



**US Army Corps  
of Engineers®**

New Orleans District

# *The Mermentau Basin Project*



## Location and Size

The Mermentau River Basin begins just north of Oakdale and Ville Platte, and extends south to the Gulf of Mexico. The lower portion of the basin is bounded on the west by Highway 27, and on the east by the Freshwater Bayou Canal. The basin encompasses a total area of about 4.2 million acres and contains highly productive agricultural lands and a variety of beautiful natural environments. The operation of five navigation locks and control structures by the New Orleans District, U.S. Army Corps of Engineers, helps maintain a freshwater reservoir for agricultural use while preserving the basin's sensitive environments from the detrimental effects of saltwater intrusion from the Gulf. The target water level inside the basin is 2.0 feet above mean low gulf and the five structures are operated in concert to maintain this level.



*The Mermentau Basin contains highly productive agricultural lands.*

## Agriculture

The principal agricultural and aquacultural products of the Mermentau Basin are rice and crawfish. Approximately 300,000 acres of rice are planted in the basin annually, and 35,000 acres are devoted to crawfish farming. The annual economic values of the rice and crawfish crops average \$160 million and \$35 million, respectively. Both rice and crawfish farming require ample supplies of fresh water and similar terrain. Alternating the fields between rice and crawfish production is a common practice. The demand for a reliable fresh water supply for agricultural use was the primary reason for the development of the Mermentau Basin Project.

## Natural Environments

The Mermentau Basin is mostly marsh and wetlands, supporting a wide variety of wildlife that have adapted to the coastal wetlands and adjacent waters. Year-round residents such as nutria, muskrat, raccoon, otter, mink, deer and alligator are in good number in the area. Alligators are a common sight, sunning along the banklines or lurking in the brown waters. So numerous are alligators that each year a wild alligator harvest is authorized. The value of the annual alligator harvest is about \$1.3 million.

The basin also supports a viable commercial fishing industry. The basin's diverse wetland ecosystems provide habitat for a variety of fresh and saltwater finfish and shellfish. The most popular saltwater species are shrimp, blue crabs, spotted sea trout, red drum and red snapper. Freshwater sport fish include largemouth bass, crappie, bluegill, catfish and crawfish.

The Mermentau Basin provides habitat for a large variety of wintering waterfowl, breeding wading birds, and migratory land birds. Coastal land forms, called cheniers, attract thousands of trans-Gulf migrant warblers, vireos, tanagers, thrushes and other birds during the peak migratory months of April and May and August to October. The majority of these birds fly to and from the Yucatan Peninsula of Mexico, and the cheniers offer the birds an important "refueling" stop.



*Shrimp boats at Intracoastal City.*

Strategically located at the southern end of the Mississippi and Central flyways, and nestled in the coastal marshes of southwestern Louisiana, Rockefeller National Wildlife Refuge preserves one of the major wintering grounds for waterfowl in the United States. Close to a half a million ducks and geese reside here from November through February. The refuge also plays host to hundreds of thousands of waterfowl and wading birds each year. Well over 300 species of birds have been recorded in the basin, making this region a must stop location for hundreds of visiting birders and wildlife photographers.



*Net fishing at Little Cheniere in the Mermentau Basin.*

## **Cultural Resources**

Cheniers, the remains of old beach ridges created by deposits and erosion that accompanied the periodic shifts in the Mississippi River historic deltas, were also the ideal setting for coastal Louisiana's prehistoric Indians who drew upon the abundant natural resources of the marsh. Indian settlement in the area began as early as the Archaic Period (6000 B.C.). Archaic Indians lived in small nomadic groups that followed a seasonal route to exploit the fish and game in the area. The majority of sites found in this area date to what is known as the Coles Creek Period (A.D. 400 to A.D. 1100). The Coles Creek settlement pattern was one of villages and mounds on the cheniers with numerous small fishing and hunting camps dispersed throughout the surrounding marsh, along bayous and the rim of lakes and bays in the area. Erosion and subsidence have destroyed many of these small campsites.





*Calcasieu Lock*



*Catfish Point Control Structure*

## **The Structures**

The Calcasieu Lock is located on the Gulf Intracoastal Waterway (GIWW) near the intersection of Highway 384. This lock was constructed to prevent salt water from entering the basin through Calcasieu Lake. Leland Bowman Lock is situated on the GIWW near Intracoastal City and prevents saltwater intrusion into the eastern part of the basin. Freshwater Bayou Lock is located on the Freshwater Bayou Canal approximately one mile from the Gulf of Mexico. It restricts saltwater intrusion into the southeastern portion of the basin.

