

# Summary of Environmental Consequences

## Introduction

This chapter summarizes the impacts identified as a result of constructing and operating each project alternative. Full discussion of impacts on resources may be found in the specific resource sections in Chapters 5, 6, 7, and discussion of growth-inducing and cumulative impacts may be found in Chapters 9 and 10, respectively. This chapter also articulates the relationship between short-term uses and long-term productivity, irreversible and irretrievable commitment of resources, significant unavoidable impacts, estimated land use changes due to the project, and presents a summary of how each alternative meets each project objective.

## Impacts

### Summary of Impacts on Resources

Table 4-1 summarizes the impacts resulting from each alternative, as well as mitigation measures used, and the final level of significance.

### Relationship between Short-Term Uses and Long-Term Productivity

NEPA requires that the local short-term benefits of implementing any of the project alternatives be compared to the maintenance and enhancement of long-term productivity (42 U.S. Code [USC] 4332; 40 CFR 1502.16). Long-term productivity refers to the values of the existing environment. The SDIP has been proposed to protect important fish species and water quality in the south Delta, as well as maintain a reliable water source for SWP and CVP contractors and south Delta agricultural diverters. Each objective of the SDIP satisfies both short-term uses and long-term productivity. The short-term effects as a result of implementation of this project include exceeding emission thresholds for nitrogen oxide and PM10 construction-related impacts on aquatic and terrestrial

species in the project area, and the conversion of agricultural and open space lands. A small amount of agricultural land and riparian area would be permanently converted within the gate footprint; however, this represents a small amount of the total area of agricultural and riparian lands within the south Delta. The short-term effect on air quality would occur only during project construction. The small loss in agricultural land and riparian areas would not result in the loss of the long-term productivity of remaining agriculture lands or riparian lands.

## Irreversible and Irretrievable Commitments

This section fulfills the requirement to address irreversible and irretrievable commitments of resources. Irreversible impacts are those that cause, through direct or indirect effects, use or consumption of resources in such a way that they cannot be restored or returned to their original condition despite mitigation. Potentially irreversible impacts are documented in this report. An irretrievable impact or commitment of resources occurs when a resource is removed or consumed. These types of impacts are evaluated to ensure that consumption is justified.

Irreversible commitments of resources would result from implementing project Alternatives 2A–2C, 3B, or 4B. These resources include:

- construction materials;
- labor;
- energy needed for construction, operation, and maintenance; and
- minor land conversion of open space, agricultural, and natural environments.

Land uses that would be irreversibly committed include prime agricultural land, riparian habitat, and wetlands. The loss of riparian habitat, wetlands, and agricultural land could be mitigated by creating new habitats as part of the project. The unmitigated conversion of some agricultural lands to nonagricultural uses is considered an irreversible and irretrievable commitment of resources.

## Significant Unavoidable Impacts

Significant and unavoidable impacts associated with the project alternatives are shown in Table 4-1. Unavoidable impacts are those impacts that would remain significant even when the mitigation measures incorporated into the project description and the mitigation measures described in each resource chapter of this EIS/EIR are implemented. For a complete discussion of each impact, please refer to the relevant resource section.

## **Estimated Land Use Changes Attributable to the Project**

The permanent gates would result in the permanent conversion of up to 21 acres from farmland to gates. The vegetation along the levees in the footprint of the gates would be permanently removed. Dredging activities would result in changes to the channel shape and depth. Operation of the gates and the increased diversions would result in changes in level throughout the south Delta that may result in changes in habitat and vegetation. In addition, the increased exports may result in changes in land uses south of the Delta. These changes cannot be quantified because it is unknown how the water would be applied and whether it would result in changes in land use. Approximately 205 acres would be temporarily converted from farmland to dredge drying areas (either spoils ponds or runoff management basins) for up to 5 years. These areas would be restored to preproject condition and, therefore, would not result in a permanent conversion of farmland or change in land use. For more information, please see Chapters 2 and 9, and Sections 5.1, 5.2, 6.2, and 7.1.

## **Summary of Each Alternative's Ability to Meet the Project Objectives**

Three objectives were identified: reduce the movement of San Joaquin River watershed Central Valley fall-/late fall–run juvenile Chinook salmon into the south Delta via Old River; maintain adequate water levels and water quality available for agricultural diversions in the south Delta, downstream of the head of Old River; and increase water deliveries to SWP and CVP water contractors south of the Delta and provide opportunities to convey water for fish and wildlife purposes by increasing the maximum diversion through the existing intake gates at CCF to 8,500 cfs. Below, each alternative is evaluated based on the extent to which it meets the three identified objectives.

