

Summary

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INTRODUCTION

This Final Environmental Impact Statement (FEIS) for the Delta Wetlands Project has been prepared under the direction of the U.S. Army Corps of Engineers (USACE, or Corps) in accordance with the requirements of the National Environmental Policy Act (NEPA). The environmental impacts of the Delta Wetlands Project (also referred to as the “DW project”) were analyzed in the 1995 Delta Wetlands Project Draft Environmental Impact Report and Environmental Impact Statement (1995 DEIR/EIS) (Jones & Stokes Associates 1995) and the 2000 Revised Draft Environmental Impact Report and Environmental Impact Statement for the Delta Wetlands Project (2000 REIR/EIS) (Jones & Stokes 2000). These documents were prepared jointly by the California State Water Resources Control Board (SWRCB) and USACE in compliance with the California Environmental Quality Act (CEQA) and NEPA, respectively.

The Delta is part of an interconnected system that includes Suisun Marsh, San Francisco Bay, and the Sacramento and San Joaquin Rivers. The Bay-Delta estuary is one of the most important and complex estuaries on the Pacific Coast, providing important aquatic and terrestrial habitat for fish, waterfowl, and other wildlife. Water that flows through the Delta supplies a portion of the domestic water supply for over two-thirds of the state’s population and irrigates several million acres of farmland.

The purpose of the Delta Wetlands Project is to divert surplus Delta inflows, transferred water, or banked water for later sale and/or release for Delta export or to meet water quality or flow requirements for the Bay-Delta estuary. Additionally, the Delta Wetlands Project would provide managed wetlands and wildlife habitat areas and recreational uses.

The applicant’s proposed project, as evaluated in this document, would involve the following major components:

- # diverting and storing water on two Sacramento-San Joaquin Delta (Delta) islands (Bacon Island and Webb Tract, or “reservoir islands”) for later discharge for export or to meet outflow or environmental requirements for the San Francisco Bay/Sacramento-San Joaquin Delta (Bay-Delta) estuary; and
- # diverting water seasonally to create and enhance wetlands and to manage wildlife habitat on two Delta islands (Bouldin Island and most of Holland Tract, or “habitat islands”).

To operate its project, Delta Wetlands would improve and strengthen levees on all four islands and install additional siphons and water pumps on the perimeters of the reservoir islands. Delta Wetlands would operate the habitat islands under a habitat management plan (HMP) to compensate for impacts on, and promote the recovery of, state-listed threatened or endangered wildlife species and other special-status species, and to provide other wetlands and wildlife habitat in the Delta.

In the 1995 DEIR/EIS, Delta Wetlands proposed to construct recreation facilities along the perimeter levees on all four Delta Wetlands Project islands. These facilities were included as part of the project description when Delta Wetlands submitted its application for water rights to the SWRCB and applied to USACE for authorization under the Clean Water Act (CWA) and Rivers and Harbors Act of 1899. Both the 1995 DEIR/EIS and the 2000 REIR/EIS provided conceptual descriptions of the recreation facilities and analyzed the effects that facility construction and operation would have on the environment. The water right permit issued by the SWRCB and the biological opinions issued by the U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), and California Department of Fish and Game (DFG) for the proposed project include terms and conditions governing construction and operation of these facilities.

In May 2001, however, Delta Wetlands removed construction of recreation facilities from its CWA and

Rivers and Harbors Act permit applications; therefore, USACE will not include construction or operation of such facilities in any permit issued pursuant to Delta Wetlands' current application. Nevertheless, as information for the reader, this FEIS includes the conceptual descriptions of the recreation facilities, the analysis of their environmental effects, and responses to comments on the 1995 DEIR/EIS and 2000 REIR/EIS about the facilities. Delta Wetlands may subsequently apply for CWA and Rivers and Harbors Act permits for some or all of these recreation facilities; in such a case, separate environmental analysis would be required. The information developed in this EIS may be used in any subsequent environmental assessment as appropriate.

CEQA/NEPA PROCESS

The purposes of this document are to analyze and disclose the environmental effects of Delta Wetlands' project, to identify ways to reduce or avoid potential adverse environmental impacts resulting from the project, and to identify and assess alternatives to the proposed action.

CEQA and NEPA require environmental analyses for local, state, and federal permitting processes. Delta Wetlands has applied to USACE for a permit under Section 404 of the CWA and Section 10 of the Rivers and Harbors Act of 1899 to discharge dredged or fill material into waters of the United States and for other project activities in navigable waters. Delta Wetlands also has applied to the SWRCB's Division of Water Rights for the necessary permits to divert water and store it on the Delta Wetlands Project islands for discharge into Delta channels for export or to meet Bay-Delta estuary outflow requirements.

Because of Delta Wetlands' applications to USACE and the SWRCB, USACE is deemed the lead agency under NEPA and the SWRCB is deemed the lead agency under CEQA.

The SWRCB prepared a separate Final Environmental Impact Report (FEIR) in January 2001 to respond to public and agency comments on the 1995 DEIR/EIS and the 2000 REIR/EIS. USACE has prepared this FEIS to respond to agency and public comments received on those documents to provide a rewritten version of the EIS as required by NEPA. This FEIS includes the analysis of project effects

presented in the 1995 DEIR/EIS and 2000 REIR/EIS and reflects information that has changed or been updated since those documents were published.

Department of the Army Permit Application Process

Section 404 of the CWA prohibits the discharge of dredged or fill material into waters of the United States, including wetlands, unless a permit is obtained from USACE. Section 10 of the Rivers and Harbors Act of 1899 prohibits work affecting the course, location, conditions or capacity of navigable waters of the United States without a permit from USACE. Delta Wetlands is required to obtain a permit from USACE for Delta Wetlands Project fill activities associated with perimeter and interior levee work on the reservoir islands; habitat enhancement activities on the habitat islands; and construction of boat docks, pumps, and siphons in Delta channels. As part of compliance with the CWA, Section 401 requires SWRCB certification that the proposed discharge complies with state water quality standards.

Water Right and Permit Application Process

Delta Wetlands has applied for new appropriate water rights for direct diversion and storage of surplus Delta inflows for later discharge for export or to meet Bay-Delta estuary water quality or flow requirements. The SWRCB would have to provide separate authorization if proposals were made for use of the Delta Wetlands Project islands for diversion and discharge of transferred or banked water. The SWRCB adopted Water Right Decision 1643 for the Delta Wetlands Project on February 15, 2001.

PURPOSE OF THE FINAL ENVIRONMENTAL IMPACT STATEMENT AND REQUIREMENTS FOR ADOPTION

The FEIS analyzes and discloses the environmental effects of the Delta Wetlands Project, identifies ways to reduce or avoid potential adverse environmental effects of the project, and identifies and assesses alternatives to the proposed action. Under

NEPA, after a lead agency has completed a draft EIS, it must consult with and obtain comments from public agencies that have legal jurisdiction with respect to the proposed project, and must provide the general public with opportunities to comment on the draft document (40 CFR 1503.1). A FEIS is prepared to respond to those comments and to present the text of the EIS with revisions and updates incorporated.

USACE will circulate this FEIS for 30 days before it makes a decision on the proposal. If USACE determines that the FEIS meets NEPA requirements, it will adopt the document. When it decides on Delta Wetlands' Section 404 and Section 10 permit applications, USACE will prepare a record of decision regarding its determination, the alternatives analyzed, the mitigation measures required as a condition of permit approval, and monitoring and enforcement of the required mitigation measures.

PROJECT ALTERNATIVES

Three project alternatives and the No-Project Alternative, described below, were selected to represent the range of project operations for purposes of determining environmental impacts; all alternatives are designed to operate within the objectives of the SWRCB's 1995 Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (1995 WQCP):

- # Alternative 1 consists of operation of two reservoir islands and two habitat islands and implementation of a habitat management plan (HMP). Under Alternative 1, Delta Wetlands discharges would be subject to "percent of inflow" export limits specified in the 1995 WQCP.
- # Alternative 2 consists of operation of two reservoir islands and two habitat islands and implementation of an HMP. Under Alternative 2, Delta Wetlands discharges for export would not be subject to strict interpretation of the 1995 WQCP "percent of inflow" export limits.
- # Alternative 3 consists of operation of four reservoir islands, with limited compensation habitat provided in the North Bouldin Habitat Area (NBHA) on Bouldin Island. Under

Alternative 3, discharges for export would not be subject to strict interpretation of the 1995 WQCP "percent of inflow" export limits.

- # The No-Project Alternative consists of intensified agricultural production on all four Delta Wetlands Project islands.

Alternatives 1 and 2

Alternatives 1 and 2 entail the potential year-round diversion and storage of water on Bacon Island and Webb Tract, and wetland and wildlife habitat creation and management on Bouldin Island and Holland Tract. Alternatives 1 and 2 include construction of recreation facilities along the perimeter levees of all four islands; however, as described above, Delta Wetlands has removed construction of these facilities from its USACE permit application.

To operate Alternative 1 or 2, Delta Wetlands would improve levees on the perimeters of the reservoir islands and install additional siphons and water pumps. Inner levee systems (i.e., berms) would also be constructed on both the reservoir and habitat islands for shallow-water management.

Under Alternative 1 or 2, during periods of availability throughout the year, water would be diverted onto the reservoir islands to be stored for later sale or release and would be discharged from the islands into Delta channels for sale for beneficial uses for export or for Bay-Delta estuary needs during periods of demand. Discharges from the islands would be subject to state and federal regulatory standards, endangered species protection measures, and Delta export pumping capacities. Storage capacity on the reservoir islands would total an estimated 238 thousand acre-feet (TAF), allocated between Bacon Island and Webb Tract as 118 TAF and 120 TAF, respectively. Water would be diverted onto the habitat islands to be used for creation and management of wetlands and wildlife habitat during periods of availability and need.

Portions of the habitat islands and the reservoir islands would support recreational activities. Up to 38 private recreation facilities may be located on the perimeter levees of all four islands. These recreation facilities, with up to 40 bedrooms each, would include boat docks in adjacent channels, with 30 boat berths, and

boat docks on the island interiors, with up to 36 boat berths, that may be operated year round. Subject to restrictions in the HMP, waterfowl hunting would be allowed on all four Delta Wetlands Project islands.

Delta Wetlands would operate a private airstrip on Bouldin Island for maintenance and recreational use. Use of the airstrip would be restricted by the HMP during the waterfowl season to minimize disturbance to wildlife. No restrictions would apply during other times of the year.

Alternative 3

Under Alternative 3, all four Delta Wetlands Project islands would be managed for year-round diversion and storage of water. This alternative represents the maximum water appropriations that would be achieved under all Delta Wetlands' water right applications. It also represents the maximum amount of water storage that would be feasible on the four project islands based on levee height and internal elevation. Storage capacity under Alternative 3 would total an estimated 406 TAF. Project operations under this alternative would be the same as those under Alternative 2 with respect to diversion, discharge, and recreation operations and construction of recreation facilities. Water storage operations would require substantial investments in internal levee construction on Bouldin Island. A habitat reserve would be created north of State Route (SR) 12 on Bouldin Island to compensate for some of the wildlife and wetland impacts associated with water storage operations. Additional offsite wildlife habitat and wetland compensation would be required for this alternative.

No-Project Alternative

The No-Project Alternative entails Delta Wetlands implementing intensive agricultural operations on the four project islands or selling the property to another entity that would likely implement intensive agriculture. The No-Project Alternative is based on the assumption that intensified agricultural conditions represent the most realistic scenario for the Delta Wetlands Project islands if permit applications are denied. It is assumed that no new Delta Wetlands recreation facilities would be built.

CHANGES MADE TO THE PROPOSED PROJECT FOR THE FINAL ENVIRONMENTAL IMPACT STATEMENT

The project description and the treatment of project alternatives were modified in the 2000 REIR/EIS. USFWS and NMFS issued no-jeopardy biological opinions in 1997 regarding effects of the Delta Wetlands Project on federally listed fish species, and DFG issued a no-jeopardy opinion in 1998 on project effects on state-listed fish, wildlife, and plant species. USFWS and NMFS also issued no-jeopardy biological opinions in 2000 for these fish species and designated critical habitats that were listed after the 1997 opinions were issued. The findings of no jeopardy were based on incorporation into the proposed project of the detailed project operating parameters referred to as the Delta Wetlands "final operations criteria" (FOC). The FOC were developed by the SWRCB, USACE, NMFS, USFWS, and DFG as part of the formal consultation process for listed fish species. The biological opinions and the FOC were developed for the proposed two-reservoir-island project. The descriptions of Alternatives 1 and 2 provided in the 1995 DEIR/EIS were therefore revised in the 2000 REIR/EIS to incorporate these restrictions. These revisions are reflected in this FEIS.

The description of the proposed project as revised includes construction and operation of recreation facilities on all four project islands. In May 2001, however, Delta Wetlands removed construction of these facilities from its CWA and Rivers and Harbors Act permit applications. The conceptual descriptions of the recreation facilities remain largely unchanged from those included in the 1995 DEIR/EIS; they are presented in this FEIS for informational purposes. Also included are the analyses of the environmental effects of facility construction and operation, and responses to comments on the 1995 DEIR/EIS and 2000 REIR/EIS about the recreation facilities.

IMPACT ASSESSMENT OF ALTERNATIVES

Approach to Impact Analysis

The impact analysis for each resource topic in this document identifies and compares the probable impacts of each alternative specific to the resource topic. These comparative analyses highlight differences and similarities in predicted impacts between the alternatives.

For those chapters not addressing water resources, impacts were addressed through comparison between expected conditions associated with the Delta Wetlands Project alternatives and existing conditions. For those chapters assessing water resource effects of the Delta Wetlands Project (Chapter 3A, "Water Supply and Water Project Operations"; Chapter 3B, "Hydrodynamics"; Chapter 3C, "Water Quality"; and Chapter 3F, "Fishery Resources"), impacts were assessed through comparison between simulated (modeled) conditions associated with each alternative and with the No-Project Alternative as described below.

