



DEPARTMENT OF THE ARMY
CHIEF OF ENGINEERS
2600 ARMY PENTAGON
WASHINGTON, D.C. 20310-2600

DAEN

SUBJECT: Delta Islands and Levees Feasibility Report, California

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my interim report on Delta Islands and Levees, California. It is accompanied by the reports of the Sacramento District Engineer and the South Pacific Division Engineer. The general authority for flood control investigations in the Sacramento – San Joaquin Delta is under the Flood Control Act of 1936, Public Law (P.L.) 74-738), Sections 2 and 6 and amended by the Flood Control Act of 1938, P.L. 75-761. Further studies of the river system were requested in the resolution of the House Committee on Public Works adopted May 8, 1964 requesting review of *“the report on the Sacramento-San Joaquin Basin Streams, California, published as House Document No. 367, 81st Congress, 1st Session, and other reports, with a view to determining whether any modifications of the recommendations contained therein are advisable at this time....”* Conference Report 108-357, which accompanied the Energy and Water Development Appropriations Act of 2004, P.L. 108-137, provided further Congressional intent and funding for the Delta Islands and Levees feasibility study. Conference Report 108-357 stated, *“The conferees have provided \$1,100,000 for the Sacramento-San Joaquin Delta, California, study including ...\$500,000 to initiate and complete a reconnaissance study to prioritize and evaluate environmental restoration, flood protection and related purposes for the Delta Islands and Levees.”*

2. The reporting officers recommend a plan authorizing restoration of 340 acres of intertidal marsh at Big Break, located in Contra Costa County. Big Break is a historic marsh area that was formerly converted to farmland, but has been inundated since a levee break in 1928. Because of past subsidence, Big Break has remained as unvegetated open water for the past 90 years. The recommended plan would use approximately one million cubic yards of clean dredged material from annual maintenance of the nearby Stockton Deep Water Ship Channel over an approximately 10-year period to restore 340 acres of Big Break to intertidal marsh elevations. Native marsh vegetation would be restored through planting and natural colonization. The recommended plan is supported by the primary non-Federal sponsor, the California Department of Water Resources. The proposed restoration area is owned and managed by the East Bay Regional Park District, which also supports the recommended plan and will be a second sponsor for the purpose of providing lands that the District currently owns.

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3. The Delta Islands and Levees Feasibility Study investigated ecosystem restoration and flood risk management problems and opportunities throughout the Delta. Flood risks in the major urban areas on the periphery of the Delta are being addressed by other current Corps projects and studies. No economically-justified structural flood risk management measures were identified for the small communities and agricultural areas within the Delta. Non-structural flood risk management measures are being implemented under existing State programs and could be implemented under existing Corps authorities. Consequently, no additional authorization for flood risk management is currently recommended. To reduce the risk of developing an unimplementable plan, potential restoration areas that were under consideration in on-going State-led water conveyance planning efforts were excluded during plan formulation for the Corps feasibility study. This limitation significantly reduced the geographic area considered for restoration in the Corps study. Because the feasibility report addresses ecosystem restoration in only a portion of the authorized study area, it is identified as an interim report.

4. The recommended plan is the National Ecosystem Restoration (NER) plan. It would restore 340 acres of intertidal marsh habitat in the Sacramento – San Joaquin Delta, an ecosystem of national significance where only 5% of the historic marsh remains. Prior to levee construction, the Delta was comprised almost entirely of tidal marsh. After levees were constructed, the land subsided and compacted as it was drained and farmed. Delta lands are now as much as 20 feet below sea level, which typically makes marsh restoration prohibitively expensive. For that reason, restoration of tidal marsh has been very limited in the central Delta, where the most subsidence has occurred and tidal marsh was historically most prevalent. The recommended plan would beneficially use maintenance-dredged material from an ongoing Federal navigation project to provide cost-effective subsidence reversal. The restored tidal marsh would provide habitat for multiple Federally-listed species, notably salmonids and Delta smelt. The restored habitat would also benefit many species of migratory birds as they travel through the Delta on the Pacific Flyway.

5. Based on October 2018 price levels, the estimated total project first cost is \$25,041,000. The Federal share of the estimated first cost is currently estimated at \$16,277,000. The non-Federal cost of the estimated first cost is \$8,764,000. The California Department of Water Resources (DWR) would be responsible for the operation, maintenance, repair, replacement, and rehabilitation (OMRR&R) of the project after construction. OMRR&R costs are currently estimated at \$5,000 per year and would be the responsibility of DWR.

6. Based on a 2.75-percent interest rate and a 50-year period of analysis, the total equivalent average annual costs of the project are estimated to be \$1,235,000, including OMRR&R. Ecosystem restoration benefits for the recommended plan include generating an estimated 111.44 average annual habitat units and restoring 340 acres of intertidal marsh habitat.

7. The goals and objectives included in the Environmental Operating Principles and Campaign Plan of the U.S. Army Corps of Engineers have been integrated into the Delta Islands and Levees feasibility study process. The recommended plan has been designed to avoid or minimize environmental impacts while maximizing the ecosystem benefits.

