive runoff from adjacent agricultural fields and flooding due to insufficient water management in the local watershed. For example, the major inflowing bayou (Providence Bayou) and an agricultural drainage canal are causing shallowing of the north end of the lake by conveying and depositing heavy sediment loads into the waterbody, while at the same time, the two major bayous serving as outflows of the lake (Baxter and Tensas) have increasingly become inflows following major rain events.

In attempts to reverse some of the impacts associated with excess runoff from agricultural fields, farmers in the watershed began to implement land use practices through the National Resources Conservation Services' (NRCS), Mississippi River Basin Healthy Watershed Initiative (MRBI) cover crop program, which was utilized by most producers in the local watershed surrounding Lake Providence from 2017 – 2020. The overall goals of MRBI are to use a small watershed approach to improve water quality, restore wetlands and enhance wildlife habitat while ensuring economic viability of agricultural lands.

The observations below demonstrate historic trends and highlight improvements to water quality and fish populations in Lake Providence following the implementation of the MRBI cover crop program, which operated from 2017 – 2020.

Water Quality

The Louisiana Department of Environmental Quality (LDEQ) samples Lake Providence routinely. Water quality samples taken by LDEQ in 2013 and 2014 indicated a total dissolved solid (TDS) impairment for fish and wildlife propagation. Based on samples taken in 2020, following the implementation of the MRBI program, the impairment listing was removed (Figure 1). This decrease in TDS may have been due to the reduced rate of sediment and nutrient runoff during the cover crop program. However, sampling conducted in 2022, after the cover crop program ended, designated Lake Providence as impaired for excessive TDS levels and subsequently low dissolved oxygen levels.