Evaluating Environmental Changes and Effects on Water Resources

Simulated effects of Delta Wetlands Project operations on the Delta cannot be directly compared with the historical record of Delta operations for purposes of impact assessment because historical Delta operations did not include current operating criteria; facilities; and conditions, such as upstream and export demands for water. To provide a point of reference for assessing the impacts of simulated operations of the Delta Wetlands Project alternatives, it was therefore necessary to also simulate a baseline condition consisting of the same operating conditions but without operations of the Delta Wetlands Project. This point of reference is the simulated No-Project Alternative.

Levels of Impacts Considered

The impact analysis used in the resource chapters was designed to comply with NEPA and CEQA guidelines. For each resource topic, three levels of impacts were considered:

- # direct impacts on the Delta Wetlands Project islands and on adjacent Delta channels;
- # indirect impacts on the project vicinity, including the Delta, Suisun Marsh, San Francisco Bay and, in some cases, upstream areas, induced by direct project-related changes in the environment; and
- # cumulative impacts.

The study area for analysis of direct project impact consists of the four project islands, surrounding channels, and adjacent islands. The study area for analysis of indirect impacts is the vicinity of the statutory Delta, as defined by Section 12220 of the California Water Code, and the hydrologically related Suisun Marsh and San Francisco Bay. In some cases, upstream areas are included in the study area for indirect impacts. The study area for cumulative impact analysis consists of the combination of the direct and indirect impact areas.

Where uncertainty exists in predicting the extent of project construction and operations, the impact analysis is based on "worst-case" conditions. For example, because Delta Wetlands is not certain of the size of the various recreation facilities, the impact analysis is based on the assumption that the largest possible facility would be built at all locations, even though it may not be realistic to have a facility of this size at every location.

Mitigation Measures

Where the Delta Wetlands Project alternatives are predicted to cause significant impacts, mitigation measures are identified. In accordance with NEPA and CEQA guidelines, measures are proposed that would avoid, minimize, rectify, reduce, or compensate for the predicted impacts.

The feasibility and effectiveness of the mitigation measures are described to the extent possible. Mitigation measures include modifying the project design or operations to reduce predicted impacts to less-than-significant levels wherever feasible. Mitigation measures are presented for effects of the No-Project Alternative to provide information regarding measures that would reduce effects of the No-Project Alternative. These measures would not be

required under the No-Project Alternative; however, this information will allow for a more realistic comparison of the Delta Wetlands Project alternatives.

Comparison of Impacts of Alternatives

Results of impact analyses for each alternative are summarized in Table S-1. This table shows impacts by resource topics, level of significance without mitigation, mitigation measures to reduce impacts, and level of significance with mitigation. The sequence of resource topics in the table conforms to the sequence of chapters in the document.

SUMMARY OF PROJECT EFFECTS ON WATERS OF THE UNITED STATES

The Delta Wetlands Project would affect waters of the United States (waters of the U.S.), including wetlands, that are regulated by USACE under Section 404 of the CWA on the project island interiors and under Section 10 of the Rivers and Harbors Act for work in channels adjacent to the project islands. Activities that would result in the dredge or fill of waters of the U.S. on island interiors include the placement of new pumps and siphons on the reservoir islands, levee improvements, grading activity for habitat construction on the habitat islands, and water storage operations (i.e., inundation) on the reservoir islands. Activities in the channels adjacent to the project islands include the placement of new pump and siphon stations on the reservoir islands, removal of some existing siphon stations, and installation of fish screens on existing siphon stations. Construction of boat docks associated with the recreation facilities would also result in fill or dredge activities; however, as described above, Delta Wetlands has removed construction of these facilities from its CWA and Rivers and Harbors Act permit applications.

In December 1994 and January 1995, USACE and the Natural Resource Conservation Service (NRCS), respectively, verified a delineation of waters of the U.S., including wetlands, on the Delta Wetlands project islands. The verifications expired 5 years after they were issued. Delta Wetlands is currently working with USACE and Jones & Stokes to update the delineation to reflect current conditions on the project islands. The

updated delineation will identify waters of the U.S., including wetlands, on the project islands and in channels where project facilities (e.g., pump and siphon stations) would be located. USACE will verify the new delineation before it issues a decision on the project.

Table S-2 summarizes the estimated effects of the applicant's proposed project on waters of the U.S. based on the delineation verified in 1994 and 1995 and on preliminary investigations. Before issuing a permit under the CWA and Rivers and Harbors Act, USACE will revise these estimates based on more detailed investigations conducted to update the existing delineation. Because farming conditions on the project islands have not substantially changed since 1994, the estimated acreage of wetland impacts presented in Table S-2 is not expected to change significantly.

Project effects on Section 404 jurisdictional wetlands on the island interiors are further described in Chapter 3G, "Vegetation and Wetlands" of this FEIS volume and in Appendix G5, "Summary of Jurisdictional Wetland Impacts and Mitigation" of the 1995 DEIR/EIS. To offset impacts on jurisdictional wetlands, mitigation wetlands would be constructed on the habitat islands as described in the HMP. For activities in the adjacent channels, areas of temporary (construction-related) effects are distinguished in Table S-2 from the amount of permanent fill associated with placement of structures in the channels. The biological opinions from the USFWS, NMFS, and DFG identify mitigation measures for project activities in the channels; these measures are discussed in Chapter 3F, "Fisheries", of this FEIS volume.

PERMIT AND ENVIRONMENTAL REVIEW AND CONSULTATION REQUIREMENTS

In addition to the entitlements required by the SWRCB and USACE, the Delta Wetlands Project requires compliance with other state and federal laws, including the Endangered Species Act, the Fish and Wildlife Coordination Act, the National Historic Preservation Act, and the California Endangered Species Act. Permits and other authorizations may also be required from regional and local agencies, including the Bay Area Air Quality Management District, San Joaquin Valley Unified Air Pollution Control District, Contra Costa and San Joaquin County planning and public works departments, State Division of

Aeronautics, and reclamation districts. Chapter 4, "Permit and Environmental Review and Consultation Requirements", describes these requirements.

IMPACT CONCLUSIONS

In accordance with NEPA and CEQA, this document focuses on the predictable changes in the environment for each of the project alternatives. The changes in the environment analyzed in this document encompass water resources and the aquatic ecosystem; vegetation, wetlands, and wildlife resources; flood control; public services and health; land uses; cultural resources; traffic and air quality; and economic issues.

This document analyzes the environmental effects of Delta Wetlands' project, identifies ways to reduce or avoid potential environmental impacts resulting from the project, and identifies and assesses alternatives to the proposed action. The following sections identify the environmentally superior alternative, the irreversible or irretrievable commitments of resources, growth inducement, and areas of controversy regarding the proposed project.

Environmentally Superior Alternative

The alternatives selected for analysis comply with the NEPA and CEQA requirement to analyze a reasonable range of alternatives and with the U.S. Environmental Protection Agency's (EPA's) Section 404(b)(1) guidelines requirement for USACE to demonstrate that it is issuing a permit under Section 404 of the CWA to the least environmentally damaging practicable alternative. The EIR/EIS lead agencies initially considered a broad range of actions that potentially could have been considered as alternatives to the proposed project. This list of alternatives was then narrowed to those analyzed in this document to include only those reasonably foreseeable alternatives that could meet the overall project purpose, given considerations of cost, existing technology, and logistics. The Section 404(b)(1) Alternatives Analysis for the Delta Wetlands Project, prepared under a separate cover for submittal to EPA and included as Appendix 4 of the 1995 DEIR/EIS, presents the alternatives analysis leading up to the selection of alternatives for assessment in this document. The environmental impact assessment, in combination with

the Section 404(b)(1) alternatives analysis, presents the EIR/EIS lead agencies' process for determining the environmentally superior alternative for CEQA and NEPA purposes and the least environmentally damaging practicable alternative for Section 404(b)(1) purposes.

All the alternatives, including the No-Project Alternative, would cause significant and unavoidable environmental impacts. Although no mitigation measures would be implemented if USACE and the SWRCB denied approval of the Delta Wetlands Project and "adopted" the No-Project Alternative, it could be argued that because the No-Project Alternative would not involve any significant water operations, it would cause the least severe environmental impacts. However, the No-Project Alternative was eliminated from consideration as a practicable alternative to the proposed project because it would not meet the project purpose. It is analyzed in this document to satisfy the requirements of CEQA and NEPA.

Among those alternatives considered practicable, Alternative 3 would cause the most severe environmental impacts (see Table S-1). All impacts associated with reservoir island water operations under Alternatives 1 and 2 would occur with implementation of Alternative 3, but would be greater because Alternative 3 would generally have twice the storage capacity of Alternative 1 or 2. Alternative 3 would affect resources through water storage operations on Bouldin Island and Holland Tract that would not occur under Alternatives 1 and 2. Additionally, Alternative 3 would not have the benefits associated with implementation of the HMP that would occur with Alternatives 1 and 2.

The environmental effects of Alternative 1 and 2 are nearly identical. The project descriptions of the two alternatives differ only with regard to discharges of stored water. As stated above, it was assumed that under Alternative 2, discharges from storage would not be subject to strict interpretation of the 1995 WQCP "percent of inflow" export limit and would therefore be slightly more frequent than discharges under Alternative 1. Alternative 2 would allow more frequent discharges from the Delta Wetlands reservoir islands for export at the Central Valley Project (CVP) and State Water Project (SWP) pumping plants and would have a slightly larger potential to increase the supply of water for export from the Delta. However, the period of discharge may be shorter for Alternative 2.

Therefore, the monthly average changes in export simulated for Alternatives 1 and 2 were very similar.

The biological opinions and protest dismissal agreements that have been adopted since the 1995 DEIR/EIS was issued specify numerous restrictions on project operations; with these restrictions incorporated into project operations, there would be little difference between the environmental effects of Alternatives 1 and 2. Therefore, the applicant's proposed project, as mitigated by the biological opinions and other project limits, is considered the environmentally superior alternative.

Preferred Alternative

The applicant's preferred alternative is the proposed project as represented by Alternative 2 (as modified by incorporation of the biological opinions, FOC, and protest dismissal agreements). As reported in the 1995 DEIR/EIS, Alternative 2, with a higher amount of discharge pumping than Alternative 1, would have the maximum effect on fisheries associated with the proposed project. Alternative 2 was therefore used to represent the proposed project in the biological assessment for fish species (see Appendix F2). The terms and conditions of the DFG, USFWS, and NMFS biological opinions are based on this alternative.

This FEIS describes the changes made to the proposed project as part of the biological opinions and protest dismissal agreements. With these conditions and modifications in place, the environmental effects of the proposed project would be less than those reported in the 1995 DEIR/EIS.

Irreversible or Irrecoverable Commitments of Resources

Irrecoverable commitment of resources would occur as a result of implementation of the proposed project. The resources that would be irretrievably committed are associated with construction, operation, and maintenance of the project facilities and include building materials, fossil fuels, labor, energy resources, and land converted from its present uses. However, most of the land converted for water storage and wetland and wildlife habitat creation could physically

be converted back to existing land uses, although project permit conditions would make this unlikely.

Growth Inducement

The proposed project is considered growth inducing because it either would add water directly for export to municipal water supplies or agricultural production to support growth, or would be used for water quality or environmental requirements in substitution for other water that could be used to support growth. The additional water supply that could be provided by the Delta Wetlands Project may induce growth in areas south of the Delta, resulting in secondary environmental impacts. More farmland could also be brought into production if water supplies expanded or became more reliable as a result of Delta Wetlands Project implementation.

The environmental documentation prepared by local, state, and federal agencies that approve and provide permits for residential, commercial, and industrial projects in the SWP and CVP service areas would identify site- and resource-specific growth inducement impacts resulting from the provision of Delta Wetlands Project water. Mitigation measures implemented by agencies with jurisdiction over urban development projects would address many of the secondary impacts associated with the growth induced by the Delta Wetlands Project. A detailed analysis of potential growth-inducing effects of the Delta Wetlands Project is provided in Chapter 2, "Master Responses: Discussions of Recurring Themes", in Volume 2 of this FEIS.

Areas of Known Controversy

Several areas of controversy regarding potential Delta Wetlands Project effects were discussed in comments on the 1995 DEIR/EIS and were the subject of conflicting water right hearing testimony. Most of the issues that were related to project effects on protected fish species have since been resolved by incorporation into the project of the FOC and reasonable and prudent measures (RPM) described in the state and federal biological opinions. Other controversial issues—project effects on dissolved organic carbon (DOC) and THM formation, levee stability, seepage, and Pacific Gas and Electric (PG&E)

maintenance of gas lines—were addressed in the 2000 REIR/EIS.

The following sections summarize the specific areas of controversy that remained after the 2000 REIR/EIS was released. Many of these issues are addressed further in Chapter 2, “Master Responses: Discussions of Recurring Themes”, of Volume 2 of this FEIS.

Integration of the Delta Wetlands Project with Federal and State Water Project Operations

For purposes of this analysis, the Delta Wetlands Project is analyzed as a stand-alone water storage facility, operated independently of the SWP and the CVP and without regard to the specific entities to which the water could be sold. It is reasonable to assume that Delta Wetlands Project operations could be integrated in the future with operation of the SWP and CVP or other facilities to benefit the environment in addition to the water supply.

Several potential opportunities exist to operate the Delta Wetlands Project in conjunction with the CVP and SWP or in coordination with the CALFED Bay-Delta Program (CALFED). Recently, the U.S. Bureau of Reclamation and California Department of Water Resources have begun to evaluate the potential for lease or purchase of the Delta Wetlands Project. However, no specific proposals have been made for which the lead agencies could reasonably assess the environmental effects. Therefore, discussion of such arrangements would be speculative. When integrated project operations are proposed that would require additional permits or authorizations, additional environmental documentation would be needed to address the environmental effects of those operations.

The Delta Wetlands Project islands also could be used for interim storage of water being transferred through the Delta from sellers upstream to buyers served by Delta exports, or to buyers who would use the water to meet Bay-Delta estuary outflow or environmental requirements (water transfers).