These structures can be used to release floodwaters from the basin by opening both sets of lock gates. Navigation may traverse the locks as an open pass when both sets of gates are open.

The Catfish Point and Schooner Bayou control structures were constructed to release floodwater from Grand and White lakes and reduce tidal inflow. Catfish Point Control Structure is located on the southwest side of the basin where the Mermentau River exits Grand Lake. Schooner Bayou Control Structure can be found on the east side of the basin in the old Intracoastal Waterway between Freshwater Bayou and White Lake.

## **Navigation**

The Inland Waterway Project (Old Intracoastal Waterway) was authorized by the River and Harbor Act of 1907. It provided for a 5-foot-deep by 40-foot-wide channel from Franklin to the Mermentau River, with a saltwater guard lock in Schooner Bayou. It was the earliest federal navigation project in the basin. This project was replaced by the GIWW and Mermentau River projects, authorized by the River and Harbor Act of 1946. And as recent as 1960, Congress authorized the Freshwater Bayou Canal to run from the GIWW to the Gulf of Mexico.

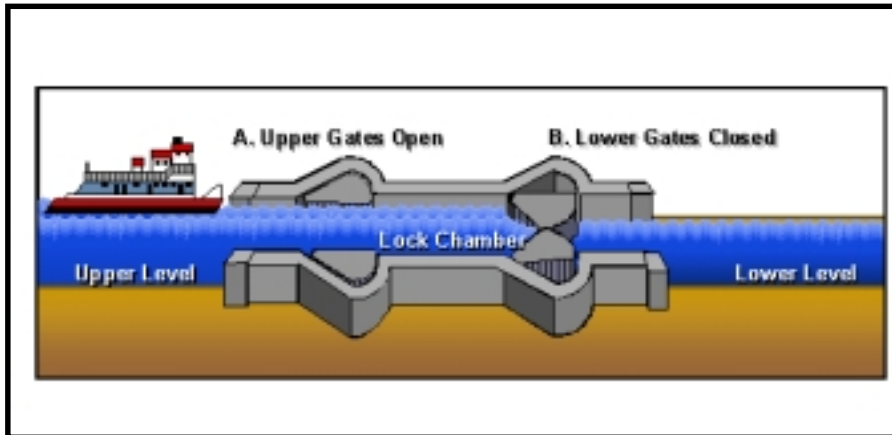


*Schooner Bayou Lock*

The GIWW is a 12-foot-deep by 125-foot-wide navigation channel that extends from Brownsville, Texas, to Apalachicola, Florida. The GIWW segment that traverses the Mermentau Basin between Calcasieu and Leland Bowman locks is heavily used by commercial shippers. Petroleum products, chemicals, aggregates, agricultural products and manufactured goods are common cargoes.

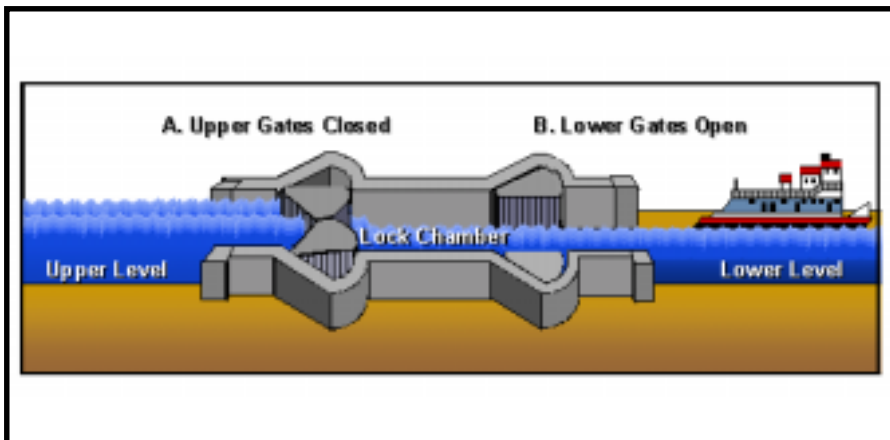
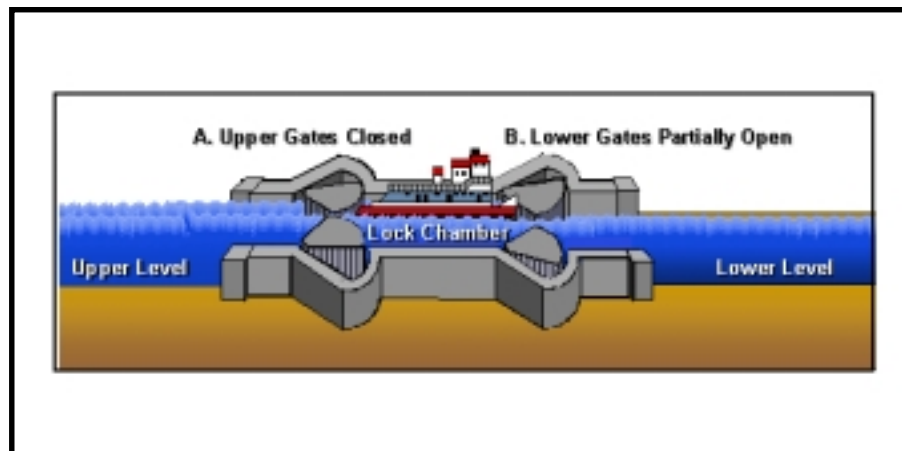
The Mermentau River channel is a dual-purpose project that serves as a floodway and navigation channel. The floodway project authorizes a maintained channel with a 3,000-square-foot cross section from Catfish Point to Highway 82. From Highway 82 to the Gulf, the navigation project is a 15-foot-deep channel and primarily serves navigation users from the Grand Chenier area.

