

## River System Design Diverts Fresh Water into Bayou Lafourche

### Sustainable Solutions

#### Client

Louisiana Department of Natural Resources

#### Location

Baton Rouge, Louisiana, USA



CH2M HILL partnered with the Office of Coastal Protection and Restoration to design a system that will divert 2,500 to 5,000 million liters per day (650 to 1,300 million gallons per day) of fresh water from the Mississippi River into Bayou Lafourche.

Located along the Mississippi River, Bayou Lafourche was influential in the commercial and residential development of the surrounding area. When the river's distributaries flooded, they delivered sediment that helped build the bayou's marshes. However, as river navigation needs changed and greater flood control was required, the U.S. federal government altered the river system's course with dams and levees. Since 1904, Bayou Lafourche has been disconnected from the river by a flood-control dam. Consequently, tidal intrusion in the bayou increased, wetlands deteriorated, and the supply of fresh water diminished. Today, this causes pronounced repercussions for the more than 300,000 area residents.

Under contract to the Louisiana Department of Natural Resources, CH2M HILL partnered with the Office of Coastal Protection and Restoration to design a system that will divert 2,500 to 5,000 million liters per day (650 to 1,300 million gallons per day) of fresh water from the Mississippi River into Bayou Lafourche. The first phase will improve channel capacity within the first 10 kilometers (6 miles) by removing a significant wedge of flow-blocking sediment. A key project element involved examining property issues on behalf of the state and communicating those findings to the local citizens, many of whom owned land that would be affected by the project.

To verify the bayou's original position or "footprint," CH2M HILL researched the historic path of the bayou. After analyzing bayou cross sections and stage recordings from 1890 to present, the team determined the historic mean low water and mean high water locations adjacent to Bayou Lafourche. This enabled the Louisiana authority to assess state boundaries relative to the project's construction and future maintenance requirements. Originally, the community members were resistant to a plan that would allow the state to reclaim bayou land they believed to be privately owned. However, after a series of public meetings at which the research findings were presented, the state was able to establish its rights to the bayou and gain the support of the local community.

As the project enters the construction phase, new technologies and sustainable energy for the pump station design are being considered.

### Sustainable Components

- Diverting fresh water into the bayou will reduce saltwater intrusion, help protect marshes, and provide additional potable water to residents.
- Analyzing the bayou's historic path helped the state establish its rights to the bayou and gain the support of the local community.

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