Another option would be to use the islands to temporarily store water owned by parties other than Delta Wetlands for later use to meet scheduled Bay-Delta estuary outflow or environmental requirements or for export (water banking). Environmental effects that may be associated with uses

under a third party’s water rights are not analyzed in this document. The effects caused by this type of use of the Delta Wetlands Project are unknown; if this type of use were proposed by some party in the future, a separate environmental analysis would be required. Because no proposals exist for these types of uses of the project island facilities, this analysis considers the water supply yield and environmental impacts of the project based only on water stored under Delta Wetlands’ own appropriate water right permits and later conveyed to Delta channels.

Potential Project Effects on Dissolved Organic Carbon Levels in Delta Exports

There is much disagreement among experts regarding the amount of DOC loading to stored water that would occur under Delta Wetlands’ proposed reservoir storage operations. Because substantial disagreement remains regarding the appropriate levels of DOC loading to use in estimates of Delta Wetlands Project effects, the analysis in this document evaluates effects for a wide range of DOC loading estimates. The range encompasses the loading rates observed in Delta agricultural drainage and in field and laboratory studies of DOC loading from Delta island peat soil.

Relationship of Dissolved Organic Carbon and Bromide in Exports to Disinfection Byproduct Concentrations in Treated Water

Commenters on the 1995 DEIR/EIS and the 2000 REIR/EIS and parties to the water right hearing disputed the accuracy of the methods for determining the formation of disinfection byproducts (DBPs), including trihalomethanes (THMs), as a function of export salinity (Br⁻) and DOC concentration. Methods for predicting the relationship between DOC and salinity levels and the formation of THMs and other DBPs at municipal water treatment plants were discussed in the 2000 REIR/EIS. The accuracy of these methods remains an area of controversy.

Appropriateness of the Significance Criteria Used in the Impact Analysis for Water Quality

Several parties to the water right hearing and commenters on the 1995 DEIR/EIS questioned the adequacy of the significance thresholds used in the impact analysis for water quality, arguing that these

thresholds would not ensure the protection of all beneficial uses, most notably municipal water uses. The challenges are based on the concern that natural variability differs among water quality constituents and that for certain constituents, any change may constitute an unacceptable degradation of resources that are already impaired.

Several commenters did not recognize the distinction between the CEQA/NEPA significance criteria and the mitigation requirements that the SWRCB would apply in water right permit terms. The significance criteria are used to develop mitigation measures on a monthly time step in an evaluation based on monthly model results; in actual practice, the Delta Wetlands Project would be required to adjust operations each day in response to daily monitoring of actual Delta conditions and the quality of water stored on the Delta Wetlands islands. The mitigation performance requirements used to trigger changes in project operations under the terms and conditions of a water right permit and Section 404 permit, therefore, may differ from the significance criteria used in the impact analysis.

Potential for Increased Municipal Water Treatment Costs Resulting from Project Operations

Some commenters on the 1995 DEIR/EIS and 2000 REIR/EIS and parties to the water right hearing have argued that economic effects on treatment plant operators (i.e., increases in treatment costs) that could result from project-related increases in salinity and DOC concentrations should be considered significant impacts. They requested that the significance criteria for evaluating project effects on total organic compounds (TOC) be adjusted to account for increased treatment plant costs associated with TOC removal requirements and higher disinfectant doses.

Although this document acknowledges that the Delta Wetlands Project may have an effect on the water treatment costs for downstream water users, the economic effect alone is not treated as a significant environmental effect and does not require separate mitigation. Even without considering economic effects, the environmental impact of the Delta Wetlands Project on water quality degradation is deemed significant, and mitigation has been proposed.

Significance Criteria for the Evaluation of Effects on Levee Stability and Regulatory Standards to Be Applied to the Delta Wetlands Project Levees

Parties to the water right hearing have argued that USACE and the SWRCB should identify the levee standards, such as factors of safety (FSs), that would be applied to the Delta Wetlands Project's final levee design. The purpose of the environmental impact assessment is to determine the difference in levee stability between existing conditions and with-project conditions. The relative change in the FSs between the project and existing conditions is used as the basis for evaluating the impact of the proposed project. Because the analysis evaluates the change in levee conditions, a given FS standard cannot be used to determine the significance of the change. However, these standards will be considered during project approval and final design. For example, if the levees are determined to be "dams" as defined by the California Water Code (Sections 6002 through 6008), Delta Wetlands would be required to meet the Division of Safety of Dams' (DSOD's) standards and design review requirements. The determination of which standards apply to the project levees will depend on the final project design.

Effects on Pacific Gas and Electric Company's Ability to Use Its Bacon Island Easements

During the Delta Wetlands water right hearing, PG&E presented testimony regarding its easements and natural gas pipelines that cross Bacon Island. The testimony focused on the ways in which proposed Delta Wetlands water storage operations could adversely affect PG&E's ability to use its easements, decrease the useful life of the pipeline, increase the threat of pipeline damage, and affect pipeline maintenance.

The future use of PG&E's easement is a private property right dispute that will be resolved independent of the USACE and SWRCB approval process; it is not addressed in this evaluation. Issues related to the operation and maintenance of the pipeline on Bacon Island and the possibility of impacts on regional natural gas service are considered potential environmental effects (Table S-1).

Viability of the Project Given the Lack of Identified Purchasers of Delta Wetlands Water

Several commenters on the 1995 DEIR/EIS and the 2000 REIR/EIS, and parties to the water right hearing have questioned the viability of the proposed project, arguing that without identified purchasers of project water, the proposed project is financially infeasible and, therefore, should not be approved by the lead agencies.

Identification of beneficial uses of project water and financial feasibility of the project are water right and public interest issues. These issues are beyond the scope of CEQA and NEPA requirements and the EIR/EIS process, and were not addressed in the 2000 REIR/EIS or the 1995 DEIR/EIS.

CITATIONS

Jones & Stokes Associates, Inc. 1990. Draft EIR/EIS for the Delta islands project of Delta Wetlands, a California Corporation. December. (JSA 87-119.) Sacramento, CA. Prepared for California State Water Resources Control Board, Division of Water Rights, and U.S. Army Corps of Engineers, Sacramento District, Sacramento, CA.

_____. 1995. Environmental impact report and environmental impact statement for the Delta Wetlands Project. Draft. September 11, 1995. Prepared for California State Water Resources Control Board, Division of Water Rights, and U.S. Army Corps of Engineers, Sacramento District, Sacramento, CA. (JSA 87-119.) Sacramento, CA.

Jones & Stokes. 2000. Revised draft environmental impact report and environmental impact statement for the Delta Wetlands Project. May. (J&S 99-162.) Sacramento, CA. Prepared for the California State Water Resources Control Board and the U.S. Army Corps of Engineers, Sacramento, CA.

Alternative 1	Alternative 2	Alternative 3	No-Project Alternative
CHAPTER 3A. WATER SUPPLY AND WATER PROJECT OPERATIONS			
<p>Impact A-1: Increase in Delta Consumptive Use (LTS)</p> <p>7 No mitigation is required.</p>	<p>Impact A-2: Reduction in Delta Consumptive Use (B)</p> <p>7 No mitigation is required.</p>	<p>Impact A-3: Increase in Delta Consumptive Use (SU)</p> <p>7 No mitigation is available.</p>	
Cumulative Impacts			
<p>Impact A-4: Reduction in Delta Consumptive Use under Cumulative Conditions (B)</p> <p>7 No mitigation is required.</p>	<p>The cumulative impact listed for Alternative 1 is the same for Alternative 2.</p>	<p>The cumulative impact listed for Alternative 1 is the same for Alternative 3.</p>	
CHAPTER 3B. HYDRODYNAMICS			
<p>Impact B-1: Hydrodynamic Effects on Local Channel Velocities and Stages during Maximum DW Diversions (LTS)</p> <p>7 No mitigation is required.</p>	<p>The impacts listed for Alternative 1 are the same for Alternative 2.</p>	<p>Impact B-4: Hydrodynamic Effects on Local Channel Velocities and Stages during Maximum DW Diversions (LTS)</p> <p>7 No mitigation is required.</p>	
<p>Impact B-2: Hydrodynamic Effects on Local Channel Velocities and Stages during Maximum DW Discharges (LTS)</p> <p>7 No mitigation is required.</p>		<p>Impact B-5: Hydrodynamic Effects on Local Channel Velocities and Stages during Maximum DW Discharges (LTS)</p> <p>7 No mitigation is required.</p>	
<p>Impact B-3: Hydrodynamic Effects on Net Channel Flows (LTS)</p> <p>7 No mitigation is required.</p>		<p>Impact B-6: Hydrodynamic Effects on Net Channel Flows (LTS)</p> <p>7 No mitigation is required.</p>	
Cumulative Impacts			
<p>Impact B-7: Cumulative Hydrodynamic Effects on Local Channel Velocities and Stages during Maximum DW Diversions (LTS)</p> <p>7 No mitigation is required.</p>	<p>The cumulative impacts listed for Alternative 1 are the same for Alternative 2.</p>	<p>The cumulative impacts listed for Alternative 1 are the same for Alternative 3.</p>	
<p>Impact B-8: Cumulative Hydrodynamic Effects on Local Channel Velocities and Stages during Maximum DW Discharges (LTS)</p> <p>7 No mitigation is required.</p>			

Alternative 1	Alternative 2	Alternative 3	No-Project Alternative
Impact B-9: Cumulative Hydrodynamic Effects on Net Channel Flows (S)			
7 Mitigation Measure B-1: Operate the DW Project to Prevent Unacceptable Hydrodynamic Effects in the Middle River and Old River Channels during Flows That Are Higher Than Historical Flows (LTS)			

CHAPTER 3C. WATER QUALITY

Impact C-1: Salinity (EC) Increase at Chipps Island during Months with Applicable EC Objectives (LTS)	The impacts and mitigation measures listed for Alternative 1 are the same for Alternative 2.	Impact C-9: Salinity (EC) Increase at Chipps Island during Months with Applicable EC Objectives (S)
7 Mitigation Measure C-1: Restrict DW Diversions to Limit EC Increases at Chipps Island (LTS)		7 Mitigation Measure C-1: Restrict DW Diversions to Limit EC Increases at Chipps Island (LTS)
Impact C-2: Salinity (EC) Increase at Emmaton (S)		Impact C-10: Salinity (EC) Increase at Emmaton during April-August (S)
7 Mitigation Measure C-2: Restrict DW Diversions to Limit EC Increases at Emmaton (LTS)		7 Mitigation Measure C-2: Restrict DW Diversions to Limit EC Increases at Emmaton (LTS)
Impact C-3: Salinity (EC) Increase at Jersey Point (S)		Impact C-11: Salinity (EC) Increase at Jersey Point during April-August (S)
7 Mitigation Measure C-3: Restrict DW Diversions to Limit EC Increases at Jersey Point (LTS)		7 Mitigation Measure C-3: Restrict DW Diversions to Limit EC Increases at Jersey Point (LTS)
Impact C-4: Salinity (Chloride) Increase in Delta Exports (LTS)		Impact C-12: Salinity (Chloride) Increase in Delta Exports (S)
7 Mitigation Measure C-4: Restrict DW Diversions or Discharges to Limit Chloride Concentrations in Delta Exports (LTS)		7 Mitigation Measure C-4: Restrict DW Diversions or Discharges to Limit Chloride Concentrations in Delta Exports (LTS)
Impact C-5: Elevated DOC Concentrations in Delta Exports (CCWD Rock Slough, SWP Banks, CVP Tracy) (S)		Impact C-13: Elevated DOC Concentrations in Delta Exports (CCWD Rock Slough, SWP Banks, CVP Tracy) (S)
7 Mitigation Measure C-5: Restrict DW Discharges to Prevent DOC Increases of Greater Than 0.8 mg/l in Delta Exports (LTS)		7 Mitigation Measure C-5: Restrict DW Discharges to Prevent DOC Increases of Greater Than 0.8 mg/l in Delta Exports (LTS)

Alternative 1	Alternative 2	Alternative 3	No-Project Alternative
<p>Impact C-6: Elevated THM Concentrations in Treated Drinking Water from Delta Exports (CCWD Rock Slough, SWP Banks, CVP Tracy) (S)</p>		<p>Impact C-14: Elevated THM Concentrations in Treated Drinking Water from Delta Exports (CCWD Rock Slough, SWP Banks, CVP Tracy) (S)</p>	
<p>7 Mitigation Measure C-6: Restrict DW Discharges to Prevent Increases of More Than 16 Fg/l in THM Concentrations or THM Concentrations of Greater than 72 Fg/l in Treated Delta Export Water (LTS)</p>		<p>7 Mitigation Measure C-6: Restrict DW Discharges to Prevent Increases of More Than 16 Fg/l in THM Concentrations or THM Concentrations of Greater than 72 Fg/l in Treated Delta Export Water (LTS)</p>	
<p>Impact C-7: Changes in Other Water Quality Variables in Delta Channel Receiving Waters (S)</p>		<p>Impact C-15: Changes in Other Water Quality Variables in Delta Channel Receiving Waters (S)</p>	
<p>7 Mitigation Measure C-7: Restrict DW Discharges to Prevent Adverse Changes in Delta Channel Water Quality (LTS)</p>		<p>7 Mitigation Measure C-7: Restrict DW Discharges to Prevent Adverse Changes in Delta Channel Water Quality (LTS)</p>	
<p>Impact C-8: Potential Contamination of Stored Water by Pollutant Residues (S)</p>		<p>Impact C-16: Potential Contamination of Stored Water by Pollutant Residues (S)</p>	
<p>7 Mitigation Measure C-8: Conduct Assessments of Potential Contamination Sites and Remediate as Necessary (LTS)</p>		<p>7 Mitigation Measure C-8: Conduct Assessments of Potential Contamination Sites and Remediate as Necessary (LTS)</p>	

