

Water Quality Monitoring in the Bayou Teche Watershed



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Summary

The historic Bayou Teche is an ancient distributary of the Mississippi River. Some 3,000-4,000 years ago, the main flow of the Mississippi River followed the Bayou Teche waterway. This explains the long, slow bends of the small bayou and its wide, sloping banks. The Atákapa-Ishák nation named the bayou “Teche” meaning snake because the course of the bayou looked like a giant snake had laid down to rest, leaving its mark on the land. Many years later, the first Acadians arrived in Southwestern Louisiana via Bayou Teche. They settled along its banks and used the waterway as a means of transportation and commerce. The bayou remains to this day an iconic cultural figure and an important ecological phenomenon.

Several modern events have reshaped the quality and quantity of water in Bayou Teche. After the catastrophic flood of 1927, the United States Congress authorized the US Army Corps of Engineers to create the first comprehensive flood management plan for the Mississippi River. One important element of this plan was the construction of the West Atchafalaya Basin Protection Levee, which, in conjunction with the East Protection Levee, allows the Corps of Engineers to divert a substantial amount of floodwaters out of the Mississippi River into the Atchafalaya Spillway, and away from major urban centers like Baton Rouge and New Orleans. Construction of the West Protection Levee, however, eliminated the natural flow of water from the Atchafalaya River to the Teche-Vermilion river system. Reduced water flow in the Teche-Vermilion system resulted in severely polluted conditions. Responding to these conditions, the Teche-Vermilion Freshwater Project was completed in 1982 to reintroduce water from the Atchafalaya River and increase the flow of water down Bayou Teche and Bayou Vermilion by pumping water from the Atchafalaya River near Krotz Springs into the headwaters of Bayou Teche.

Modifications to the quality of water in Bayou Teche have also been observed in recent years. The levels of dissolved oxygen and fecal coliform, especially, have degraded for various reasons. An increase in the number of rural residents living along the bayou has contributed to increased discharge of septic water into the bayou. Intensive land use changes in the agricultural regions of the watershed have modified the sediment and nutrient concentrations of rainwater runoff. All of this, combined with reduced flow conditions, has contributed to the degradation of water quality along Bayou Teche. As a result, the bayou has been listed as an impaired waterway by the Louisiana Department of Environmental quality because, at times, it is unfit for

fish survival and recreational activities.

Most recently, a growing coalition of citizens has emerged to improve the water quality, ecological resilience, and recreational potential of Bayou Teche. These efforts have resulted in several projects organized and funded by Non-profit, Local, Parish, State, and Federal agencies. UL Lafayette and ICEE are sponsored by the Louisiana Department of Environmental Quality to monitor the water quality of Bayou Teche and its tributaries. *Our objective is simple: collect comprehensive water quality data along the entire Bayou Teche waterway from its headwaters to the mouth of the bayou for no less than one year, and identify land use activities that can explain changes in water quality from its historical norms.* We are specifically monitoring the surface waters for dissolved oxygen, fecal coliform, suspended sediments, and nutrients like Nitrogen and Phosphorus. We will identify subsegments of the watershed that substantially contribute nonpoint source pollutants and characterize the land management activities of these subsegments. This information will be extremely valuable for the Watershed Implementation Plan currently being developed by LDEQ that will make recommendations for long-term solutions to water quality problems along the bayou. Understanding these water quality and watershed characteristics will be essential information for agencies working on nonpoint source pollution control in the Teche-Vermilion watershed system and other watersheds across the Gulf Coast.