### **Reduce the Movement of San Joaquin River Watershed Central Valley Fall-/Late Fall–Run Juvenile Chinook Salmon into the South Delta via Old River**

#### **Alternative 1 (No Action)**

Alternative 1 would not result in changes to operations or pumping capacity limits and, therefore, would not result in any change to south Delta water supply, water quality, or water level conditions. Therefore, impacts on fish as a result of movement into the south Delta would be the same as under existing conditions.

## **Alternatives 2A–2C, 3B, and 4B**

### **Stage 1**

All action alternatives incorporate the head of Old River fish control gate in Stage 1. This gate would provide the same protection for Chinook salmon under each alternative regardless of the other components included in each alternative, both physical and operational.

### **Stage 2**

The head of Old River fish control gate would continue to provide protection for Chinook salmon under Stage 2 for each of the action alternatives.

## **Summary**

Each action alternative meets the fish objective equally because they each include the head of Old River fish control gate, which would be operated and maintained the same for each alternative.

## **Maintain Adequate Water Levels and Water Quality Available for Agricultural Diversions in the South Delta, Downstream of the Head of Old River**

### **Alternative 1 (No Action)**

Alternative 1 would not result in changes to operations or pumping capacity limits and, therefore, would not result in any change to south Delta water supply conditions. Changes to tidal flow, tidal level, or water quality conditions would not occur as a result of the alternative. Figure 4-1 shows the minimum and maximum tidal level for each alternative at Tracy Boulevard Bridge on Grant Line Canal throughout the year.

### **Alternative 2A–2C**

#### **Stage 1**

Construction and operation of permanent gates under Alternatives 2A–2C would improve tidal flows in south Delta channels compared to 2001 and 2020 baseline conditions. Alternatives 2A–2C would not result in any significant reductions in south Delta channel tidal level. Tidal gate operations will maintain the minimum

tidal level above the 0.0 feet msl objective. Figure 4-1 illustrates the minimum and maximum tidal level for each alternative at Tracy Boulevard Bridge on Grant Line Canal throughout the year.

Alternatives 2A–2C would result in significant improvement (i.e., reduction) in average salinity in several south Delta locations compared to 2001 and 2020 baseline conditions.

Alternatives 2A–2C would not result in significant increases in south Delta channel dissolved organic compounds (DOC). Changes in pumping and channel flows are not large enough to result in any substantial difference in DOC.

Alternatives 2A–2C would likely result in DO improvements in the San Joaquin River at Stockton. Alternatives 2A–2C would cause increases in net flows through the DWSC portion of the San Joaquin River that could correlate with increases in DO.

## Stage 2

The improvements described for Stage 1 above would continue under Stage 2 of Alternatives 2A–2C.

## Alternative 3B

### Stage 1

Construction and operation of permanent gates under Alternative 3B would result in increases in tidal flows in south Delta channels compared to 2001 and 2020 baseline conditions. Alternative 3B could result in significant minimum tidal level reductions in Grant Line Canal at Tracy Boulevard Bridge. The pumps and siphons along Grant Line Canal that might be affected by these lower minimum tide levels would be extended as part of the SDIP. Figure 4-1 shows the minimum and maximum tidal level for each alternative at Tracy Boulevard Bridge on Grant Line Canal throughout the year.

Alternative 3B would result in significant decreases in average salinity at several south Delta locations compared to 2001 and 2020 baseline conditions. These decreases in salinity would be considered a benefit to water quality.

Alternative 3B would not result in significant increases in south Delta channel DOC. Changes in pumping and channel flows are not large enough to result in any substantial difference in DOC.

Alternative 3B would likely result in DO improvements in the San Joaquin River. Alternative 3B would cause increases in net flows through the DWSC portion of the San Joaquin River that could correlate with increases in DO.

## Stage 2

The improvements described for Stage 1 above would continue under Stage 2 of Alternative 3B.

## Alternative 4B

### Stage 1

Construction and operation of the head of Old River fish control gate under Alternative 4B could result in significant minimum tidal level reductions along Old River at Tracy Boulevard Bridge, Middle River at Tracy Boulevard Bridge, and Grant Line Canal at Tracy Boulevard Bridge. Nevertheless, the minimum tidal level impacts on agricultural diversions are not considered to be substantial, given that proposed modifications to these pumps and siphons would not be sensitive to changes in minimum tidal level. Figure 4-1 shows the minimum and maximum tidal level for each alternative at Tracy Boulevard Bridge on Grant Line Canal throughout the year.

Alternative 4B could result in some improvement in average salinity at some south Delta locations. Decreases in salinity would be considered a benefit to water quality.

Alternative 4B would not result in significant increases in south Delta channel DOC. Changes in pumping and channel flows are not large enough to result in any substantial difference in DOC.