<p>Cumulative Impacts</p>			
<p>Impact C-17: Salinity (EC) Increase at Chipps Island during Months with Applicable EC Objectives under Cumulative Conditions (LTS)</p>	<p>The cumulative impacts and mitigation measures listed for Alternative 1 are the same for Alternative 2.</p>	<p>Impact C-25: Salinity (EC) Increase at Chipps Island during Months with Applicable EC Objectives under Cumulative Conditions (S)</p>	
<p>7 Mitigation Measure C-1: Restrict DW Diversions to Limit EC Increases at Chipps Island (LTS)</p>		<p>7 Mitigation Measure C-1: Restrict DW Diversions to Limit EC Increases at Chipps Island (LTS)</p>	
<p>Impact C-18: Salinity (EC) Increase at Emmaton under Cumulative Conditions (S)</p>		<p>Impact C-26: Salinity (EC) Increase at Emmaton under Cumulative Conditions (S)</p>	
<p>7 Mitigation Measure C-2: Restrict DW Diversions to Limit EC Increases at Emmaton (LTS)</p>		<p>7 Mitigation Measure C-2: Restrict DW Diversions to Limit EC Increases at Emmaton (LTS)</p>	
<p>Impact C-19: Salinity (EC) Increase at Jersey Point under Cumulative Conditions (S)</p>		<p>Impact C-27: Salinity (EC) Increase at Jersey Point under Cumulative Conditions (S)</p>	
<p>7 Mitigation Measure C-3: Restrict DW Diversions to Limit EC Increases at Jersey Point (LTS)</p>		<p>7 Mitigation Measure C-3: Restrict DW Diversions to Limit EC Increases at Jersey Point (LTS)</p>	

Alternative 1	Alternative 2	Alternative 3	No-Project Alternative
<p>Impact C-20: Salinity (Chloride) Increase in Delta Exports under Cumulative Conditions (LTS)</p> <p>7 Mitigation Measure C-4: Restrict DW Diversions or Discharges to Limit Chloride Concentrations in Delta Exports (LTS)</p> <p>Impact C-21: Elevated DOC Concentrations in Delta Exports (CCWD Rock Slough, SWP Banks, CVP Tracy) under Cumulative Conditions (S)</p> <p>7 Mitigation Measure C-5: Restrict DW Discharges to Prevent DOC Increases of Greater Than 0.8 mg/l in Delta Exports (LTS)</p> <p>Impact C-22: Elevated THM Concentrations in Treated Drinking Water from Delta Exports (CCWD Rock Slough, SWP Banks, CVP Tracy) under Cumulative Conditions (S)</p> <p>7 Mitigation Measure C-6: Restrict DW Discharges to Prevent Increases of More Than 16 Fg/l in THM Concentrations or THM Concentrations of Greater than 72 Fg/l in Treated Delta Export Water (LTS)</p> <p>Impact C-23: Changes in Other Water Quality Variables in Delta Channel Receiving Waters under Cumulative Conditions (S)</p> <p>7 Mitigation Measure C-7: Restrict DW Discharges to Prevent Adverse Changes in Delta Channel Water Quality (LTS)</p> <p>Impact C-24: Increase in Pollutant Loading in Delta Channels (SU) *</p> <p>7 Mitigation Measure C-9: Clearly Post Waste Discharge Requirements, Provide Waste Collection Facilities, and Educate Recreationists regarding Illegal Discharges of Waste</p> <p>7 Mitigation Measure RJ-1: Reduce the Number of Outward Boat Slips Located at the Proposed Recreation Facilities (SU)</p>		<p>Impact C-28: Salinity (Chloride) Increase in Delta Exports under Cumulative Conditions (S)</p> <p>7 Mitigation Measure C-4: Restrict DW Diversions or Discharges to Limit Chloride Concentrations in Delta Exports (LTS)</p> <p>Impact C-29: Elevated DOC Concentrations in Delta Exports (CCWD Rock Slough, SWP Banks, CVP Tracy) under Cumulative Conditions (S)</p> <p>7 Mitigation Measure C-5: Restrict DW Discharges to Prevent DOC Increases of Greater Than 0.8 mg/l in Delta Exports (LTS)</p> <p>Impact C-30: Elevated THM Concentrations in Treated Drinking Water from Delta Exports (CCWD Rock Slough, SWP Banks, CVP Tracy) under Cumulative Conditions (S)</p> <p>7 Mitigation Measure C-6: Restrict DW Discharges to Prevent Increases of More Than 16 Fg/l in THM Concentrations or THM Concentrations of Greater than 72 Fg/l in Treated Delta Export Water (LTS)</p> <p>Impact C-31: Changes in Other Water Quality Variables in Delta Channel Receiving Waters under Cumulative Conditions (S)</p> <p>7 Mitigation Measure C-7: Restrict DW Discharges to Prevent Adverse Changes in Delta Channel Water Quality (LTS)</p> <p>Impact C-32: Increase in Pollutant Loading in Delta Channels (SU)</p> <p>7 Mitigation Measure C-9: Clearly Post Waste Discharge Requirements, Provide Waste Collection Facilities, and Educate Recreationists regarding Illegal Discharges of Waste</p> <p>7 Mitigation Measure RJ-1: Reduce the Number of Outward Boat Slips Located at the Proposed Recreation Facilities (SU)</p>	

Alternative 1	Alternative 2	Alternative 3	No-Project Alternative
CHAPTER 3D. FLOOD CONTROL			
Impact D-1: Change in Long-Term Levee Stability on Reservoir Islands (S)	The impacts listed for Alternative 1 are the same for Alternative 2.	Impact D-7: Change in Long-Term Levee Stability on Reservoir Islands (S)	Decrease in Long-Term Levee Stability
7 Mitigation Measure RD-1: Adopt Final Levee Design That Achieves Recommended Factor of Safety and Reduces the Risk of Catastrophic Levee Failure (LTS)		7 Mitigation Measure RD-1: Adopt Final Levee Design That Achieves Recommended Factor of Safety and Reduces the Risk of Catastrophic Levee Failure (LTS)	7 Buttress Perimeter Levees
Impact D-2: Potential for Seepage from Reservoir Islands to Adjacent Islands (S)		Impact D-8: Potential for Seepage from Reservoir Islands to Adjacent Islands (S)	Increase in Potential for Seepage onto Project Islands
7 Mitigation Measure RD-2: Modify Seepage Monitoring Program and Seepage Performance Standards (LTS)		7 Mitigation Measure RD-2: Modify Seepage Monitoring Program and Seepage Performance Standards (LTS)	Increase in Potential for Levee Failure during Seismic Activity
Impact D-3: Potential for Wind and Wave Erosion on Reservoir Islands (LTS)		Impact D-9: Potential for Wind and Wave Erosion on Reservoir Islands (LTS)	
7 No mitigation is required.		7 No mitigation is required.	
Impact D-4: Potential for Erosion of Levee Toe Berms at Pump Stations and Siphon Stations on Reservoir Islands (LTS)		Impact D-10: Potential for Erosion of Levee Toe Berms at Pump Stations and Siphon Stations on Reservoir Islands (LTS)	
7 No mitigation is required.		7 No mitigation is required.	
Impact D-5: Change in Potential for Levee Failure on DW Project Islands during Seismic Activity (S)		Impact D-11: Change in Potential for Levee Failure on DW Project Islands during Seismic Activity (S)	
7 Mitigation Measure RD-1: Adopt Final Levee Design That Achieves Recommended Factor of Safety and Reduces the Risk of Catastrophic Levee Failure (LTS)		7 Mitigation Measure RD-1: Adopt Final Levee Design That Achieves Recommended Factor of Safety and Reduces the Risk of Catastrophic Levee Failure (LTS)	
Impact D-6: Increase in Long-Term Levee Stability on Habitat Islands (B)			
7 No mitigation is required.			

Alternative 1	Alternative 2	Alternative 3	No-Project Alternative
Cumulative Impacts			
Impact D-12: Decrease in Cumulative Flood Hazard in the Delta (B)	The cumulative impacts listed for Alternative 1 are the same for Alternative 2.	The cumulative impacts listed for Alternative 1 are the same for Alternative 3.	
7 No mitigation is required.			
Impact D-13: Decrease in the Need for Public Financing of Levee Maintenance and Repair on the DW Project Islands (B)			
7 No mitigation is required.			

CHAPTER 3E. UTILITIES AND HIGHWAYS

Impact E-1: Increase in the Structural Integrity of County Roads (B)	The impacts and mitigation measures listed for Alternative 1 are the same for Alternative 2	Impact E-13: Increase in the Structural Integrity of County Roads (B)	Increase in the Risk of Road Failure and Maintenance and Repair Needs
7 No mitigation is required.		7 No mitigation is required.	7 Buttress Perimeter Levees
Impact E-2: Reduction in Ferry Traffic from Jersey Island to Webb Tract (LTS) *		Impact E-14: Increase in the Risk of Structural Failure of SR 12 (LTS)	Increase in Maintenance Requirements for Gas Lines on Bacon Island
7 No mitigation is required.		7 Mitigation Measure E-8: Coordinate Design and Construction of Wilkerson Dam with Caltrans and DSOD (LTS)	Increase in the Risk of Structural Failure and Increase in Maintenance Requirements for Existing Distribution Utilities
Impact E-3: Increase in the Risk to Gas Lines Crossing Exterior Levees on Bacon Island Resulting from Levee Improvements (S)		Impact E-15: Increase in the Fog Hazard on SR 12 (SU)	7 Buttress Perimeter Levees
7 Mitigation Measure RE-1: Monitor Locations Where Gas Pipelines Cross Bacon Island Levees during and after Levee Construction		7 No mitigation is available.	
7 Mitigation Measure RE-2: Implement Corrective Measures to Reduce Risk of Pipeline Failure during Levee Construction (LTS)		Impact E-16: Reduction in Ferry Traffic from Jersey Island to Webb Tract (LTS)	
Impact E-4: Increase in PG&E Response Time to Repair a Gas Line Failure on Bacon Island		7 No mitigation is required.	
7 No significance conclusion is made and no mitigation is identified for this potential economic effect on PG&E's operation.		Impact E-17: Increase in the Risk to Gas Lines Crossing Exterior Levees on Bacon Island Resulting from Levee Improvements (S)	
Impact RE-1: Increase in the Risk to Line 57-A from Island Inundation (S)		7 Mitigation Measure RE-1: Monitor Locations Where Gas Pipelines Cross Bacon Island Levees during and after Levee Construction	
7 Mitigation Measure RE-3: Securely Anchor Line 57-A before Bacon Island Flooding (LTS)		7 Mitigation Measure RE-2: Implement Corrective Measures to Reduce Risk of Pipeline Failure during Levee Construction (LTS)	

Alternative 1	Alternative 2	Alternative 3	No-Project Alternative
<p>Impact RE-2: Potential Interference with Pipeline Inspection Procedures (S)</p> <p>7 Mitigation Measure RE-4: Provide Adequate Facilities on Bacon Island for Annual Pipeline Inspection</p> <p>7 Mitigation Measure RE-5: Relocate Cathodic Protection Test Stations before Bacon Island Flooding (LTS)</p> <p>Impact E-5: Inundation of Electrical Distribution Utilities on the Reservoir Islands (S)</p> <p>7 Mitigation Measure E-1: Relocate Electrical Distribution Lines to the Perimeter Levee around Webb Tract (LTS)</p> <p>Impact E-6: Possible Need to Increase Capacity of the Existing Electrical Distribution Lines on the DW Project Islands (LTS) *</p> <p>7 No mitigation is required.</p> <p>Impact E-7: Possible Need to Expand the Existing Electrical Distribution Lines on Webb Tract, Bouldin Island, and Holland Tract to Serve a Proposed Siphon Station and Recreation Facilities (S) *</p> <p>7 Mitigation Measure E-2: Extend Electrical Distribution Lines to Serve New Siphon and Pump Stations and Recreation Facilities (LTS)</p> <p>Impact E-8: Increase in Demand for Police Services on the DW Project Islands (S) *</p> <p>7 Mitigation Measure E-3: Provide Adequate Lighting in and around Buildings, Walkways, Parking Areas, and Boat Berths</p> <p>7 Mitigation Measure E-4: Provide Private Security Services for Recreation Facilities and Boat Docks (LTS)</p>		<p>Impact E-18: Increase in PG&E Response Time to Repair a Gas Line Failure on Bacon Island</p> <p>7 No significance conclusion is made and no mitigation is identified for this potential economic effect on PG&E's operation.</p> <p>Impact RE-3: Increase in the Risk to Line 57-A from Island Inundation (S)</p> <p>7 Mitigation Measure RE-3: Securely Anchor Line 57-A before Bacon Island Flooding (LTS)</p> <p>Impact RE-4: Potential Interference with Pipeline Inspection Procedures (S)</p> <p>7 Mitigation Measure RE-4: Provide Adequate Facilities on Bacon Island for Annual Pipeline Inspection</p> <p>7 Mitigation Measure RE-5: Relocate Cathodic Protection Test Stations before Bacon Island Flooding (LTS)</p> <p>Impact E-19: Inundation of Electrical Distribution Utilities on the Reservoir Islands (S)</p> <p>7 Mitigation Measure E-9: Relocate Electrical Distribution Lines to the Perimeter Levees around Webb and Holland Tracts and Bouldin Island (LTS)</p> <p>Impact E-20: Possible Need to Increase Capacity of the Existing Electrical Distribution Lines on the Reservoir Islands (LTS)</p> <p>7 No mitigation is required.</p> <p>Impact E-21: Possible Need to Expand the Existing Electrical Distribution Lines on Webb Tract, Bouldin Island, and Holland Tract to Serve Proposed Siphon and Pump Stations and Recreation Facilities (S)</p> <p>7 Mitigation Measure E-2: Extend Electrical Distribution Lines to Serve New Siphon and Pump Stations and Recreation Facilities (LTS)</p>	