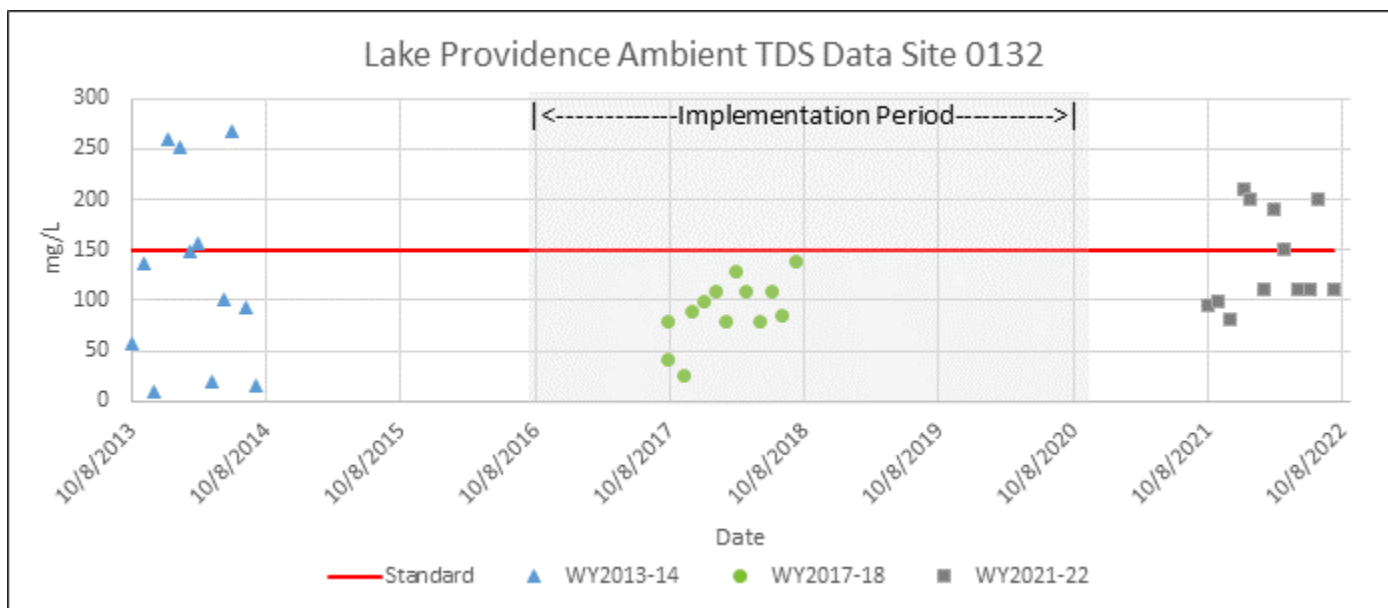


Figure 1. Ambient TDS samples collected by LDEQ on Lake Providence, 2013 – 2022. The MRBI implementation period is indicated in grey. Observations above the red line indicate impairment.

Largemouth Bass Abundance

The chart below shows an overall decline in abundance of Largemouth Bass since 2001. As a top predator, Largemouth Bass are considered an indicator species, and should portray the overall condition of the fishery (Miranda and Pugh 1997). Note that there has been a continuous decline since 2009, with the exception of 2020, which was the last year of the MRBI program. The increased abundance of bass in 2020 may have been attributed to improved water quality and reduced sedimentation during the three years of the cover crop program, which is vital to successful spawning and recruitment.

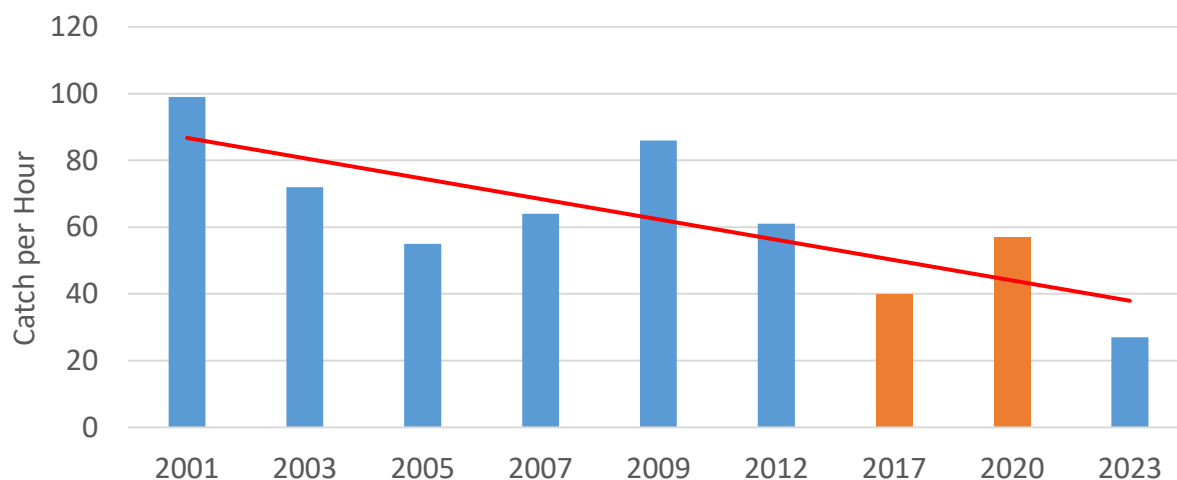


Figure 2. Largemouth Bass Catch per Hour (CPH) from spring electrofishing samples conducted on Lake Providence 2001 – 2023. The MRBI program was implemented from 2017 – 2020 (orange bars).

Crappie Population Characteristics

The abundance of Black versus White Crappie can sometimes be indicative of water quality in a waterbody. White Crappie are typically found in more turbid environments, whereas Black Crappie typically thrive in less

turbid waters (Mitzner 1991). LDWF sampling data show that while Black Crappie have historically been the dominant species in Lake Providence (pre-2014), White Crappie became dominant in samples conducted in 2014, 2017, and 2018 as sedimentation into the lake persisted from runoff during major rainfall events during late winter and spring. Samples in 2018 following the implementation of the MRBI program showed a declining trend in percent White Crappie and sample results from 2021 showed that Black Crappie were once again dominant, making up 76% of the all crappie collected during annual sampling. This population shift possibly follows the reduced TDS load during the MRBI implementation period. The most recent samples from fall 2024 show that White Crappie have once again become the dominant species as Black Crappie abundance greatly declined. This is potentially a result of increasing TDS in the lake following the termination of the MRBI program.

