

SACRAMENTO-SAN JOAQUIN DELTA, CALIFORNIA  
DRAFT FEASIBILITY REPORT  
AND  
DRAFT ENVIRONMENTAL IMPACT STATEMENT

SECTION 404 EVALUATION

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SACRAMENTO-SAN JOAQUIN DELTA, CALIFORNIA  
SECTION 404 EVALUATION

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SECTION 404 EVALUATION  
SACRAMENTO-SAN JOAQUIN DELTA, CALIFORNIA

SECTION I

INTRODUCTION

The plan selected for protecting the Sacramento-San Joaquin Delta from flooding would involve levee improvements and bank protection works on 15 islands. Recreation facilities and fish and wildlife improvements would also be provided. Levee improvement work may involve placement of fill into waters of the United States. An evaluation of the effects of the fill on water quality and wetlands is required by Section 404(r) of the Clean Water Act (33 USC 1344). The evaluation must be made according to guidelines prepared by the Environmental Protection Agency as specified in Section 404(b)(1) of the Act. Under the provisions of Section 404(r), the evaluation is to be submitted to Congress along with the EIS for the selected plan of improvement. This procedure will exempt the authorized project from further regulations pursuant to Sections 404, 301(a), or 402 of the Act.

## SECTION II

### PROJECT DESCRIPTION

a. Location. - The project is located in the Sacramento-San Joaquin Delta in Central California (Figure 1 of the Feasibility Report). The affected islands and tracts lie between the city of Antioch in Contra Costa County on the western perimeter of the Delta and the city of Stockton in San Joaquin County on the eastern perimeter of the Delta. The Delta is a complex, interconnected system of physical and biological environments.

b. General Description. - The selected plan for flood protection consists of levee improvements to be constructed on 15 islands or tracts that were chosen on the basis of the economic feasibility of upgrading the levees on those islands. The levee improvements would provide protection from floods of the magnitude expected once in 300 years, on the average. The levees would be provided with erosion protection (rock riprap or adequate substitute) on the waterside to within 1 foot of the crown. Many of the levees would be constructed in stages with initial enlargement followed by additional raising of the levee at a later date when and where required to maintain the design section and elevation. Also included in the selected plan are 45 recreation sites and 20 fish and wildlife enhancement elements. Many of the recreation sites would also be managed for wildlife resources.

c. Authority and Purpose. - Congress directed the Corps of Engineers to determine the need for improved flood control measures in the Delta and to specifically investigate means to preserve scenic values and preserve and enhance recreation and related opportunities. The Corps of Engineers is undertaking this study as a joint effort with the California Department of Water Resources (DWR) in order to develop a plan which would not only provide

flood protection for the Delta but also would protect and enhance its biological and recreational values. The State's portion of the joint study was authorized by 1976 California Senate Bill No. 1390, which directed DWR to further develop plans for preserving the Delta levees.

d. General Description of Fill Material. - Fill and improvement of the levees are designed to take place primarily on the landward side of the existing levees. Some shaping and filling in of eroded areas would be required on the waterward side of some levees in those few areas where erosion has damaged the existing levee. Erosion sites on the waterward side of the levees would be filled back to their original configuration. Fill material would be imported and would be predominantly sand with small amounts of sandy silt and sandy clay. There is no reason to believe that the fill material is contaminated. Table 2 of the Plan Formulation Appendix provides a list of the potential borrow areas, volumes from each site, material type, and present land use. Location of the sites is shown in Figure 7 of the Plan Formulation Appendix. The Montezuma Hills sites may be the most probable borrow sites due to available material, close proximity to the Delta, and convenience to existing transportation systems. During further coordination, any of the potential borrow areas would be deleted if found to have overriding problems. Approximately 12 million cubic yards is required for this project.

e. Description of the Proposed Fill Site. - The 15 islands of the selected plan are protected by about 165 miles of levees. These levees have been constructed gradually over a long period of time. The usual method of construction has been to dredge material from the adjacent channels, place it on the levees, and then shape it to the required cross section. Thus, the

levees were constructed from the native peat soils and from channel sediments which are carried from locations farther upstream. Portions of the levees have isolated erosion sites on the waterward side. The erosion areas would be filled prior to enlargement of the levees on the landward side and placement of bank protection on the waterward side. Repair of erosion sites is expected to require less than 1 percent of the fill required for total levee improvement.

f. Description of Fill Method. - Fill material would be transported to the site by truck and/or by barge and placed by use of a barge-mounted crane.