Alternative 1	Alternative 2	Alternative 3	No-Project Alternative
<p>Impact E-9: Increase in Demand for Fire Protection Services on the DW Project Islands (S) *</p>		<p>Impact E-22: Increase in Demand for Police Services on the DW Project Islands (S)</p>	
<p>7 Mitigation Measure E-5: Incorporate Fire Protection Features into Recreation Facility Design</p>		<p>7 Mitigation Measure E-3: Provide Adequate Lighting in and around Buildings, Walkways, Parking Areas, and Boat Berths</p>	
<p>7 Mitigation Measure E-6: Provide Fire Protection Services to Webb Tract and Bacon Island (LTS)</p>		<p>7 Mitigation Measure E-4: Provide Private Security Services for Recreation Facilities and Boat Docks (LTS)</p>	
<p>Impact E-10: Increase in Demand for Water Supply Services (LTS) *</p>		<p>Impact E-23: Increase in Demand for Fire Protection Services on the DW Project Islands (S)</p>	
<p>7 Mitigation Measure E-7: Obtain Appropriate Local and State Permits for Recreation Facility Services and Utilities (LTS)</p>		<p>7 Mitigation Measure E-5: Incorporate Fire Protection Features into Recreation Facility Design</p>	
<p>Impact E-11: Increase in Demand for Sewage Disposal Services (LTS) *</p>		<p>7 Mitigation Measure E-6: Provide Fire Protection Services to Webb Tract and Bacon Island (LTS)</p>	
<p>7 Mitigation Measure E-7: Obtain Appropriate Local and State Permits for Recreation Facility Services and Utilities (LTS)</p>		<p>Impact E-24: Increase in Demand for Water Supply Services (LTS)</p>	
<p>Impact E-12: Increase in Demand for Solid Waste Removal (LTS) *</p>		<p>7 Mitigation Measure E-7: Obtain Appropriate Local and State Permits for Recreation Facility Services and Utilities (LTS)</p>	
<p>7 Mitigation Measure E-7: Obtain Appropriate Local and State Permits for Recreation Facility Services and Utilities (LTS)</p>		<p>Impact E-25: Increase in Demand for Sewage Disposal Services (LTS)</p>	
		<p>7 Mitigation Measure E-7: Obtain Appropriate Local and State Permits for Recreation Facility Services and Utilities (LTS)</p>	
		<p>Impact E-26: Increase in Demand for Solid Waste Removal (LTS)</p>	
		<p>7 Mitigation Measure E-7: Obtain Appropriate Local and State Permits for Recreation Facility Services and Utilities (LTS)</p>	

<p>Cumulative Impacts</p>			
<p>Impact E-27: Cumulative Decrease in the Risk of Structural Failure of Roadways and Utilities (B)</p>	<p>The cumulative impact listed for Alternative 1 is the same for Alternative 2.</p>	<p>The cumulative impact listed for Alternative 1 is the same for Alternative 3.</p>	<p>Cumulative Increase in the Risk of Structural Failure of Roadways and Utilities</p>
<p>7 No mitigation is required.</p>			<p>7 Buttress Perimeter Levees</p>

Alternative 1	Alternative 2	Alternative 3	No-Project Alternative
CHAPTER 3F. FISHERY RESOURCES			
Impact F-1: Alteration of Habitat (LTS) *	The impacts and mitigation measures listed for Alternative 1 are the same for Alternative 2.	Impact F-9: Alteration of Habitat (S)	
7 No mitigation is required.		7 Mitigation Measure F-1: Implement Fish Habitat Management Actions (LTS)	
Impact F-2: Increase in Temperature-Related Mortality of Juvenile Chinook Salmon (LTS)		Impact F-10: Increase in Temperature-Related Mortality of Juvenile Chinook Salmon (S)	
7 No mitigation is required.		7 Mitigation Measure F-2: Monitor the Water Temperature of DW Discharges and Reduce DW Discharges to Avoid Producing Any Increase in Channel Water Temperature Greater than 1°F (LTS)	
Impact F-3: Potential Increase in Accidental Spills of Fuel and Other Materials (LTS) *		Impact F-11: Potential Increase in Accidental Spills of Fuel and Other Materials (LTS)	
7 No mitigation is required.		7 No mitigation is required.	
Impact F-4: Potential Increase in the Mortality of Chinook Salmon Resulting from the Indirect Effects of DW Project Diversions and Discharges on Flows (LTS)		Impact F-12: Potential Increase in the Mortality of Chinook Salmon Resulting from the Indirect Effects of DW Project Diversions and Discharges on Flows (S)	
7 No mitigation is required.		7 Mitigation Measure F-3: Operate the DW Project under Operations Objectives That Would Minimize Changes in Cross-Delta Flow Conditions during Peak Out-Migration of Mokelumne and San Joaquin River Chinook Salmon (LTS)	
Impact F-5: Reduction in Downstream Transport and Increase in Entrainment Loss of Striped Bass Eggs and Larvae, Delta Smelt Larvae, and Longfin Smelt Larvae (LTS)		Impact F-13: Reduction in Downstream Transport and Increase in Entrainment Loss of Striped Bass Eggs and Larvae, Delta Smelt Larvae, and Longfin Smelt Larvae (S)	
7 No mitigation is required.		7 Mitigation Measure F-4: Operate the DW Project under Operations Objectives That Would Minimize Adverse Transport Effects on Striped Bass, Delta Smelt, and Longfin Smelt (LTS)	
Impact F-6: Change in Area of Optimal Salinity Habitat (LTS)		Impact F-14: Change in Area of Optimal Salinity Habitat (LTS)	
7 No mitigation is required.		7 No mitigation is required.	
Impact F-7: Increase in Entrainment Loss of Juvenile Striped Bass and Delta Smelt (LTS)			
7 No mitigation is required.			
Impact F-8: Increase in Entrainment Loss of Juvenile American Shad and Other Species (LTS)			
7 No mitigation is required.			

Alternative 1	Alternative 2	Alternative 3	No-Project Alternative
		<p>Impact F-15: Increase in Entrainment Loss of Juvenile Striped Bass and Delta Smelt (S)</p> <p>7 Mitigation Measure F-5: Operate the DW Project under Operations Objectives That Would Minimize Entrainment of Juvenile Striped Bass and Delta Smelt (LTS)</p> <p>Impact F-16: Increase in Entrainment Loss of Juvenile American Shad and Other Species (LTS)</p> <p>7 No mitigation is required.</p>	

Cumulative Impacts			
<p>Impact F-17: Alteration of Habitat under Cumulative Conditions (LTS) *</p> <p>7 No mitigation is required.</p>	<p>The cumulative impacts and mitigation measures listed for Alternative 1 are the same for Alternative 2.</p>	<p>Impact F-24: Alteration of Habitat under Cumulative Conditions (LTS)</p> <p>7 No mitigation is required.</p>	
<p>Impact F-18: Potential Increase in Accidental Spills of Fuel and Other Materials under Cumulative Conditions (LTS) *</p> <p>7 No mitigation is required.</p>		<p>Impact F-25: Potential Increase in Accidental Spills of Fuel and Other Materials under Cumulative Conditions (LTS)</p> <p>7 No mitigation is required.</p>	
<p>Impact F-19: Potential Increase in the Mortality of Chinook Salmon Resulting from the Indirect Effects of DW Project Diversions and Discharges on Flows under Cumulative Conditions (LTS)</p> <p>7 No mitigation is required.</p>		<p>Impact F-26: Potential Increase in the Mortality of Chinook Salmon Resulting from the Indirect Effects of DW Project Diversions and Discharges on Flows under Cumulative Conditions (S)</p>	
<p>Impact F-20: Reduction in Downstream Transport and Increase in Entrainment Loss of Striped Bass Eggs and Larvae, Delta Smelt Larvae, and Longfin Smelt Larvae under Cumulative Conditions (LTS)</p> <p>7 No mitigation is required.</p>		<p>7 Mitigation Measure F-3: Operate the DW Project under Operations Objectives That Would Minimize Changes in Cross-Delta Flow Conditions during Peak Out-Migration of Mokelumne and San Joaquin River Chinook Salmon (LTS)</p>	
<p>Impact F-21: Change in Area of Optimal Salinity Habitat under Cumulative Conditions (LTS)</p> <p>7 No mitigation is required.</p>		<p>Impact F-27: Reduction in Downstream Transport and Increase in Entrainment Loss of Striped Bass Eggs and Larvae, Delta Smelt Larvae, and Longfin Smelt Larvae under Cumulative Conditions (S)</p> <p>7 Mitigation Measure F-4: Operate the DW Project under Operations Objectives That Would Minimize Adverse Transport Effects on Striped Bass, Delta Smelt, and Longfin Smelt (LTS)</p>	

Alternative 1	Alternative 2	Alternative 3	No-Project Alternative
<p>Impact F-22: Increase in Entrainment Loss of Juvenile Striped Bass and Delta Smelt under Cumulative Conditions (LTS)</p> <p>7 No mitigation is required.</p> <p>Impact F-23: Increase in Entrainment Loss of Juvenile American Shad and Other Species under Cumulative Conditions (LTS)</p> <p>7 No mitigation is required.</p>		<p>Impact F-28: Change in Area of Optimal Salinity Habitat under Cumulative Conditions (LTS)</p> <p>7 No mitigation is required.</p> <p>Impact F-29: Increase in Entrainment Loss of Juvenile Striped Bass and Delta Smelt under Cumulative Conditions (S)</p> <p>7 Mitigation Measure F-5: Operate the DW Project under Operations Objectives That Would Minimize Entrainment of Juvenile Striped Bass and Delta Smelt (LTS)</p> <p>Impact F-30: Increase in Entrainment Loss of Juvenile American Shad and Other Species under Cumulative Conditions (LTS)</p> <p>7 No mitigation is required.</p>	

CHAPTER 3G. VEGETATION AND WETLANDS

<p>Impact G-1: Increase in Freshwater Marsh and Exotic Marsh Habitats (B)</p> <p>7 No mitigation is required.</p> <p>Impact G-2: Loss of Riparian and Permanent Pond Habitats (LTS)</p> <p>7 Measures that would minimize effects of this impact have been incorporated by the project applicant into this alternative's project description. No additional mitigation is required.</p> <p>Impact G-3: Loss of Upland and Agricultural Habitats (LTS)</p> <p>7 Measures that would minimize effects of this impact have been incorporated by the project applicant into this alternative's project description. No additional mitigation is required.</p>	<p>The impacts and mitigation measures listed for Alternative 1 are the same for Alternative 2.</p>	<p>Impact G-5: Loss of Jurisdictional Wetlands on Reservoir Islands (S)</p> <p>7 Mitigation Measure G-4: Develop and Implement an Offsite Mitigation Plan (LTS)</p> <p>Impact G-6: Loss of Special-Status Plants (S)</p> <p>7 Mitigation Measure G-1: Site Project Facilities to Avoid Special-Status Plant Populations</p> <p>7 Mitigation Measure G-2: Protect Special-Status Plant Populations from Construction and Recreational Activities</p> <p>7 Mitigation Measure G-3: Develop and Implement a Special-Status Plant Species Mitigation Plan (LTS)</p>	<p>Loss of Special-Status Plants</p> <p>7 Protect Special-Status Plant Populations from Levee Maintenance Activities</p> <p>7 Develop and Implement a Special-Status Plant Species Mitigation Plan</p>
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Alternative 1	Alternative 2	Alternative 3	No-Project Alternative
Impact G-4: Loss of Special-Status Plants (S) *			
7 Mitigation Measure G-1: Site Project Facilities to Avoid Special-Status Plant Populations			
7 Mitigation Measure G-2: Protect Special-Status Plant Populations from Construction and Recreational Activities			
7 Mitigation Measure G-3: Develop and Implement a Special-Status Plant Species Mitigation Plan (LTS)			
Cumulative Impacts			
Impact G-7: Increase in Wetland and Riparian Habitats in the Delta (B)	The cumulative impact listed for Alternative 1 is the same for Alternative 2.	Impact G-8: Cumulative Loss of Section 404 Jurisdictional Emergent Wetland and Riparian Habitats (LTS)	
7 No mitigation is required.		7 No mitigation is required.	

CHAPTER 3H. WILDLIFE

Impact H-1: Loss of Upland Habitats (LTS)	The impacts and mitigation measures listed for Alternative 1 are the same for Alternative 2.	Impact H-23: Loss of Upland Habitats (S)	Loss of Riparian and Wetland Habitats
7 Measures that would minimize effects of this impact have been incorporated by the project applicant into this alternative's project description. No additional mitigation is required.		7 Mitigation Measure H-4: Develop and Implement an Offsite Wildlife Habitat Mitigation Plan (LTS)	7 Develop and Implement an Offsite Wildlife Habitat Mitigation Plan
Impact H-2: Increase in Suitable Wetland Habitats for Nongame Water and Wading Birds (B)		Impact H-24: Loss of Foraging Habitats for Wintering Waterfowl (S)	Loss of Northern Harrier Nesting Habitat
7 No mitigation is required.		7 Mitigation Measure H-4: Develop and Implement an Offsite Wildlife Habitat Mitigation Plan (LTS)	7 Develop and Implement an Offsite Wildlife Habitat Mitigation Plan
Impact H-3: Loss of Foraging Habitats for Wintering Waterfowl (LTS)		Impact H-25: Increase in Suitable Breeding Habitats for Waterfowl (B)	Loss of Potential Swainson's Hawk Foraging Habitat
7 Measures that would minimize effects of this impact have been incorporated by the project applicant into this alternative's project description. No additional mitigation is required.		7 No mitigation is required.	7 Develop and Implement an Offsite Wildlife Habitat Mitigation Plan
Impact H-4: Increase in Suitable Breeding Habitats for Waterfowl (B)		Impact H-26: Loss of Habitats for Upland Game Species (S)	
7 No mitigation is required.		7 Mitigation Measure H-4: Develop and Implement an Offsite Wildlife Habitat Management Plan (LTS)	