## How Navigation Locks Work



The lower gates (B) are closed; the upper gates are partially opened allowing the chamber to fill to the upper level; and then the upper gates (A) are fully opened allowing the towboat to enter the lock chamber.

Now the towboat is in the lock chamber; the upper gates (A) are closed; the lower gates (B) are partially opened allowing the water to drain out into the lower level. The towboat is lowered as the water level lowers.



When the water level reaches the lower level, the lower gates (B) are fully opened allowing the towboat to leave the lock chamber and proceed along the waterway.





*Freshwater Bayou Lock*

The Freshwater Bayou Canal was authorized by the River and Harbor Act of 1960 to provide a 12-foot-deep by 125-foot-wide channel from the GIWW to the Gulf of Mexico. This channel is heavily used by supply vessels serving offshore oil rigs in the Gulf, in addition to a large commercial fishing fleet out of Intracoastal City. The Freshwater Bayou Lock is the gateway to the Gulf and the busiest structure in the New Orleans District, averaging 16,000 lockages annually.



*Leland Bowman Lock*



## Structures in the Basin

**Leland Bowman Lock:** completed 1986; 110 feet wide, 1,200 feet long, -13 feet mean low gulf; operated 24 hours a day; 43 million tons passed annually, 5,311 annual lockages.

**Calcasieu Lock:** completed 1950; 75 feet wide, 1,200 feet long, -13 feet mean low gulf; operated 24 hours a day; 46 million tons passed annually, 6,558 annual lockages.

**Freshwater Bayou Lock:** completed 1968; 75 feet wide, 600 feet long, -16 feet mean low gulf; operated 24 hours a day; 5 million tons passed annually, 15,826 annual lockages.

**Catfish Point Control Structure:** completed 1951; 56 feet wide, -13 feet mean low gulf; operated daily 6 a.m. to 8 p.m.; 288, 220 tons passed annually, 1,058 annual lockages.

**Schooner Bayou Control Structure:** completed 1951; 75 feet wide, -13 feet mean low gulf; operated daily 6 a.m. to 8 p.m.; 80,450 tons passed annually, 1,195 annual lockages.

## Corps Highlights

New Orleans District serves a 30,000 square mile area of south and coastal Louisiana.

We help make the ports of South Louisiana number one in the nation in total tonnage and number one in grain exports. We maintain 2,800 miles of navigable waterways, including 400 miles of deep-draft channels (45 feet deep from the Gulf of Mexico to Baton Rouge), and operate 12 navigation locks.

We make it possible to live and work along the lower Mississippi River. The district has built 950 miles of levees and floodwalls, and 6 major flood control structures to protect against river and hurricane flooding.

We keep the Mississippi River on its present course. The district's Old River Control Structure, northwest of Baton Rouge, prevents the Mississippi from changing course to the Atchafalaya River Basin.

We care for the environment by regulating dredge and fill activities in all navigable waters and wetlands. The district also manages clean up of hazardous waste sites for the Environmental Protection Agency.

We are on the frontline of efforts to reduce the rate of coastal landloss. The district has completed one freshwater diversion structure at Caernarvon and is constructing another at Davis Pond to reduce saltwater intrusion by delivering fresh water to marshlands. We also create new wetlands and restore barrier islands with material dredged from navigation channels.