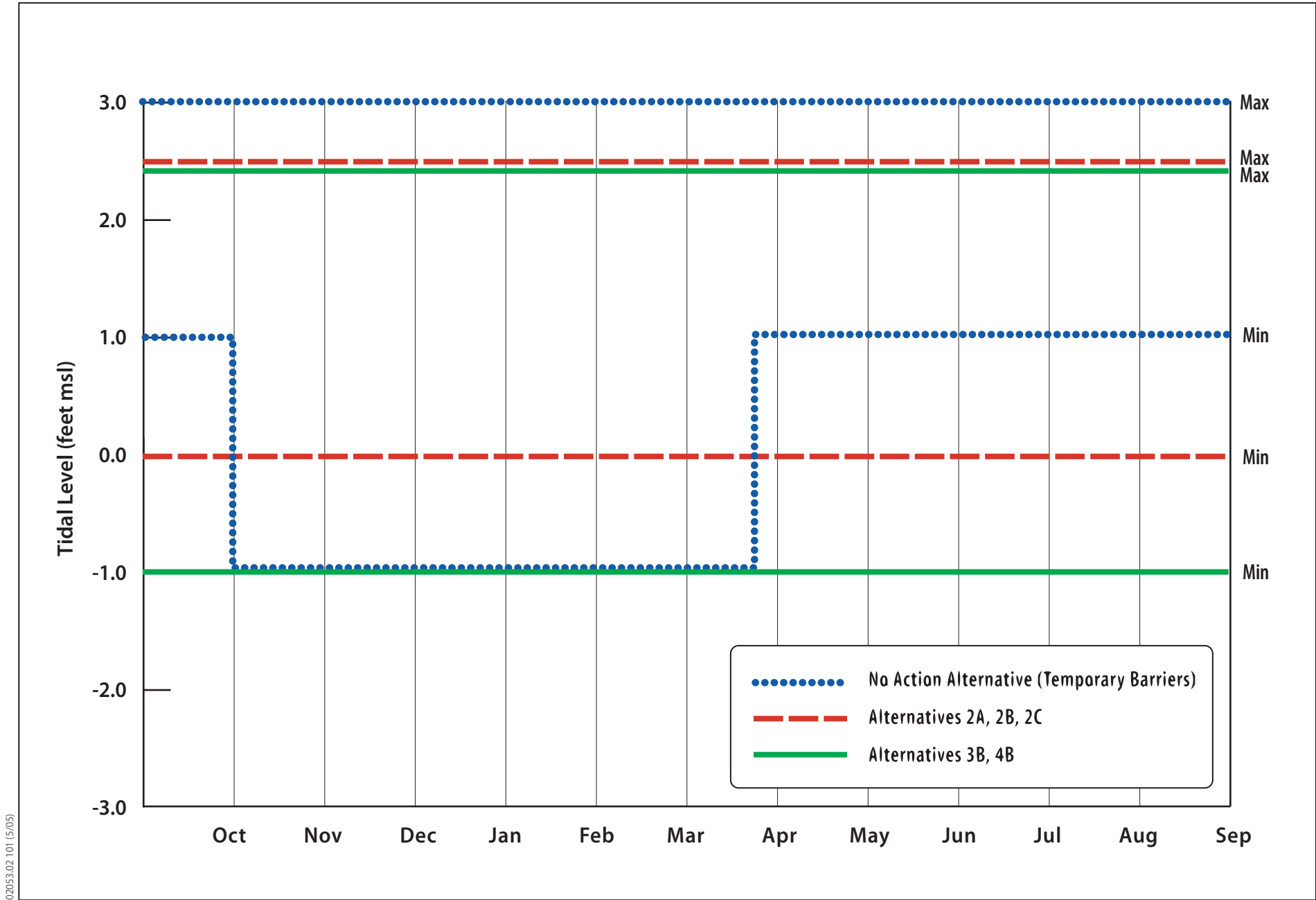
Alternative 4B would likely result in DO improvements in the San Joaquin River. Alternative 4B would cause increases in net flows through the DWSC portion of the San Joaquin River that could correlate with significant increases in DO.

### Stage 2

The improvements described for Stage 1 above would continue under Stage 2 of Alternative 4B.

## Summary

Alternatives 2A–2C would result in the greatest protection of water quality and water level in the south Delta because the operation of four gates, as compared to 3 or one, would allow for greater flexibility in meeting water quality and water level requirements in the south Delta.



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**Figure 4-1**  
**Minimum and Maximum Tidal Level for Grant Line Canal**  
**at Tracy Boulevard Bridge for each Alternative**

# **Increase Water Deliveries to SWP and CVP Water Contractors South of the Delta and Provide Opportunities to Convey Water for Fish and Wildlife Purposes**

## **Alternative 1 (No Action)**

Alternative 1A would not result in changes to operations or pumping capacity limits and, therefore, would not result in any change to south Delta water supply conditions. Additional SWP or CVP deliveries would not be possible.