Alternative 1	Alternative 2	Alternative 3	No-Project Alternative
<p>Impact H-5: Loss of Habitats for Upland Game Species (LTS)</p>		<p>Impact H-27: Loss of Foraging Habitat for Greater Sandhill Crane (S)</p>	
<p>7 Measures that would minimize effects of this impact have been incorporated by the project applicant into this alternative's project description. No additional mitigation is required.</p>		<p>7 Mitigation Measure H-4: Develop and Implement an Offsite Wildlife Habitat Management Plan (LTS)</p>	
<p>Impact H-6: Increase in Suitable Foraging Habitat for Greater Sandhill Crane (B)</p>		<p>Impact H-28: Loss of Foraging Habitat for Swainson's Hawk (S)</p>	
<p>7 No mitigation is required.</p>		<p>7 Mitigation Measure H-4: Develop and Implement an Offsite Wildlife Habitat Mitigation Plan (LTS)</p>	
<p>Impact H-7: Increase in Suitable Roosting Habitat for Greater Sandhill Crane (B)</p>		<p>Impact H-29: Loss of Foraging Habitat for Aleutian Canada Goose (LTS)</p>	
<p>7 No mitigation is required.</p>		<p>7 No mitigation is required.</p>	
<p>Impact H-8: Increase in Suitable Foraging Habitat for Swainson's Hawk (B)</p>		<p>Impact H-30: Loss of Nesting Habitat for Northern Harrier (S)</p>	
<p>7 No mitigation is required.</p>		<p>7 Mitigation Measure H-4: Develop and Implement an Offsite Wildlife Habitat Mitigation Plan (LTS)</p>	
<p>Impact H-9: Increase in Suitable Nesting Habitat for Swainson's Hawk (B)</p>		<p>Impact H-31: Loss of Wintering Habitat for Tricolored Blackbird (LTS)</p>	
<p>7 No mitigation is required.</p>		<p>7 No mitigation is required.</p>	
<p>Impact H-10: Loss of Foraging Habitat for Aleutian Canada Goose (LTS)</p>		<p>Impact H-32: Temporary Construction Impacts on State-Listed Species (S)</p>	
<p>7 Measures that would minimize effects of this impact have been incorporated by the project applicant into this alternative's project description. No additional mitigation is required.</p>		<p>7 Mitigation Measure H-1: Develop and Implement a Construction Mitigation Plan for the Reservoir Islands (LTS)</p>	
<p>Impact H-11: Increase in Suitable Nesting Habitat for Northern Harrier (B)</p>		<p>Impact H-33: Potential for Increased Incidence of Waterfowl Diseases (S)</p>	
<p>7 No mitigation is required.</p>		<p>7 Mitigation Measure H-3: Monitor Waterfowl Populations for Incidence of Disease and Implement Actions to Reduce Waterfowl Mortality (LTS)</p>	
<p>Impact H-12: Loss of Wintering Habitat for Tricolored Blackbird (LTS)</p>		<p>Impact H-34: Potential Disruption of Waterfowl Use as a Result of Increased Hunting (LTS)</p>	
<p>7 Measures that would minimize effects of this impact have been incorporated by the project applicant into this alternative's project description. No additional mitigation is required.</p>		<p>7 No mitigation is required.</p>	

Alternative 1	Alternative 2	Alternative 3	No-Project Alternative
<p>Impact H-13: Increase in Suitable Nesting Habitat for Tricolored Blackbird (B)</p> <p>7 No mitigation is required.</p>		<p>Impact H-35: Increase in Waterfowl Harvest Mortality (LTS)</p> <p>7 No mitigation is required.</p>	
<p>Impact H-14: Increase in Suitable Habitats for Special-Status Wildlife Species (B)</p> <p>7 No mitigation is required.</p>		<p>Impact H-36: Potential Changes in Local and Regional Waterfowl Use Patterns (LTS)</p> <p>7 No mitigation is required.</p>	
<p>Impact H-15: Temporary Construction Impacts on State-Listed Species (S) *</p> <p>7 Mitigation Measure H-1: Develop and Implement a Construction Mitigation Plan for the Reservoir Islands (LTS)</p>		<p>Impact H-37: Potential Effects on Wildlife and Wildlife Habitats Resulting from Delta Outflow Changes (LTS)</p> <p>7 No mitigation is required.</p>	
<p>Impact H-16: Disturbance to Greater Sandhill Cranes and Wintering Waterfowl from Aircraft Operation (S) *</p> <p>7 Mitigation Measure H-2: Monitor Effects of Aircraft Flights on Greater Sandhill Cranes and Wintering Waterfowl and Implement Actions to Reduce Aircraft Disturbances of Wildlife (LTS)</p>			
<p>Impact H-17: Potential for Increased Incidence of Waterfowl Diseases (S)</p> <p>7 Mitigation Measure H-3: Monitor Waterfowl Populations for Incidence of Disease and Implement Actions to Reduce Waterfowl Mortality (LTS)</p>			
<p>Impact H-18: Potential Disruption of Waterfowl Use as a Result of Increased Hunting (LTS)</p> <p>7 No mitigation is required.</p>			
<p>Impact H-19: Potential Disruption of Greater Sandhill Crane Use of the Habitat Islands as a Result of Increased Hunting (LTS)</p> <p>7 No mitigation is required.</p>			
<p>Impact H-20: Increase in Waterfowl Harvest Mortality (LTS)</p> <p>7 No mitigation is required.</p>			

Alternative 1	Alternative 2	Alternative 3	No-Project Alternative
<p>Impact H-21: Potential Changes in Local and Regional Waterfowl Use Patterns (LTS)</p> <p>7 No mitigation is required.</p>			
<p>Impact H-22: Potential Effects on Wildlife and Wildlife Habitats Resulting from Delta Outflow Changes (LTS)</p> <p>7 No mitigation is required.</p>			
<p>-----</p>			
<p>Cumulative Impacts</p>			
<p>Impact H-38: Cumulative Increase in Foraging Habitat for Wintering Waterfowl in the Delta (B)</p> <p>7 No mitigation is required.</p>	<p>The cumulative impacts listed for Alternative 1 are the same for Alternative 2.</p>	<p>Impact H-41: Cumulative Loss of Foraging Habitat for Wintering Waterfowl in the Delta (LTS)</p> <p>7 No mitigation is required.</p>	
<p>Impact H-39: Cumulative Loss of Herbaceous Habitats in the Delta (LTS)</p> <p>7 No mitigation is required.</p>		<p>Impact H-42: Cumulative Loss of Herbaceous Habitats in the Delta (LTS)</p> <p>7 No mitigation is required.</p>	
<p>Impact H-40: Cumulative Temporary Loss of Riparian Habitat in the Delta (LTS)</p> <p>7 No mitigation is required.</p>		<p>Impact H-43: Cumulative Loss of Wetland and Riparian Habitats in the Delta (LTS)</p> <p>7 No mitigation is required.</p>	

CHAPTER 3I. LAND USE AND AGRICULTURE

<p>Impact I-1: Displacement of Residences and Structures on Reservoir Islands (LTS)</p> <p>7 No mitigation is required.</p>	<p>The impacts listed for Alternative 1 are the same for Alternative 2.</p>	<p>Impact I-5: Displacement of Residences and Structures on Reservoir Islands (LTS)</p> <p>7 No mitigation is required.</p>	<p>Increase in Cultivated Acreage and Agricultural Production on the DW Project Islands</p>
<p>Impact I-2: Displacement of Property Owners on Habitat Islands (LTS)</p> <p>7 No mitigation is required.</p>		<p>Impact I-6: Inconsistency with Contra Costa County General Plan Policy for Agricultural Lands and Delta Protection Commission Land Use Plan Principles for Agriculture and Recreation (SU)</p> <p>7 No mitigation is available.</p>	
<p>Impact I-3: Inconsistency with Contra Costa County General Plan Policy for Agricultural Lands and Delta Protection Commission Land Use Plan Principles for Agriculture and Recreation (SU) *</p> <p>7 No mitigation is available.</p>		<p>Impact I-7: Direct Conversion of Agricultural Land (SU)</p> <p>7 No mitigation is available.</p>	
<p>Impact I-4: Direct Conversion of Agricultural Land (SU)</p> <p>7 No mitigation is available.</p>			

Alternative 1	Alternative 2	Alternative 3	No-Project Alternative
Cumulative Impacts			
Impact I-8: Cumulative Conversion of Agricultural Land (SU)	The cumulative impact listed for Alternative 1 is the same for Alternative 2.	The cumulative impact listed for Alternative 1 is the same for Alternative 3.	
7 No mitigation is available.			

CHAPTER 3J. RECREATION AND VISUAL RESOURCES

Impact J-1: Increase in Recreation Use-Days for Hunting in the Delta (B) *	The impacts and mitigation measures listed for Alternative 1 are the same for Alternative 2.	Impact J-12: Increase in Recreation Use-Days for Hunting in the Delta (B)	Increase in Recreation Use-Days for Hunting in the Delta
7 No mitigation is required.		7 No mitigation is required.	
Impact J-2: Change in Regional Hunter Success outside the Project Area (LTS)		Impact J-13: Increase in Recreation Use-Days for Boating in the Delta (B)	
7 No mitigation is required.		7 No mitigation is required.	
Impact J-3: Increase in Recreation Use-Days for Boating in the Delta (B) *		Impact J-14: Change in the Quality of the Recreational Boating Experience in Delta Channels (SU)	
7 No mitigation is required.		7 Mitigation Measure RJ-1: Reduce the Number of Outward Boat Slips Located at the Proposed Recreation Facilities (SU)	
Impact J-4: Change in the Quality of the Recreational Boating Experience in Delta Channels (SU) *		Impact J-15: Increase in Recreation Use-Days for Other Recreational Uses in the Delta (B)	
7 Mitigation Measure RJ-1: Reduce the Number of Outward Boat Slips Located at the Proposed Recreation Facilities (SU)		7 No mitigation is required.	
Impact J-5: Increase in Recreation Use-Days for Other Recreational Uses in the Delta (B) *		Impact J-16: Reduction in the Quality of Views of Bacon Island and Webb Tract Interiors from Island Levees (LTS)	
7 No mitigation is required.		7 No mitigation is required.	
Impact J-6: Reduction in the Quality of Views of the Reservoir Island Interiors from Island Levees (LTS)		Impact J-17: Potential Conflict with the Scenic Designation for Bacon Island Road (LTS)	
7 No mitigation is required.		7 No mitigation is required.	
Impact J-7: Potential Conflict with the Scenic Designation for Bacon Island Road (LTS)			
7 No mitigation is required.			

Alternative 1	Alternative 2	Alternative 3	No-Project Alternative
<p>Impact J-8: Reduction in the Quality of Views of the Reservoir Islands from Adjacent Waterways and from the Santa Fe Railways Amtrak Line (SU) *</p> <p>7 Mitigation Measure J-1: Partially Screen Proposed Recreation Facilities and Pump and Siphon Stations from Important Viewing Areas</p> <p>7 Mitigation Measure J-2: Design Levee Improvements, Siphon and Pump Stations, and Recreation Facilities and Boat Docks to Be Consistent with the Surrounding Landscape</p> <p>7 Mitigation Measure RJ-1: Reduce the Number of Outward Boat Slips Located at the Proposed Recreation Facilities (SU)</p>		<p>Impact J-18: Reduction in the Quality of Views of Bacon Island and Webb Tract from Adjacent Waterways and from the Santa Fe Railways Amtrak Line (SU)</p> <p>7 Mitigation Measure J-1: Partially Screen Proposed Recreation Facilities and Pump and Siphon Stations from Important Viewing Areas</p> <p>7 Mitigation Measure J-2: Design Levee Improvements, Siphon and Pump Stations, and Recreation Facilities and Boat Docks to Be Consistent with the Surrounding Landscape</p> <p>7 Mitigation Measure RJ-1: Reduce the Number of Outward Boat Slips Located at the Proposed Recreation Facilities (SU)</p>	
<p>Impact J-9: Enhanced Views of Bouldin Island from SR 12 (B)</p> <p>7 No mitigation is required.</p>		<p>Impact J-19: Change in Views Southward from SR 12 (LTS)</p> <p>7 No mitigation is required.</p>	
<p>Impact J-10: Reduction in the Quality of Views of the Habitat Islands from Adjacent Waterways (S) *</p> <p>7 Mitigation Measure J-1: Partially Screen Proposed Recreation Facilities and Pump and Siphon Stations from Important Viewing Areas</p> <p>7 Mitigation Measure J-2: Design Levee Improvements, Siphon and Pump Stations, and Recreation Facilities and Boat Docks to Be Consistent with the Surrounding Landscape</p> <p>7 Mitigation Measure RJ-1: Reduce the Number of Outward Boat Slips Located at the Proposed Recreation Facilities (LTS)</p>		<p>Impact J-20: Reduction in the Quality of Views of Holland Tract from the Island Levee (LTS)</p> <p>7 No mitigation is required.</p> <p>Impact J-21: Reduction in the Quality of Views of Bouldin Island and Holland Tract from Adjacent Waterways (SU)</p> <p>7 Mitigation Measure J-1: Partially Screen Proposed Recreation Facilities and Pump and Siphon Stations from Important Viewing Areas</p> <p>7 Mitigation Measure J-2: Design Levee Improvements, Siphon and Pump Stations, and Recreation Facilities and Boat Docks to Be Consistent with the Surrounding Landscape</p> <p>7 Mitigation Measure RJ-1: Reduce the Number of Outward Boat Slips Located at the Proposed Recreation Facilities (SU)</p>	
<p>Impact J-11: Increase in Viewing Opportunities and the Quality of Views of Island Interiors and the DW Project Vicinity for Recreation Facility Members (B) *</p> <p>7 No mitigation is required.</p>		<p>Impact J-22: Increase in Opportunities for Recreation Facility Members to View Reservoir Island Interiors and Other Areas in the DW Project Vicinity (B)</p> <p>7 No mitigation is required.</p>	

Alternative 1	Alternative 2	Alternative 3	No-Project Alternative
Cumulative Impacts			
Impact J-23: Increase in Recreation Opportunities in the Delta (B) *	The cumulative impacts listed for Alternative 1 are the same for Alternative 2.	The cumulative impacts listed for Alternative 1 are the same for Alternative 3.	
7 No mitigation is required.			
Impact J-24: Enhancement of Waterfowl Populations and Increased Hunter Success in the Delta (B)			
7 No mitigation is required.			

CHAPTER 3K. ECONOMIC CONDITIONS AND EFFECTS

Because economic effects are not considered environmental impacts under CEQA and NEPA, no conclusions are made regarding the significance of economic effects.

