

Syllabus

This report has been prepared in response to Congressional resolutions and under the authority of the existing project. The navigation component was prepared in responses to resolutions adopted by the United States Senate and House of Representatives Committee on Public Works, 29 September 1972 and 12 October 1972, respectively. These resolutions authorized the review of the Gulf Intracoastal Waterway (GIWW), (Louisiana – Texas Section, including the Morgan City-to-Port Allen Route) report, with a view to determine the advisability of modifying the existing project. The Flood Control Act of 1928 (P.L. 70-391), as amended, authorized the flood control component.

This study focuses on the replacement of Bayou Sorrel Lock located on the Morgan City-to-Port Allen Alternate Route of the Gulf Intracoastal Waterway. Bayou Sorrel Lock is located in Iberville Parish in south central Louisiana, approximately 20 miles south of Baton Rouge, Louisiana. Bayou Sorrel Lock, completed in 1951, has a clear width of 56 feet, a useable length of 797 feet, and a sill elevation of -14.8 NGVD. The top of the concrete walls is at elevation +24.0 NGVD. Bayou Sorrel Lock is a feature of the Atchafalaya Basin, Louisiana Project (ABLP), which is part of the Flood Control, Mississippi River and Tributaries Project (MR&T). The ABLP is designed to convey one-half of the MR&T project flood discharge, or 1,500,000 cubic feet second, safely to the Gulf of Mexico. The project flood flow line for the ABLP was modified in 1986 to the current elevation of 28.7 in the vicinity of Bayou Sorrel Lock following completion of MR&T Atchafalaya Basin, La. Project Flood Flow Line Design Memorandum No 1, Hydraulic Design. The planning, engineering, and design of the modification or replacement for flood reduction benefits were delayed until the optimum navigation plan could be studied. In 1991, the Intracoastal Waterway Locks reconnaissance study was initiated as an inland navigation study to address navigation delays on the GIWW system west of the Mississippi. The reconnaissance study was completed in May 1992 and concluded modification or replacement of Bayou Sorrel Lock was warranted and that it could be justified using only navigation benefits. The lock is stable for its original design loading conditions and is in good operating condition; however, the elevation of the gate bays are now 5 feet below the project flood flow line, making it 8 feet below the project flood design grade. In addition, vessel traffic using Bayou Sorrel Lock is experiencing significant delays, ranging from 2.4 hours per tow to 4.1 hours per tow based on the last three years of record. The tonnage through Bayou Sorrel Lock is projected to continue increasing over the 50-year planning horizon, resulting in a significant increase in delays. These delays cost the towing industry an average of approximately \$8.4 million per year during the three-year period, 1995-1997. These delay costs could be significantly reduced by an increase in the chamber size of a replacement lock.

The construction of a new 75 -by 1,200 -foot U-shaped concrete chamber lock, is the National Economic Development Plan and the Selected Plan. The requirements of Section 404(r) of Public Law 92-500, as amended, have been met. This plan provides a significant reduction in navigation delays and will be constructed at the current elevation to pass the MR&T project flood. The estimated construction cost for the Selected Plan is \$88,500,000. Funds in the amount of \$80,200,000 will be allocated to the MR&T project to cover the least-cost flood control alternative. The cost above this alternative would be allocated to inland navigation (\$8,300,000). The incremental average annual costs for a 50-year project life at an interest rate of 5.875% are \$977,000. The net average annual benefits for Inland Navigation are \$15,323,000 yielding a benefit-to-cost ratio of 16.7:1.