## **Alternative 2A**

### **Stage 1**

It is likely that the operation of permanent gates, through the improved management of Delta water quality and water levels, would allow conditions for JPOD to be more easily satisfied, thereby increasing SWP and CVP flexibility.

### **Stage 2**

Implementation of Stage 2 of Alternative 2A would result in improvement in average annual CVP water deliveries of approximately 100 thousand acre-feet per year (taf/yr) compared to 2001 and 2020 baseline conditions. Moreover, Alternative 2A would result in improvement in SWP Table A and SWP Article 21 deliveries. An average of an additional 20 to 40 taf/yr for Table A deliveries and an additional average of 50 taf/yr for Article 21 deliveries, compared to 2001 and 2020 baseline conditions would be available. Additionally, DWR would annually convey up to 100,000 acre-feet of CVP Level 2 Refuge water through CCF and SWP Banks by September 1, and Reclamation would provide SWP a north-of-Delta storage amount of up to 75,000 acre-feet from CVP storage facilities to reduce the SWP obligation to comply with Bay-Delta water quality and flow requirements. Additional unused pumping capacity would allow an average of approximately 100 taf of potential water transfers.

## **Alternative 2B**

### **Stage 1**

It is likely that the operation of permanent gates, through the improved management of Delta water quality and water levels, would allow conditions for JPOD to be more easily satisfied, thereby increasing SWP and CVP flexibility.



## Stage 2

Implementation of Stage 2 of Alternative 2B would not result in substantial improvement in average annual CVP water deliveries. Marginal increases in deliveries of approximately an average 15 to 20 taf/yr compared to 2001 and 2020 baseline conditions would provide some additional water to CVP contractors. Similarly, Alternative 2B would not result in substantial improvement in average annual SWP Table A or Article 21 deliveries. Resultant SWP Table A deliveries would range from a decrease in average deliveries of 19 taf/yr (-19 taf/yr) and an increase of only an average 2 taf/yr under 2001 and 2020 baseline conditions, respectively. Additional unused pumping capacity would allow an average of approximately 100 taf of potential water transfers.

## Alternative 2C

### Stage 1

It is likely that the operation of permanent gates, through the improved management of Delta water quality and water levels, would allow conditions for JPOD to be more easily satisfied, thereby increasing SWP and CVP flexibility.

### Stage 2

Implementation of Stage 2 of Alternative 2C would result in improvement in average annual CVP water deliveries. Marginal increases in deliveries of approximately an average 23 and 24 taf/yr compared to 2001 and 2020 baseline conditions would provide some additional water to CVP contractors. Alternative 2C would result in improvement in average annual SWP Table A or Article 21 deliveries. Resultant SWP Table A delivery increases would range from an average 6 to 40 taf/yr compared to 2001 and 2020 baseline conditions, respectively. Resultant SWP Article 21 deliveries would increase on average by 55 taf/yr compared to baseline conditions. Additional unused pumping capacity would allow an average of approximately 100 taf of potential water transfers.

## Alternative 3B

Implementation of Alternative 3B would result in CVP and SWP delivery improvements similar to those described for Alternative 2B.

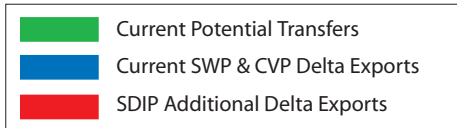
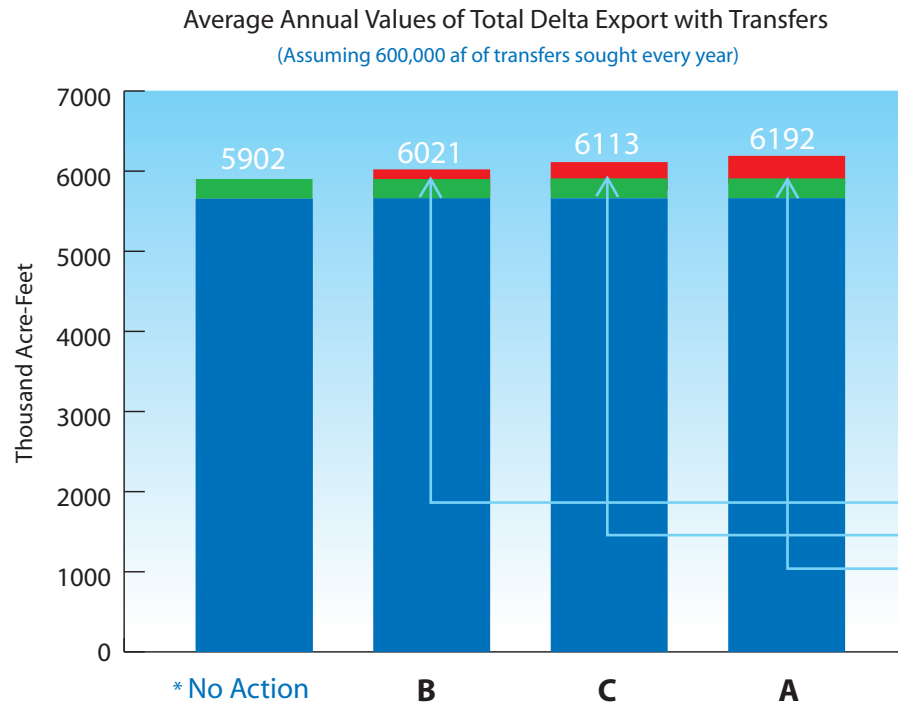
## Alternative 4B