CHAPTER 3L. TRAFFIC AND NAVIGATION

Impact L-1: Increase in Traffic on Delta Roadways during Project Construction (LTS) *	The impacts and mitigation measures listed for Alternative 1 are the same for Alternative 2.	Impact L-11: Increase in Traffic on Delta Roadways during Project Construction (LTS)	Increase in Traffic on Delta Roadways
7 No mitigation is required.		7 No mitigation is required.	Creation of Safety Conflicts on Delta Roadways
Impact L-2: Increase in Traffic on Delta Roadways during Project Operation (SU) *		Impact L-12: Increase in Traffic on Delta Roadways during Project Operation (SU)	7 Clearly Mark Intersections with Poor Visibility in the Vicinity of Agricultural Operations
7 Mitigation Measure RJ-1: Reduce the Number of Outward Boat Slips Located at the Proposed Recreation Facilities (SU)		7 Mitigation Measure RJ-1: Reduce the Number of Outward Boat Slips Located at the Proposed Recreation Facilities (SU)	Decrease in Circulation on Delta Roadways
Impact L-3: Creation of Safety Conflicts on Delta Roadways during Project Construction (S)		Impact L-13: Creation of Safety Conflicts on Delta Roadways during Project Construction (S)	7 Restrict Agricultural Vehicle Operators from Using Delta Highways during Peak Hours
7 Mitigation Measure L-1: Clearly Mark Intersections with Poor Visibility in the DW Project Vicinity (LTS)		7 Mitigation Measure L-1: Clearly Mark Intersections with Poor Visibility in the DW Project Vicinity (LTS)	
Impact L-4: Reduction in Safety Conflicts on Delta Roadways during Project Operation (B) *		Impact L-14: Reduction in Safety Conflicts on Delta Roadways during Project Operation (B)	
7 No mitigation is required.		7 No mitigation is required.	
Impact L-5: Change in Circulation on or Access to Delta Roadways during DW Project Construction (LTS)		Impact L-15: Change in Circulation on or Access to Delta Roadways during DW Project Construction (LTS)	
7 No mitigation is required.		7 No mitigation is required.	
Impact L-6: Change in Circulation on Delta Roadways during DW Project Operation (LTS) *		Impact L-16: Change in Circulation on Delta Roadways during DW Project Operation (LTS)	
7 No mitigation is required.		7 No mitigation is required.	

Alternative 1	Alternative 2	Alternative 3	No-Project Alternative
<p>Impact L-7: Increase in Boat Traffic and Congestion on Delta Waterways during DW Project Operation (SU) *</p> <p>7 Mitigation Measure RJ-1: Reduce the Number of Outward Boat Slips Located at the Proposed Recreation Facilities (SU)</p> <p>Impact L-8: Change in Navigation Conditions on Delta Waterways Surrounding the DW Project Islands during Project Operation (LTS) *</p> <p>7 No mitigation is required.</p> <p>Impact L-9: Creation of Safety Conflicts on Delta Waterways during DW Project Construction (S)</p> <p>7 Mitigation Measure L-2: Clearly Mark the Barge and Notify the U.S. Coast Guard of Construction Activities (LTS)</p> <p>Impact L-10: Increase in the Potential for Safety Problems on Waterways Surrounding the DW Project Islands (S) *</p> <p>7 Mitigation Measure L-3: Clearly Post Waterway Intersections, Speed Zones, and Potential Hazards in the DW Project Vicinity (LTS)</p>		<p>Impact L-17: Increase in Boat Traffic and Congestion on Delta Waterways during DW Project Operation (SU)</p> <p>7 Mitigation Measure RJ-1: Reduce the Number of Outward Boat Slips Located at the Proposed Recreation Facilities (SU)</p> <p>Impact L-18: Change in Navigation Conditions on Delta Waterways Surrounding the DW Project Islands during Project Operation (LTS)</p> <p>7 No mitigation is required.</p> <p>Impact L-19: Creation of Safety Conflicts on Delta Waterways during DW Project Construction (S)</p> <p>7 Mitigation Measure L-2: Clearly Mark the Barge and Notify the U.S. Coast Guard of Construction Activities (LTS)</p> <p>Impact L-20: Increase in the Potential for Safety Problems on Waterways Surrounding the DW Project Islands (S)</p> <p>7 Mitigation Measure L-3: Clearly Post Waterway Intersections, Speed Zones, and Potential Hazards in the DW Project Vicinity (LTS)</p>	

Cumulative Impacts			
<p>Impact L-21: Increase in Traffic on Delta Roadways during Operation of Future Projects, Including the DW Project (S) *</p> <p>7 Mitigation Measure L-4: Implement Caltrans' Route Concepts for SR 4 and SR 12</p> <p>7 Mitigation Measure RJ-1: Reduce the Number of Outward Boat Slips Located at the Proposed Recreation Facilities (LTS)</p> <p>Impact L-22: Reduction in Safety Conflicts on Delta Roadways during Operation of Future Projects, Including the DW Project (B)</p> <p>7 No mitigation is required.</p>	<p>The cumulative impacts and mitigation measures listed for Alternative 1 are the same for Alternative 2.</p>	<p>The cumulative impacts and mitigation measures listed for Alternative 1 are the same for Alternative 3.</p>	<p>Increase in Traffic on Delta Roadways during Operation of Future Projects, Including the No-Project Alternative</p> <p>7 Implement Caltrans' Route Concepts for SR 4 and SR 12</p> <p>Creation of Safety Conflicts on Delta Roadways during Operation of Future Projects, Including the No-Project Alternative</p> <p>7 Clearly Mark Intersections with Poor Visibility in the Vicinity of Agricultural Operations</p>

Alternative 1	Alternative 2	Alternative 3	No-Project Alternative
Impact L-23: Cumulative Increase in Safety Problems on Delta Waterways (SU) *			
7 Mitigation Measure L-5: Develop and Enforce a Boater Safety Program for DW Private Boat Users			
7 Mitigation Measure RJ-1: Reduce the Number of Outward Boat Slips Located at the Proposed Recreation Facilities (SU)			
CHAPTER 3M. CULTURAL RESOURCES			
Impact M-1: Disturbance of Buried Resources (If Present) in the Archaeologically Sensitive Piper Sands on Webb Tract (S)	The impacts and mitigation measures listed for Alternative 1 are the same for Alternative 2.	Impact M-7: Disturbance of Buried Resources (If Present) in the Archaeologically Sensitive Piper Sands on Webb Tract (S)	Disturbance of Buried Resources (If Present) in the Archaeologically Sensitive Piper Sands on Webb Tract as a Result of Agricultural Activities
7 Mitigation Measure M-1: Prepare an HPMP to Provide for the Long-Term Monitoring and Treatment of Archaeologically Sensitive Areas on Webb Tract (LTS)		7 Mitigation Measure M-1: Prepare an HPMP to Provide for the Long-Term Monitoring and Treatment of Archaeologically Sensitive Areas on Webb Tract (LTS)	7 Prepare an HPMP to Provide for the Long-Term Monitoring and Treatment of Archaeologically Sensitive Areas on Webb Tract
Impact M-2: Disturbance of Intact Burials at CA-CCo-593 (If Present) on Holland Tract (S)		Impact M-8: Damage or Destruction of Known Archaeological Sites Resulting from Inundation, Wave Action and Erosion, or Vandalism on Holland Tract (SU)	Damage to Known and Unknown Prehistoric Sites Resulting from Agricultural Activities on Holland Tract
7 Mitigation Measure M-2: Design Habitat Management and Enhancement Activities to Prevent Disturbance of CA-CCo-593 on Holland Tract (LTS)		7 Mitigation Measure M-10: Prepare an HPMP and Conduct Data Recovery Excavations (Only Appropriate for CA-CCo-147) for Archaeological Materials on Holland Tract	7 Prepare an HPMP to Provide for the Long-Term Monitoring of Known and Unknown Archaeological Sites on Holland Tract
Impact M-3: Disturbance of Intact Burials in CA-CCo-593 (If Present) Resulting from Vandalism on Holland Tract (S)		7 Mitigation Measure M-11: Cap Archaeological Sites on Holland Tract	Damage to Historic Structures Resulting from Agricultural Practices on Bacon Island
7 Mitigation Measure M-3: Prepare an HPMP to Address Disturbance of Human Remains at CA-CCo-593 on Holland Tract (LTS)		7 Mitigation Measure M-12: Construct Fencing or Other Barriers to Prevent Site Access on Holland Tract	7 Prepare an HPMP to Provide for the Long-Term Maintenance and Protection of Historic Properties on Bacon Island
Impact M-4: Disturbance of Buried Resources (If Present) in the Archaeologically Sensitive Piper Sands on Holland Tract (S)		7 Mitigation Measure M-13: Construct Levees or Beach Slopes around Archaeological Sites to Decrease Wave Action and Erosion on Holland Tract (SU)	
7 Mitigation Measure M-4: Prepare an HPMP to Provide for the Long-Term Monitoring and Treatment of Archaeologically Sensitive Areas on Holland Tract (LTS)		7 Mitigation Measure M-14: Prepare an HPMP to Provide for the Long-Term Monitoring of Known Archaeological Sites on Holland Tract (SU)	

Alternative 1	Alternative 2	Alternative 3	No-Project Alternative
<p>Impact M-5: Demolition of the NRHP-Eligible Historic District on Bacon Island (SU)</p> <p>7 Mitigation Measure M-5: Prepare an HPMP and a Data Recovery Plan for Archaeological Deposits on Bacon Island</p> <p>7 Mitigation Measure M-6: Prepare a Videotape of Public Broadcasting System Quality of the NRHP-Eligible Historic District on Bacon Island</p> <p>7 Mitigation Measure M-7: Prepare a Popular Publication on Bacon Island Resources for Use by Museums, Cultural Centers, and Schools</p> <p>7 Mitigation Measure M-8: Complete Historic American Building Survey/Historic American Engineering Record Forms, Including Photographic Documentation, That Preserve Information about the NRHP-Eligible District on Bacon Island (SU)</p> <p>Impact M-6: Disturbance of Archaeological Site CA-SJo-208H on Bouldin Island (S)</p> <p>7 Mitigation Measure M-9: Prepare an HPMP and a Data Recovery Plan for Archaeological Deposits on Bouldin Island (LTS)</p>		<p>Impact M-9: Disturbance of Buried Resources (If Present) in the Archaeologically Sensitive Piper Sands on Holland Tract (S)</p> <p>7 Mitigation Measure M-4: Prepare an HPMP to Provide for the Long-Term Monitoring and Treatment of Archaeologically Sensitive Areas on Holland Tract (LTS)</p> <p>Impact M-10: Disturbance of Unknown Resources on Unsurveyed Portions of Holland Tract (S)</p> <p>7 Mitigation Measure M-15: Survey Unsurveyed Portions of Holland Tract and Determine Eligibility for NRHP Listing and Appropriate Treatment (LTS)</p> <p>Impact M-11: Demolition of the NRHP-Eligible Historic District on Bacon Island (SU)</p> <p>7 Mitigation Measure M-5: Prepare an HPMP and a Data Recovery Plan for Archaeological Deposits on Bacon Island</p> <p>7 Mitigation Measure M-6: Prepare a Videotape of Public Broadcasting System Quality of the NRHP-Eligible Historic District on Bacon Island</p> <p>7 Mitigation Measure M-7: Prepare a Popular Publication on Bacon Island Resources for Use by Museums, Cultural Centers, and Schools</p> <p>7 Mitigation Measure M-8: Complete Historic American Building Survey/Historic American Engineering Record Forms, Including Photographic Documentation, That Preserve Information about the NRHP-Eligible District on Bacon Island (SU)</p> <p>Impact M-12: Disturbance of Archaeological Site CA-SJo-208H on Bouldin Island (S)</p> <p>7 Mitigation Measure M-9: Prepare an HPMP and a Data Recovery Plan for Archaeological Deposits on Bouldin Island (LTS)</p>	

Alternative 1	Alternative 2	Alternative 3	No-Project Alternative
Cumulative Impacts			
Impact M-13: Destruction of or Damage to Prehistoric Archaeological Sites in the Delta (LTS)	The cumulative impacts and mitigation measures listed for Alternative 1 are the same for Alternative 2	Impact M-15: Destruction of or Damage to Prehistoric Archaeological Sites in the Delta (SU)	Destruction of or Damage to Prehistoric Archaeological Sites and Historic Resources in the Delta
7 No mitigation is required.		7 Mitigation Measure M-4: Prepare an HPMP to Provide for the Long-Term Monitoring and Treatment of Archaeologically Sensitive Areas on Holland Tract	7 Prepare an HPMP to Provide for the Long-Term Monitoring and Treatment of Archaeologically Sensitive Areas on Webb Tract
Impact M-14: Destruction of or Damage to the NRHP-Eligible Historic Districts Representing Agricultural Labor Camp Systems in the Delta (SU)		7 Mitigation Measure M-11: Cap Archaeological Sites on Holland Tract	
7 Mitigation Measure M-5: Prepare an HPMP and a Data Recovery Plan for Archaeological Deposits on Bacon Island		7 Mitigation Measure M-12: Construct Fencing or Other Barriers to Prevent Site Access on Holland Tract	7 Prepare an HPMP to Provide for the Long-Term Monitoring of Known and Unknown Archaeological Sites on Holland Tract
7 Mitigation Measure M-6: Prepare a Videotape of Public Broadcasting System Quality of the NRHP-Eligible Historic District on Bacon Island		7 Mitigation Measure M-13: Construct Levees or Beach Slopes around Archaeological Sites to Decrease Wave Action and Erosion on Holland Tract	7 Prepare an HPMP to Provide for the Long-Term Maintenance and Protection of Historic Properties on Bacon Island
7 Mitigation Measure M-7: Prepare a Popular Publication on Bacon Island Resources for Use by Museums, Cultural Centers, and Schools		7 Mitigation Measure M-14: Prepare an HPMP to Provide for the Long-Term Monitoring of Known Archaeological Sites on Holland Tract	
7 Mitigation Measure M-8: Complete Historic American Building Survey/Historic American Engineering Record Forms, Including Photographic Documentation, That Preserve Information about the NRHP-Eligible District on Bacon Island (SU)		7 Mitigation Measure M-15: Survey Unsurveyed Portions of Holland Tract and Determine Eligibility for NRHP Listing and Appropriate Treatment (SU)	
		Impact M-16: Destruction of or Damage to the NRHP-Eligible Historic Districts Representing Agricultural Labor Camp Systems in the Delta (SU)	
		7 Mitigation Measure M-5: Prepare an HPMP and a Data Recovery Plan for Archaeological Deposits on Bacon Island	
		7 Mitigation Measure M-6: Prepare a Videotape of Public Broadcasting System Quality of the NRHP-Eligible Historic District on Bacon Island	
		7 Mitigation Measure M-7: Prepare a Popular Publication on Bacon Island Resources for Use by Museums, Cultural Centers, and Schools	
		7 Mitigation Measure M-8: Complete Historic American Building Survey/Historic American Engineering Record Forms, Including Photographic Documentation, That Preserve Information about the NRHP-Eligible District on Bacon Island (SU)	