### SECTION III

#### FACTUAL DETERMINATIONS

a. Physical Substrate Determinations. - Fill material from the borrow sites is located predominantly outside the Delta (Figure 7 of the Plan Formulation Appendix); the material is composed primarily of sand which meets the exclusion criteria for biological testing. The chemical constituents found in material dredged from the Stockton and Sacramento Deep Water Ship Channels would be similar to those found in the levee areas to be repaired. Although the channel sites have been identified as potential sources of fill material, they are the least desirable borrow areas. Cost estimates for levee improvements were prepared on the assumption that all fill material would be imported. Channel sediments in the Delta show on analysis that the material is primarily sand which meets the exclusion criteria for biological testing. The levee improvements would not alter the amount of water habitat presently used by nektonic and planktonic species. Some local short-term reduction in light transmission due to turbidity may occur as a result of construction activities. Impacts to esthetics, light transmission, and nektonic and planktonic populations would be minimal and short term.

b. Water Circulation, Fluctuation, and Salinity Determinations. - Improvements to levees would have no adverse effect on the present patterns of water circulation, the 2- to 3-foot tidal fluctuations, or salinity within the Delta. The levee improvement is expected to cause a beneficial impact on water quality as follows. Should the levees not be protected, future levee failure would adversely affect water circulation and salinity patterns in the Delta. Levee failure and sudden inundation of the formerly protected island would result in high velocity inflow of Delta waters into the island. Such inflows have caused salinity incursion into the Delta, and this has been

combated with releases from upstream storage reservoirs. Evaporation from such newly formed lakes also represents a loss of freshwater available to the Delta. In addition, it is expected the plan of improvement would not affect other water quality characteristics such as clarity, color, odor, taste, or dissolved gas levels except for very small and brief changes in the vicinity of the construction area during actual construction activities.

c. Suspended Particulate/Turbidity Determinations. - Dispersal of material is expected to be almost negligible, since the fill material being used is predominantly sand, the fill locations are very small, and the bank protection material is to be rock. Dispersal of suspended particulates will be limited to localized minor effects in the immediate vicinity of the few locations where waterward repair of levee erosion is needed. Dispersal of suspended particulates is expected to be very limited and their impact restricted to the construction area. In addition, these impacts would be limited to the period of active construction and are expected to be short term. A local decrease in light penetration and dissolved oxygen can be expected which would somewhat reduce primary productivity. Increased local turbidity would also have adverse impacts on filter feeding organisms and sight feeding fish. However, these impacts are expected to occur only in the immediate vicinity of construction sites, and any resulting short-term adverse impacts should be offset by protection of the existing Delta circulation system through maintenance of the integrity of the levee system.

d. Contaminant Determinations. - Analysis of the channel sediments from the Stockton Deep Water Ship Channel and the Sacramento River Deep Water Ship Channel indicates that the material is predominantly sand and is free of contaminating elements. Analysis of the material at the other potential

borrow sites indicates that the material is predominantly sand and is free of contaminating elements. Due to exchange of chemical constituents, material of this nature is expected to have little, if any, adverse effect on the biological systems at the site.

e. Aquatic Ecosystem and Organisms Determination. - Based on the information contained in the above paragraphs, the following determinations were made. Potential impacts would be minimal or negligible on aquatic species moving into and out of feeding, spawning, breeding, and nursery areas and wetlands having significant functions in water quality maintenance, turbidity, food chain, and threatened and endangered species. Potential impacts would be positive or highly beneficial for economic values, recreation, and areas protected from floodwaters. Esthetics, however, would be adversely impacted because more efficient maintenance or a high quality maintenance program would limit trees and wild growth, allowing only grass and low growth; thus, persons in boats on the waterways would have less scenic views. Diversity of plant and animal life would be adversely impacted initially due to destruction of riparian and emergent wetland vegetation at some fill sites. However, the fish and wildlife mitigation program included in the project would prevent or offset these losses.

f. Proposed Fill Site Determinations. - Waterside levee fill is limited to the restoration of existing erosion sites which constitute less than 1 percent of the fill to be used. The nature of the fill (predominantly sand) and the use of stone bank protection would prevent transportation of the fill into the waterway after construction. Factors which would minimize the impacts of the fill placement are as follows: The principal water quality

problems that exist in the Delta and in Suisun Bay include salinity and biocide buildup from agriculture, dissolved oxygen depletion, excessive biostimulation, and low bacteriological quality. Also, heavy metal concentrations are high in the sediments, particularly zinc which is firmly absorbed to the surface of sediments and is not known to be harmful to aquatic organisms in this form. Problems unique to the Delta include the seasonal temperatures which approach the tolerance limits of certain aquatic species and low concentrations of dissolved solids which impair beneficial uses of Delta waters, chiefly for domestic water supply, agricultural water supply, fish and wildlife production, and anadromous fish migration.