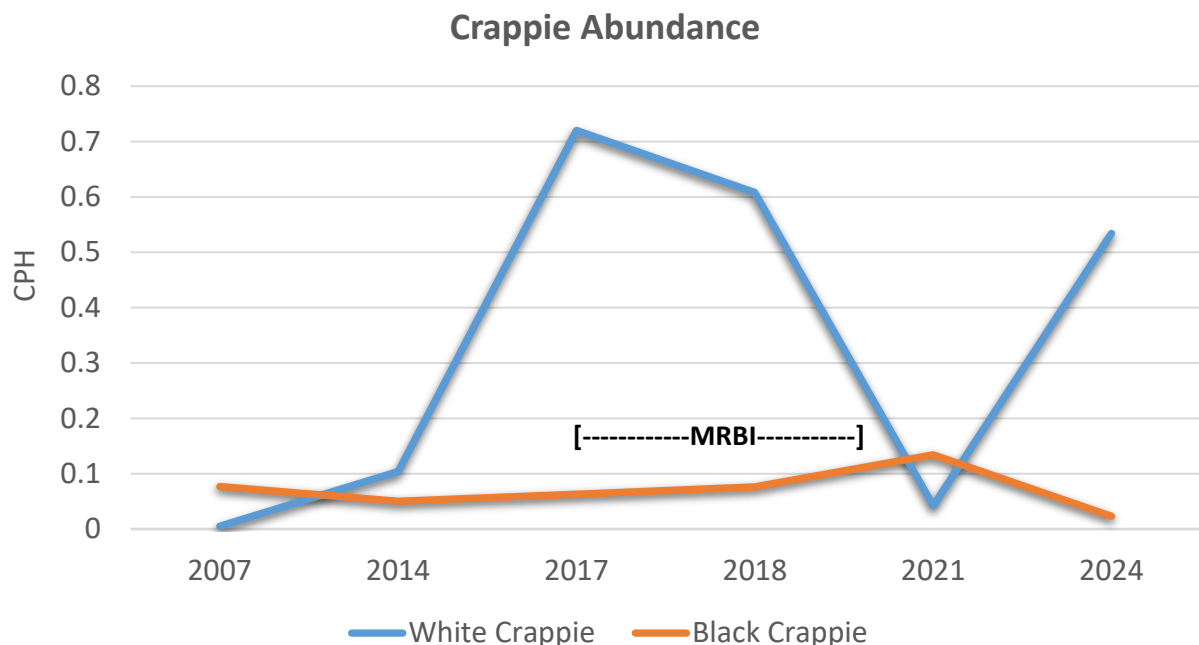


Figure 3. Catch per Hour of both Black and White Crappie captured in lead nets from 2007 – 2024.

Summary

When looking at pre- and post-implementation fishery and water quality conditions, the MRBI program in the Lake Providence watershed appears to have provided beneficial effects to the lake. Although they were only temporary, as the MRBI is a three-year program, the results show that improvements to the fishery and water quality are possible. Lake Providence is in dire need of long-term solutions to resolve the multiple water quality and fishery impairments that have been ongoing for many years. These solutions should include actions that lead to water quality improvements, reductions in sediment and nutrient runoff and improved fish habitat. These types of improvements may, in turn, lead to a more sustainable and resilient economy and higher quality of life for residents of Lake Providence and East Carroll Parish.

If you would like more information on the fish and water quality improvements following short-term changes in agricultural practices Lake Providence, please reach out to the following staff:

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