



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
CHIEF OF ENGINEERS
2600 ARMY PENTAGON
WASHINGTON, DC 20310-2600

DEC 2 2014

DAEN

THE SECRETARY OF THE ARMY

SUBJECT: Calcasieu Lock, Louisiana, Modifications for Navigation Improvement

1. I submit for transmission to Congress my report on inland navigation along the Gulf Intracoastal Waterway (GIWW) in the vicinity of Lake Charles, Louisiana. It is accompanied by the report of the district and division engineers. These reports are an interim response to resolutions by the Committee on Public Works of the United States Senate, adopted 29 September 1972 and by the Committee on Public Works of the United States House of Representatives, adopted 12 October 1972. The resolutions requested a review of the reports on the Gulf Intracoastal Waterway (Louisiana-Texas Section, including the Morgan City-Port Allen Route) submitted in House Document 556, 87th Congress, Second Session, and subsequent reports, with a view to determining the advisability of modifying the existing project in any way at this time, particularly with regard to widening and deepening the existing and/or authorized channel. The Calcasieu Lock was authorized as part of the *Mermentau River, Louisiana Flood Control, Irrigation and Navigation Project* (Mermentau Project) in the River and Harbor Act of 24 July 1946. Preconstruction engineering and design activities, if funded, would be continued under the authority provided by the resolutions cited above.
2. The Calcasieu Lock is located on the GIWW near the intersection of Highway 384. The lock was constructed primarily to prevent salt water from entering the Mermentau Basin through Calcasieu Lake, but also serves ancillary purposes of flood risk management and navigation. The lock is also used to drain flows from the Mermentau Basin by opening the lock gates. While navigation may traverse the lock when the gates are open, east bound delays can occur depending on the head differential and flow of water through the lock. To reduce these delays, the reporting officers recommend a plan to divert drainage flows away from the existing lock chamber.
3. The reporting officers recommend constructing a sluice gate structure and bypass channel in the vicinity of the Calcasieu Lock. The recommended plan consists of a sluice gate structure and dredging a new bypass channel approximately 3,650 feet long with a top width of 200 feet, bottom width of 120 feet, and deepened to a depth of 12 feet North Atlantic Vertical Datum 88 (NAVD88). The channel will transition to a depth of 6 feet NAVD88 and a channel bottom width of 150 feet at the structure.

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Approximately 215,000 cubic yards of material dredged from the bypass channel will be placed within the project area in several areas of open water totaling about 50 acres. This dredged material will be beneficially placed to restore degraded brackish marsh and create brackish marsh from shallow open water. Unavoidable environmental impacts to approximately 11.5 acres of forested spoil bank habitat would be fully compensated by the implementation of tree stand improvements in about 15 acres of the remaining forested habitat plus the purchase of approximately 9 acres of credit from an approved bottomland hardwood mitigation bank serving the project area. Monitoring and adaptive management of the on-site mitigation area are included as part of the recommended plan, and will be conducted to ensure that forest benefits are realized. The recommended plan is the National Economic Development plan.

4. Section 102 of the Water Resources Development Act (WRDA) of 1986 as amended, provides that all costs associated with implementation of inland navigation projects shall be 100 percent federal, including construction as well as operation and maintenance. Based on October 2014 price levels, the estimated project first cost of the plan is \$16,700,000. The cost of lands, easements, rights-of-way, relocations, and dredged or excavated material disposal areas is estimated at \$131,000. The total estimated project cost includes \$710,000 for environmental mitigation, \$85,000 for environmental monitoring, and \$108,000 for adaptive management. The Operation, Maintenance, Repair, Rehabilitation, and Replacement (OMRR&R) of the project after construction is estimated at about \$234,000 per year.

5. Based on a 3.5 percent discount rate, October 2014 price levels and a 50-year period of analysis, the total equivalent average annual costs of the project are estimated to be \$947,000, including OMRR&R. The equivalent average annual benefits are estimated to be \$1,148,000 with net average annual benefits of \$201,000. The benefit-cost ratio is approximately 1.2-to-1.

6. The recommended plan was developed in coordination and consultation with various federal, state and local agencies using a systematic and regional approach to formulating solutions and evaluating the benefits and impacts. Risk and uncertainty were evaluated for economic benefits, costs, sea level rise, and discount rate. High, medium, and most likely scenarios were considered for traffic projections and relative sea level rise. Economic sensitivities examined the effects of various traffic projections including no growth and no growth after 20 years. These sensitivities showed that under the low scenario with a low traffic projection and high sea level rise none of the alternatives were justified. Under the high scenario with high traffic forecast and no sea level rise the recommended plan still produced the highest net benefits. The recommended plan is justified using the most likely scenario and a 7% discount rate. In addition, a cost and schedule risk analysis was completed. In accordance with the Corps Engineering Circular on sea level change, the study analyzed three sea level rise

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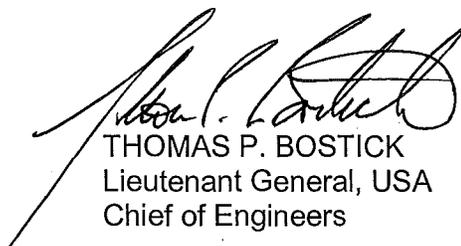
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rates of low, medium, and high which were estimated to result in changes of 0.7 ft, 1.1 ft, and 2.4 ft, respectively, over the 50-year period of analysis. The study concluded that there could be a significant reduction in lock open pass and open pass drainage events due to sea level rise with a resultant impact on project benefits.

7. In accordance with the Corps Engineering Circular on review of decision documents, all technical, engineering and scientific work underwent an open, dynamic and vigorous review process to ensure technical quality. This included District Quality Control, Agency Technical Review, Policy and Legal Compliance Review, Cost Engineering Directory of Expertise Review and Certification, and Model Review and Approval. An exclusion from Independent External Peer Review was granted on 13 March, 2014. The plan recommended by the reporting officers is technically sound, environmentally and socially acceptable, and economically justified. The views of interested parties, including federal, state and local agencies have been considered.

8. I concur with the findings, conclusions, and recommendations of the reporting officers. Accordingly, I recommend that the plan to reduce navigation delays at Calcasieu Lock be authorized in accordance with the reporting officers' recommended plan at an estimated cost of \$16,700,000 with such modifications as in the discretion of the Chief of Engineers may be advisable. My recommendation is subject to cost sharing, financing, and other applicable requirements of federal and state laws and policies, including Section 102 of WRDA 1986, as amended. The operations and maintenance of this project will be the responsibility of the federal government as part of the Calcasieu Lock.

9. The recommendation contained herein reflects the information available at this time and current departmental policies governing formulation of individual projects. It does not reflect program and budgeting priorities inherent in the formulation of a national civil works construction program or the perspective of higher review levels within the executive branch. Consequently, the recommendation may be modified before it is transmitted to the Congress as a proposal for authorization and implementation funding. However, prior to transmittal to Congress, the state, interested federal agencies, and other parties will be advised of any significant modifications and will be afforded an opportunity to comment further.



THOMAS P. BOSTICK
Lieutenant General, USA
Chief of Engineers