Alternative 1	Alternative 2	Alternative 3	No-Project Alternative
CHAPTER 3N. MOSQUITOS AND PUBLIC HEALTH			
<p>Impact N-1: Reduction or Elimination of Mosquito Abatement Activities during Full-Storage Periods on the Reservoir Islands (B)</p> <p>7 No mitigation is required.</p> <p>Impact N-2: Increase in Abatement Levels on the Habitat Islands and during Partial-Storage, Shallow-Storage, or Shallow-Water Wetland Periods on the Reservoir Islands (S)</p> <p>7 Mitigation Measure N-1: Coordinate Project Activities with SJCMAD and CCMAD (LTS)</p> <p>Impact N-3: Increase in Potential Exposure of People to Wildlife Species That Transmit Diseases (LTS) *</p> <p>7 No mitigation is required.</p>	<p>The impacts and mitigation measure listed for Alternative 1 are the same for Alternative 2.</p>	<p>Impact N-4: Reduction or Elimination of Mosquito Abatement Activities during Full-Storage Periods on the Reservoir Islands (B)</p> <p>7 No mitigation is required.</p> <p>Impact N-5: Increase in Abatement Levels during Partial-Storage, Shallow-Storage, or Shallow-Water Wetland Periods on the Reservoir Islands and in the NBHA (S)</p> <p>7 Mitigation Measure N-1: Coordinate Project Activities with SJCMAD and CCMAD (LTS)</p>	<p>Reduction in Mosquito Abatement Activities on the DW Project Islands</p> <p>Increase in Mosquito Production Levels as a Result of Increased Corn Production</p> <p>7 Coordinate Project Activities with SJCMAD and CCMAD</p>

Cumulative Impacts			
<p>Impact N-6: Increase in Abatement Levels during Partial-Storage, Shallow-Storage, or Shallow-Water Wetland Periods on the Reservoir Islands under Cumulative Conditions (S)</p> <p>7 Mitigation Measure N-1: Coordinate Project Activities with SJCMAD and CCMAD (LTS)</p> <p>Impact N-7: Cumulative Increase in Mosquito Abatement Needs Resulting from Implementation of Future Projects, Including the DW Project (SU) *</p> <p>7 No mitigation is available.</p>	<p>The cumulative impacts and mitigation measure listed for Alternative 1 are the same for Alternative 2.</p>	<p>The cumulative impacts and mitigation measure listed for Alternative 1 are the same for Alternative 3.</p>	<p>Cumulative Increase in Mosquito Abatement Needs Resulting from Implementation of Future Projects, Including the No-Project Alternative</p>

Alternative 1	Alternative 2	Alternative 3	No-Project Alternative
CHAPTER 30. AIR QUALITY			
Impact O-1: Increase in CO Emissions on the DW Project Islands during Construction (LTS)	The impacts and mitigation measures listed for Alternative 1 are the same for Alternative 2.	Impact O-9: Increase in CO Emissions on the DW Project Islands during Construction (LTS)	Increase in CO Emissions on the DW Project Islands
7 Mitigation Measure O-1: Perform Routine Maintenance of Construction Equipment		7 Mitigation Measure O-1: Perform Routine Maintenance of Construction Equipment	Increase in ROG Emissions on the DW Project Islands.
7 Mitigation Measure O-2: Choose Borrow Sites Close to Fill Locations		7 Mitigation Measure O-2: Choose Borrow Sites Close to Fill Locations	Increase in NOx Emissions on the DW Project Islands
7 Mitigation Measure O-3: Prohibit Unnecessary Idling of Construction Equipment Engines (LTS)		7 Mitigation Measure O-3: Prohibit Unnecessary Idling of Construction Equipment Engines (LTS)	Increase in PM10 Emissions on the DW Project Islands
Impact O-2: Increase in CO Emissions on the DW Project Islands during Project Operation (LTS) *		Impact O-10: Increase in CO Emissions on the DW Project Islands during Project Operation (LTS)	
7 No mitigation is required.		7 No mitigation is required.	
Impact O-3: Increase in ROG Emissions on the DW Project Islands during Construction (SU)		Impact O-11: Increase in ROG Emissions on the DW Project Islands during Construction (SU)	
7 Mitigation Measure O-1: Perform Routine Maintenance of Construction Equipment		7 Mitigation Measure O-1: Perform Routine Maintenance of Construction Equipment	
7 Mitigation Measure O-2: Choose Borrow Sites Close to Fill Locations		7 Mitigation Measure O-2: Choose Borrow Sites Close to Fill Locations	
7 Mitigation Measure O-3: Prohibit Unnecessary Idling of Construction Equipment Engines (SU)		7 Mitigation Measure O-3: Prohibit Unnecessary Idling of Construction Equipment Engines (SU)	
Impact O-4: Increase in NOx Emissions on the DW Project Islands during Construction (SU)		Impact O-12: Increase in NOx Emissions on the DW Project Islands during Construction (SU)	
7 Mitigation Measure O-1: Perform Routine Maintenance of Construction Equipment		7 Mitigation Measure O-1: Perform Routine Maintenance of Construction Equipment	
7 Mitigation Measure O-2: Choose Borrow Sites Close to Fill Locations		7 Mitigation Measure O-2: Choose Borrow Sites Close to Fill Locations	
7 Mitigation Measure O-3: Prohibit Unnecessary Idling of Construction Equipment Engines (SU)		7 Mitigation Measure O-3: Prohibit Unnecessary Idling of Construction Equipment Engines (SU)	

Alternative 1	Alternative 2	Alternative 3	No-Project Alternative
Impact O-5: Increase in ROG Emissions on the DW Project Islands during Project Operation (SU) *		Impact O-13: Increase in ROG Emissions on the DW Project Islands during Project Operation (SU)	
7 Mitigation Measure RJ-1: Reduce the Number of Outward Boat Slips Located at the Proposed Recreation Facilities		7 Mitigation Measure RJ-1: Reduce the Number of Outward Boat Slips Located at the Proposed Recreation Facilities	
7 Mitigation Measure O-4: Coordinate with Local Air Districts to Reduce or Offset Emissions (SU)		7 Mitigation Measure O-4: Coordinate with Local Air Districts to Reduce or Offset Emissions (SU)	
Impact O-6: Increase in NOx Emissions on the DW Project Islands during Project Operation (SU) *		Impact O-14: Increase in NOx Emissions on the DW Project Islands during Project Operation (SU)	
7 Mitigation Measure RJ-1: Reduce the Number of Outward Boat Slips Located at the Proposed Recreation Facilities		7 Mitigation Measure RJ-1: Reduce the Number of Outward Boat Slips Located at the Proposed Recreation Facilities	
7 Mitigation Measure O-4: Coordinate with Local Air Districts to Reduce or Offset Emissions (SU)		7 Mitigation Measure O-4: Coordinate with Local Air Districts to Reduce or Offset Emissions (SU)	
Impact O-7: Increase in PM10 Emissions on the DW Project Islands during Construction (SU)		Impact O-15: Increase in PM10 Emissions on the DW Project Islands during Construction (SU)	
7 Mitigation Measure O-1: Perform Routine Maintenance of Construction Equipment		7 Mitigation Measure O-1: Perform Routine Maintenance of Construction Equipment	
7 Mitigation Measure O-2: Choose Borrow Sites Close to Fill Locations		7 Mitigation Measure O-2: Choose Borrow Sites Close to Fill Locations	
7 Mitigation Measure O-3: Prohibit Unnecessary Idling of Construction Equipment Engines		7 Mitigation Measure O-3: Prohibit Unnecessary Idling of Construction Equipment Engines	
7 Mitigation Measure O-5: Implement Construction Practices That Reduce Generation of Particulate Matter (SU)		7 Mitigation Measure O-5: Implement Construction Practices That Reduce Generation of Particulate Matter (SU)	
Impact O-8: Decrease in PM10 Emissions on the DW Project Islands during Project Operation (B)		Impact O-16: Decrease in PM10 Emissions on the DW Project Islands during Project Operation (B)	
7 No mitigation is required.		7 No mitigation is required.	

Alternative 1	Alternative 2	Alternative 3	No-Project Alternative
Cumulative Impacts			
Impact O-17: Increase in Cumulative Production of Ozone Precursors and CO in the Delta (SU) *	The cumulative impact and mitigation measure listed for Alternative 1 are the same for Alternative 2.	The cumulative impact and mitigation measure listed for Alternative 1 are the same for Alternative 3.	Increase in Cumulative Production of Ozone Precursors, CO, and PM10 in the Delta
7 Mitigation Measure RJ-1: Reduce the Number of Outward Boat Slips Located at the Proposed Recreation Facilities			
7 Mitigation Measure O-4: Coordinate with Local Air Districts to Reduce or Offset Emissions (SU)			
* Although DW has removed the construction of recreation facilities from its CWA and Rivers and Harbors Act permit applications for the proposed project, this impact conclusion assumes that the recreation facilities would be constructed and operated.			
Key:			
LTS = Less than significant.			
S = Significant.			
SU = Significant and unavoidable.			
B = Beneficial.			

Table S-2. Summary of Estimated Impacts of the Delta Wetlands Project on Waters of the United States

Project Feature	Temporary Impacts			Permanent Impacts			
	Type of Waters	Cause of Impact	Acreage	Type of Waters	Cause of Impact	Acreage	
BACON ISLAND							
Project Construction and Operation *				Riparian, willow scrub	Island inundation and project structures on island interior	2.4	
				Freshwater marsh		1.0	
				Exotic marsh		2.0	
				Open water, canal/ditch		17.8	
				Open water, permanent pond		0.8	
Pump Station 700+00	Other waters of the U.S.	Construction and access for placement of pipes, riprap, and docks in adjacent channels	1.63	Other waters of the U.S.	Pipe, riprap, docks, and associated support piles	0.68	
Siphon Station 180+00	Other waters of the U.S.	Construction and access for placement of pipes, riprap, and docks in adjacent channels	1.04	Other waters of the U.S.	Pipe, riprap, docks, and associated support piles	0.49	
Siphon Station 360+00	Other waters of the U.S.	Construction and access for placement of pipes, riprap, and docks in adjacent channels	1.04	Other waters of the U.S.	Pipe, riprap, docks, and associated support piles	0.49	
Existing Siphons	Other waters of the U.S.	Construction and access for installing fish screens	0.15	Other waters of the U.S.	New fish screens on existing siphons	0.15	
Total—Bacon Island			3.86	Total—Bacon Island			25.81

Table S-2. Continued

Project Feature	Temporary Impacts			Permanent Impacts		
	Type of Waters	Cause of Impact	Acreage	Type of Waters	Cause of Impact	Acreage
WEBB TRACT						
Project Construction and Operation *				Riparian, cottonwood-willow woodland	Island inundation and project structures on island interior	47.5
				Riparian, willow scrub		56.2
				Freshwater marsh		24.7
				Exotic marsh		66.9
				Annual grassland		17.0
				Exotic perennial grassland		16.6
				Agricultural wetland		2.6
				Open water, canal/ditch		19.1
				Open water, permanent pond		97.7
				Other		21.3
Pump Station 190+00	Other waters of the U.S.	Construction and access for placement of pipes, riprap, and docks in adjacent channels	1.35	Other waters of the U.S.	Pipe, riprap, docks, and associated support piles	0.64
Siphon Station 200+00	Other waters of the U.S.	Construction and access for placement of pipes, riprap, and docks in adjacent channels	1.22	Other waters of the U.S.	Pipe, riprap, docks, and associated support piles	0.49

Table S-2. Continued

Project Feature	Temporary Impacts			Permanent Impacts		
	Type of Waters	Cause of Impact	Acreage	Type of Waters	Cause of Impact	Acreage
WEBB TRACT (Continued)						
Siphon Station 330+00	Other waters of the U.S.	Construction and access for placement of pipes, riprap, and docks in adjacent channels	0.85	Other waters of the U.S.	Pipe, riprap, docks, and associated support piles	0.49
Existing Siphons	Other waters of the U.S.	Construction and access for installing fish screens	0.04	Other waters of the U.S.	New fish screens on existing siphons	0.04
		Removal of existing siphons in adjacent channels	0.02			
Total—Webb Tract			3.48	Total—Webb Tract		
BOULDIN ISLAND						
Establishment and Management of Habitat *	Freshwater marsh	Grading and excavation for habitat creation	0.8			
	Exotic marsh		65.3			
	Annual grassland		93.1			
Existing Siphons	Other waters of the U.S.	Construction and access for installing fish screens	0.04	Other waters of the U.S.	New fish screens on existing siphons	0.08
		Removal of existing siphons in adjacent channels	0.02			
Total—Bouldin Island			159.26	Total—Bouldin Island		

Table S-2. Continued

Project Feature	Temporary Impacts			Permanent Impacts		
	Type of Waters	Cause of Impact	Acreage	Type of Waters	Cause of Impact	Acreage
HOLLAND TRACT						
Establishment and Management of Habitat *	Riparian, willow scrub	Grading and excavation for habitat creation	2.4			
	Freshwater marsh		0.7			
	Exotic marsh		12.9			
Existing Siphons	Other waters of the U.S.	Construction and access for installing fish screens	0.04	Other waters of the U.S.	New fish screens on existing siphons	0.04
	Total—Holland Tract		16.04	Total—Holland Tract		0.04

* The description of wetlands on the island interiors is based on Section 404 Jurisdiction Map, November 4, 1994; see also Appendix G5, "Summary of Jurisdictional Wetland Impacts and Mitigation", in the 1995 DEIR/EIS.

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