The California Water Resources Control Board prepared a water quality control plan in 1978 which established water quality standards to protect beneficial uses (see Table 1). The placement of fill and bank protection on the levees would not significantly affect most present water uses, and some effects are determined to be beneficial. The adverse effects on esthetics and the mitigated adverse effects on diversity of plant and animal life are determined to be tradeoffs expected and acceptable to the majority of persons in order to secure the other beneficial effects of the overall project. The levee improvements are not expected to have long-term adverse effects on water quality in the Delta. Environmental and other parameters such as municipal water supply, navigation, shellfish, fisheries, threatened and endangered species, benthic life, submerged vegetation, and water-oriented recreation were considered in evaluating the effects of the project on various water uses.

TABLE 1  
 DECISION 1485  
 WATER QUALITY STANDARDS  
 FOR THE SACRAMENTO-SAN JOAQUIN DELTA AND SUISUN MARSH

BENEFICIAL USE PROTECTED AND LOCATION	PARAMETER	DESCRIPTION	YEAR TYPE	VALUES
<u>MUNICIPAL AND INDUSTRIAL</u>				
Contra Costa Canal Intake at Pumping Plant No. 1	Chloride	Maximum Mean Daily Cl in mg/l	All	250
Contra Costa Canal Intake at Pumping Plant No. 1 or Antioch Water Works Intake on San Joaquin River	Chloride	Maximum Mean Daily 150 mg/l Chloride for at least the number of days shown during the calendar year. Must be provided in intervals of not less than two weeks duration (% of year shown in parenthesis).	Wet Ab. Normal Bl. Normal Dry Critical	Number of Days Each Calendar Year Less than 150 mg/l Chloride  240 (66%) 190 (52%) 175 (48%) 165 (45%) 155 (42%)
City of Vallejo Intake at Cache Slough	Chloride	Maximum Mean Daily Cl in mg/l	All	250
Clifton Court Forebay Intake at West Canal	Chloride	Maximum Mean Daily Cl in mg/l	All	250
Delta Mendota Canal at Tracy Pumping Plant	Chloride	Maximum Mean Daily Cl in mg/l	All	250
<u>AGRICULTURE</u>				
WESTERN DELTA				
Emmaton on the Sacramento River	Electrical Conductivity	Maximum 14-day running average of Mean Daily EC in mmhos	Wet Ab. Normal Bl. Normal Dry Critical	0.45 EC April 1 to Date Shown  Aug 15 Jul 1 Jun 20 Jun 15 --  EC from Date Shown 3' to Aug. 15 -- 0.63 1.14 1.67 2.78
Jersey Point on the San Joaquin River	Electrical Conductivity	Maximum 14-day running average of Mean Daily EC in mmhos	Wet Ab. Normal Bl. Normal Dry Critical	Aug 15 Aug 15 Jun 20 Jun 15 --  -- -- 0.74 1.35 2.20
INTERIOR DELTA				
Terminus on the Mokelumne River	Electrical Conductivity	Maximum 14-day running average of Mean Daily EC in mmhos	Wet Ab. Normal Bl. Normal Dry Critical	Aug 15 Aug 15 Aug 15 Aug 15 --  -- -- -- 0.54
San Andreas Landing on the San Joaquin River	Electrical Conductivity	Maximum 14-day running average of Mean Daily EC in mmhos	Wet Ab. Normal Bl. Normal Dry Critical	Aug 15 Aug 15 Aug 15 Jun 25 --  -- -- 0.58 0.87

g. Determination of Cumulative and Secondary Effects on the Aquatic Ecosystem. - The proposed levee improvements would result in the removal during construction of 388 acres of riparian and 160 acres of wetland vegetation, consisting of a strip approximately 10-20 feet wide on the waterside of the levees. This vegetation contributes to the detritus load and terrestrial insect food input for the fisheries. Also, the emergent vegetation provides cover, spawning habitat, and a shade canopy. However, these effects are determined to provide a far smaller impact on the aquatic ecosystem than the impacts of future levee failures and repairs that can be anticipated in the absence of the proposed levee improvements.

SECTION IV  
FINDINGS OF COMPLIANCE WITH THE RESTRICTIONS  
ON FILL

An evaluation of the proposed fill has been made following the guidance of the Environmental Protection Agency pursuant to Section 404(b)(1) of the Clean Water Act (33 USC 1344) published in 40 CFR Part 230, 24 December 1980. Appropriate measures have been identified and incorporated into the proposed plan, as outlined in the EIS and this 404 evaluation, to minimize adverse effects on the aquatic environment as a result of the placement of fill material. In addition, consideration has been given to the need for the placement of fill material, the availability of alternative actions, methods of placement that are least damaging to the environment, and such water quality standards as are appropriate and applicable by law.

It is expected that this alternative would comply with applicable State water quality standards and that there would be no significant adverse impacts on human health and welfare; life stages of aquatic life and other wildlife dependent on aquatic ecosystems; aquatic ecosystem diversity, productivity, and stability; or recreational and economic values. However, an adverse impact on esthetics is unavoidable. On the basis of the guidelines, the proposed sites for the placement of fill material are specified as complying with the requirements of these guidelines.

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