Implementation of Alternative 4B would result in CVP and SWP delivery improvements similar to those described for Alternative 2B.

## Summary

All alternatives would be similar for Stage 1. For Stage 2, Alternative 2A would allow for diversions of 8,500 (on a 3-day average) year-round and would result in the greatest flexibility in maximizing diversions into CCF. It results in the greatest increase in south of Delta water deliveries for both the SWP and CVP. Therefore Alternative 2A would fulfill this export objective most often, compared to the other alternatives. Figure 4-2 shows the annual average increase in Delta exports for each alternative.

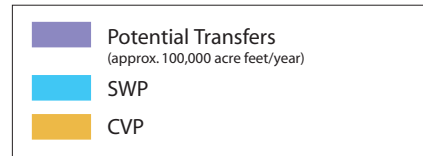
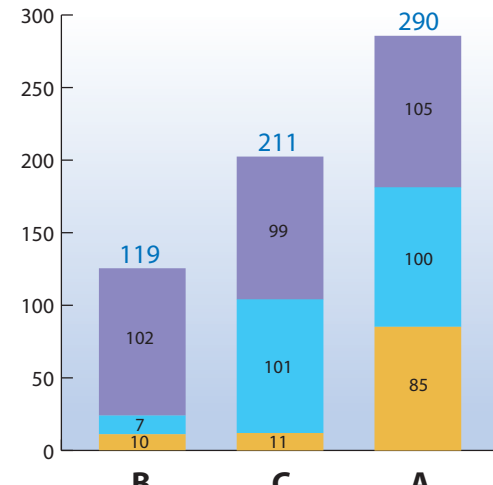




\* No Action allows an average annual transfer of 250,000 acre feet/year.

### SDIP Additional Delta Exports

(600,000 af of transfers sought every year)



Based on 2020 CalSim results

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**Figure 4-2**  
Delta Exports Under No Action and SDIP Operational Scenarios (2020 Conditions)

**Table 4-1.** Summary of Impacts and Mitigation Measures for the South Delta Improvements Program

Resource Topic/Impact	Stage		Applicable Alternative	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
	1	2				
<b>Water Supply</b>						
Table 3.1 shows the link between changes in water supply and environmental effects.						
<b>Delta Tidal Hydraulics</b>						
HY-1: Effects on Tide Level and Flow in Old River at State Route 4 Bridge.	X	X	2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
HY-2: Effects on Tide Level and Flow in Old River at Clifton Court Ferry.	X	X	2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
HY-3: Effects on Tide Level and Flow in Old River at Tracy Boulevard Bridge.	X	X	2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
HY-4: Effects on Tide Level and Flow in Old River at the Head of Old River.	X	X	2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
HY-5: Effects on Tide Level and Flow in Middle River at Mowry Bridge.	X	X	2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
HY-6: Effects on Tide Level and Flow in Middle River at Tracy Boulevard Bridge.	X	X	2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
HY-7 Effects on Tide Level and Flow in Grant Line Canal at Tracy Boulevard Bridge.	X	X	2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
<b>Water Quality</b>						
WQ-1: Short-Term Near-Field Effects on Dissolved Oxygen as a Result of Dredging Activities.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
WQ-2: Impacts on Water Quality as a Result of Suspending Sediments and Contaminants into the Water Column during Dredging.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant