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8. In accordance with the Corps guidance on review of decision documents, all technical, engineering and scientific work underwent an open, dynamic and rigorous review process to ensure technical quality. This included District Quality Control (DQC), Agency Technical Review (ATR), an Independent External Peer Review (IEPR) (Type I), and a Corps Headquarters policy and legal review. All concerns from these reviews have been addressed and incorporated into the final report. The Final IEPR Report was issued in August 2014. A total of 15 comments were provided, three of which were identified as having high significance. The IEPR comments focused on the inclusion of the Bay Delta Conservation Plan/Delta Plan as part of the future without project conditions, the criteria used to eliminate FRM measures, and the sufficiency of the hydraulic/geotechnical analyses and modeling that was used to assess environmental impacts. The IEPR panel comments and recommendations for resolution were concurred with and have been incorporated into the FR/EIS.

9. Washington level review indicated that the project recommended by the reporting officers is technically sound, environmentally and socially acceptable, and economically justified. The plan complies with all essential elements of the U.S. Water Resources Council's 1983 Economic and Environmental Principles and Guidelines for Water and Land Related Resources Implementation Studies. The recommended plan complies with other administrative and legislative policies and guidelines. The views of interested parties, including federal, state and local agencies have been considered.

10. I concur with the findings, conclusions, and recommendations of the reporting officers. I recommend that the recommended plan for ecosystem restoration in the Sacramento – San Joaquin Delta, California be authorized at an estimated first cost of \$25,041,000 with such modifications thereof 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. The cost of the plan recommended in this Report will be cost shared in accordance with Section 103 of the Water Resources Development Act (WRDA) of 1986, as amended (33 U.S.C. 2213), with a minimum non-Federal share of 35 percent, not to exceed 50 percent, of total NED costs. Applying these requirements, the Federal portion of the estimated total first cost is \$16,277,000 and the non-Federal portion is \$8,764,000, or a Federal share of 65 percent and a non-Federal share of 35 percent. Federal implementation of the selected plan would be subject to the non-Federal Sponsors agreeing to comply with applicable Federal laws and policies, including but not limited to:

a. Provide 35 percent of total ecosystem restoration costs as further specified below:

1. Provide 35 percent of design costs in accordance with the terms of a design agreement entered into prior to commencement of design work for the project;

2. Provide all lands, easements, and rights-of-way, including those required for relocations, the borrowing of material, and the disposal of dredged or excavated material; perform or ensure the performance of all relocations; and construct all improvements required on lands, easements, and rights-of-way to enable the disposal of dredged or excavated material all as determined by the Government to be required or to be necessary for the construction, operation, and maintenance of the project;

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3. Provide, during construction, any additional funds necessary to make its total contribution equal to 35 percent of total project costs;

b. Prevent obstructions or encroachments on the project (including prescribing and enforcing regulations to prevent such obstructions or encroachments) such as any new developments on project lands, easements, and rights-of-way or the addition of facilities which might reduce the outputs produced by the ecosystem restoration features, hinder operation and maintenance of the project, or interfere with the project's proper function;

c. Shall not use the ecosystem restoration features or lands, easements, and rights-of-way required for such features as a wetlands bank or mitigation credit for any other project;

d. For so long as the project remains authorized, operate, maintain, repair, rehabilitate, and replace the project, or functional portions of the project, including any mitigation features, at no cost to the Federal Government, in a manner compatible with the project's authorized purposes and in accordance with applicable Federal and State laws and regulations and any specific directions prescribed by the Federal Government;

e. Hold and save the United States free from all damages arising from the construction, operation, maintenance, repair, rehabilitation, and replacement of the project and any betterments, except for damages due to the fault or negligence of the United States or its contractors;

f. Perform, or ensure performance of, any investigations for hazardous substances that are determined necessary to identify the existence and extent of any hazardous substances regulated under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Public Law 96-510, as amended (42 U.S.C. 9601-9675), that may exist in, on, or under lands, easements, or rights-of-way that the Federal Government determines to be required for construction, operation, and maintenance of the project. However, for lands that the Federal Government determines to be subject to the navigation servitude, only the Federal Government shall perform such investigations unless the Federal Government provides the non-Federal sponsors with prior specific written direction, in which case the non-Federal sponsors shall perform such investigations in accordance with such written direction;

g. Assume, as between the Federal Government and the non-Federal sponsors, complete financial responsibility for all necessary cleanup and response costs of any hazardous substances regulated under CERCLA that are located in, on, or under lands, easements, or rights-of-way that the Federal Government determines to be required for construction, operation, and maintenance of the project;

h. Agree, as between the Federal Government and the non-Federal sponsors, that the non-Federal sponsors shall be considered the operator of the project for the purpose of CERCLA liability, and to the maximum extent practicable, operate, maintain, repair, rehabilitate, and replace the project in a manner that will not cause liability to arise under CERCLA; and

11. 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 nor 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

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proposal for authorization and implementation funding. However, prior to transmittal to Congress, the non-Federal sponsors, the State, interested Federal agencies, and other parties will be advised of any significant modifications and will be afforded an opportunity to comment further.

TODD T. SEMONITE
Lieutenant General, U.S. Army
Chief of Engineers