**Table 4-1.** Continued

Resource Topic/Impact	Stage		Applicable Alternative	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
	1	2				
WQ-3: Impacts on Water Quality Resulting from Return Flows from the Dredge Placement Sites.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
WQ-4: Salinity Changes at Emmaton.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
WQ-5: Salinity Changes at Jersey Point.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
WQ-6: Salinity Changes at Rock Slough.	X		2A–2C, 3B, 4B	Less than significant	None required. DWR and Reclamation will work to identify and implement additional actions that may be needed to provide for the continuous improvement in water quality called for in the CALFED Program.	Less than significant
WQ-7: Salinity Changes at Old River at State Route 4 Bridge.	X		2A–2C, 3B, 4B	Less than significant	None required. DWR and Reclamation will work to identify and implement additional actions that may be needed to provide for the continuous improvement in water quality called for in the CALFED Program.	Less than significant
WQ-8: Salinity Changes at Clifton Court Forebay (SWP Banks Pumping Plant).	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
WQ-9: Salinity Changes at CVP Tracy Pumping Plant.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
WQ-10: Salinity Changes in Old River at Tracy Boulevard Bridge.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
WQ-11: Salinity Changes in Grant Line Canal at Tracy Boulevard Bridge.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
WQ-12: Salinity Changes in Middle River at Mowry Bridge.	X		2A-2C, 3B, 4B	Less than significant	None required.	Less than significant

Table 4-1. Continued

Resource Topic/Impact	Stage		Applicable Alternative	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
	1	2				
WQ-13: Changes in Stockton Deep Water Ship Channel Dissolved Oxygen Concentrations.	X		2A-2C, 3B, 4B	Less than significant	None required.	Less than significant
WQ-14: Salinity Changes at Emmaton Resulting from Stage 2.		X	2A-2C, 3B, 4B	Less than significant	None required.	Less than significant
WQ-15: Salinity Changes at Jersey Point Resulting from Stage 2.		X	2A-2C, 3B, 4B	Less than significant	None required.	Less than significant
WQ-16: Salinity Changes at Rock Slough Resulting from Stage 2.		X	2A-2C, 3B, 4B	Less than significant	None required.	Less than significant
WQ-17: Salinity Changes in Old River at State Route 4 Bridge Resulting from Stage 2.		X	2A-2C, 3B, 4B	Less than significant	None required.	Less than significant
WQ-18: Salinity Changes at Clifton Court Forebay (SWP Banks Pumping Plant) Resulting from Stage 2.		X	2A-2C, 3B, 4B	Less than significant	None required.	Less than significant
WQ-19: Salinity Changes at CVP Tracy Pumping Plant Resulting from Stage 2.		X	2A-2C, 3B, 4B	Less than significant	None required.	Less than significant
WQ-20: Salinity Changes in Old River at Tracy Boulevard Bridge Resulting from Stage 2.		X	2A-2C, 3B, 4B	Less than significant	None required.	Less than significant
WQ-21: Salinity Changes in Grant Line Canal at Tracy Boulevard Bridge Resulting from Stage 2.		X	2A-2C, 3B, 4B	Less than significant	None required.	Less than significant
WQ-22: Salinity Changes in Middle River at Mowry Bridge Resulting from Stage 2.		X	2A-2C, 3B, 4B	Less than significant	None required.	Less than significant
WQ-23: Increases in Dissolved Organic Carbon at Contra Costa Water District Rock Slough Intake Resulting from Stage 2.		X	2A-2C, 3B, 4B	Less than significant	None required.	Less than significant
WQ-24: Increases in Dissolved Organic Carbon at Contra Costa Water District Los Vaqueros Intake Resulting from Stage 2.		X	2A-2C, 3B, 4B	Less than significant	None required.	Less than significant

**Table 4-1.** Continued

Resource Topic/Impact	Stage		Applicable Alternative	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
	1	2				
WQ-25: Increases in Dissolved Organic Carbon at SWP Banks Pumping Plant Resulting from Stage 2.		X	2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
WQ-26: Increases in Dissolved Organic Carbon at CVP Tracy Pumping Plant Resulting from Stage 2.		X	2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
WQ-27: Changes in Stockton Deep Water Ship Channel Dissolved Oxygen Concentrations Resulting from Stage 2.		X	2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
<b>Geology, Seismicity, and Soils</b>						
GEO-1: Potential Structural Damage and Injury From Ground Shaking.	X		2A–2C, 3B, 4B	Potentially significant	None required. Incorporate requirements for standard UBC and general plan construction standards into the project design.	Less than significant
GEO-2: Potential Structural Damage and Injury from Development on Materials Subject to Liquefaction.	X		2A–2C, 3B, 4B	Potentially significant	None required. Incorporate requirements for standard UBC and general plan construction standards into the project design.	Less than significant
GEO-3: Potential Downstream Erosion from Sudden Increase in Channel Discharge.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
GEO-4: Potential Accelerated Runoff, Erosion, and Sedimentation from Grading, Excavation, and Levee Construction Activities.	X		2A–2C, 3B, 4B	Less than significant	None required. Implement a storm water pollution prevention plan.	Less than significant
GEO-5: Decrease in Levee Stability from Proposed Construction Activities.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
GEO-6: Potential Structural Damage and Injury from Development on Expansive Soils.	X		2A–2C, 3B, 4B	Less than significant	None required. Incorporate requirements for standard UBC and general plan construction standards into the project design.	Less than significant
GEO-7: Potential for Caving as a Result of Excavations.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant



**Table 4-1.** Continued

Resource Topic/Impact	Stage		Applicable Alternative	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
	1	2				
GEO-8: Potential Decrease in Levee Stability from Dredging Activities.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
GEO-9: Potential Land Subsidence from Placement of Dredged Materials onto Peat Soils.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
<b>Flood Control and Levee Stability</b>						
FC-1: Temporary Decrease in Flood Protection or Levee Stability during Construction of Gates.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
FC-2: Raise Flood Level Elevations and Increase the Frequency of Flooding.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
FC-3: Increase the Degree or Quantity of Seepage, Levee Settlement, Wind Erosion, or Subsidence.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
FC-4: Decrease Inspection, Maintenance, and Repair Capabilities, Levee Slope Protection, Emergency Response Capabilities, Channel Capacity, and Seismic Resistance.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
FC-5: Substantially Decrease or Degrade the Degree of Public Health and Safety.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
FC-6: Temporary Decrease in Flood Control or Levee Stability during Channel Dredging.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
<b>Sediment Transport</b>						
SS-1: Temporary Increase in Sediment Accumulation and Scouring during Construction of Gates.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
SS-2: Increase in Sediment Accumulation and Scouring as a Result of the Gates.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant

**Table 4-1.** Continued

Resource Topic/Impact	Stage		Applicable Alternative	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
	1	2				
SS-3: Increase in Debris Accumulation Resulting in an Increase in Sediment Accumulation and Scouring.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
SS-4: Change in Sedimentation and Scour Patterns in the South Delta.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
SS-5: Temporary Increase in Sediment Accumulation and Scouring during Channel Dredging.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
<b>Groundwater Resources</b>						
GW-1: Change in Availability of Groundwater.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
GW-2: Potential Interference with Normal Operation of Existing Wells or a Substantial Increase in Pumping Cost at Those Wells.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
GW-3: Groundwater Contamination from Construction Vehicles and Equipment Spills.	X		2A–2C, 3B, 4B	Less than significant	None required. Implement a spill prevention and control program as part of the stormwater pollution prevention plan.	Less than significant
GW-4: Potential Depletion of Groundwater Supplies or Interference with Groundwater Recharge from Gate Operations.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
GW-5: Groundwater Contamination from Disposal of Dredged Materials.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
<b>Transportation and Navigation</b>						
TN-1: Temporary Addition of Vehicles to Roadway System and Alteration of Present Patterns of Vehicular Circulation during Construction Activities.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant

**Table 4-1.** Continued

Resource Topic/Impact	Stage		Applicable Alternative	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
	1	2				
TN-2: Damage to Roadway Surfaces from Construction Activities.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
TN-3: Temporary Reduction in Boat Access during Construction Activities.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
TN-4: Temporary Interference with Bicycle Routes during Construction Activities.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
TN-5: Permanent Alteration of Present Patterns of Vehicular Circulation from the Introduction of New or Improved Roadways.	X		2A–2C, 3B, 4B	Less than significant	None required. Implement the traffic and navigation control plan.	Less than significant
TN-6: Permanent Alteration of Present Patterns of Vehicular Circulation and the Congestion of Roadways from Maintenance and Operation of Gates.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
TN-7: Changes in Navigable Areas of the South Delta as a Result of Changes in Water Level.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
TN-8: Temporary Disruption to Use of Navigable Waters during Dredging Operations.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
<b>Air Quality</b>						
Air-1: Short-Term Increase in Reactive Organic Gases and Carbon Monoxide Emissions in San Joaquin County.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Air-2: Short-Term Increase in Nitrogen Oxides Emissions in San Joaquin County.	X		2A–2C, 3B, 4B	Significant	Air-MM-1: Incorporate Air Quality Mitigation Measures designed to limit emissions of NO <sub>x</sub> as Part of the SDIP Construction Management Plan.  Air-MM-2: Acquire NO <sub>x</sub> emission reduction credits to offset the emission increases that exceed the 50 tons per year conformity thresholds.	Less than significant

**Table 4-1.** Continued

Resource Topic/Impact	Stage		Applicable Alternative	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
	1	2				
Air-3: Short-Term Increase in PM10 Emissions in San Joaquin County.	X		2A–2C, 3B, 4B	Significant	Air-MM-3: Implement Control Measures for Fugitive PM10.	Less than significant
Air-4: Short-Term Increase in Reactive Organic Gases, Nitrogen Oxides, and Carbon Monoxide Emissions in Contra Costa County.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Air-5: Potential Increase in PM10 Emissions from Drying Dredge Spoils in San Joaquin and Contra Costa Counties.	X		2A–2C, 3B, 4B	Significant	Air-MM-3: Regulation VIII Control Measures for Fugitive PM10 (San Joaquin County).	Less than significant
Air-6: Construction-Related Diesel Health Risk.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Air-7: Increased Emissions Resulting from Gate Operation.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
<b>Noise</b>						
NZ-1: Exposure of Noise-Sensitive Land Uses to Noise from General Construction Activities.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
NZ-2: Exposure of Noise-Sensitive Land Uses to Noise from Pile-Driving Activities.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
NZ-3: Exposure of Noise-Sensitive Land Uses to Haul Truck Traffic Noise.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
NZ-4: Exposure of Noise-Sensitive Land Uses to Groundborne Vibration from Impact Pile-Driving Activities.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
NZ-5: Exposure of Noise-Sensitive Land Uses to Noise from Clamshell or Dragline Dredging Activities at the Gate Site.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant

**Table 4-1.** Continued

Resource Topic/Impact	Stage		Applicable Alternative	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
	1	2				
NZ-6: Exposure of Noise-Sensitive Land Uses to Noise from Operation of Gates.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
NZ-7: Exposure of Noise-Sensitive Land Uses to Noise from Maintenance Activities at the Gates.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
NZ-8: Exposure of Noise-Sensitive Land Uses to Noise from Hydraulic Dredging Activities at Gate Sites.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
NZ-9: Exposure of Noise-Sensitive Land Uses to Noise from Hydraulic Dredging Activities along Portions of the Middle River, Old River, and West Canal.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
NZ-10: Exposure of Noise-Sensitive Land Uses to Noise from Increased Diversions into Clifton Court Forebay and Pumping at the SWP Banks Pumping Plant.		X	2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
<b>Fisheries</b>						
Fish-1: Construction-Related Loss of Rearing Habitat Area for Chinook Salmon.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Fish-2: Construction-Related Reduction in Food Availability for Chinook Salmon.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Fish-3: Construction-Related Loss of Chinook Salmon to Accidental Spill of Contaminants.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Fish-4: Construction-Related Loss of Chinook Salmon to Direct Injury.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Fish-5: Construction-Related Loss of Chinook Salmon to Predation.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant

**Table 4-1.** Continued

Resource Topic/Impact	Stage		Applicable Alternative	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
	1	2				
Fish-6: Effects of Gate Operation on Juvenile and Adult Chinook Salmon Migration.	X		2A–2C, 3B, 4B	Beneficial		Beneficial impact
Fish-7: Effects of Head of Old River Gate Operation on Juvenile Chinook Salmon Entrainment.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Fish-8: Construction-Related Loss of Rearing Habitat Area for Steelhead.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Fish-9: Construction-Related Reduction in Food Availability for Steelhead.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Fish-10: Construction-Related Loss of Steelhead to Accidental Spill of Contaminants.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Fish-11: Construction-Related Loss of Steelhead to Direct Injury.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Fish-12: Construction-Related Loss of Steelhead to Predation.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Fish-13: Effects of Head of Old River Gate Operation on Juvenile Steelhead Migration.	X		2A–2C, 3B, 4B	Beneficial		Beneficial impact
Fish-14: Construction-Related Loss of Spawning Habitat Area for Delta Smelt.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Fish-15: Construction-Related Loss of Rearing Habitat Area for Delta Smelt.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Fish-16: Construction-Related Reduction in Food Availability for Delta Smelt.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Fish-17: Construction-Related Loss of Delta Smelt to Accidental Spill of Contaminants.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Fish-18: Construction-Related Loss of Delta Smelt to Direct Injury.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant

**Table 4-1.** Continued

Resource Topic/Impact	Stage		Applicable Alternative	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
	1	2				
Fish-19: Construction-Related Loss of Delta Smelt to Predation.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Fish-20: Effects of Gate Operation on Delta Smelt Spawning and Rearing Habitat, and Entrainment.	X		2A–2C, 3B, 4B	Beneficial		Beneficial impact
Fish-21: Construction-Related Loss of Spawning Habitat Area for Splittail.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Fish-22: Construction-Related Loss of Rearing Habitat Area for Splittail.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Fish-23: Construction-Related Reduction in Food Availability for Splittail.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Fish-24: Construction-Related Loss of Splittail to Accidental Spill of Contaminants.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Fish-25: Construction-Related Loss of Splittail to Direct Injury.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Fish-26: Construction-Related Loss of Splittail to Predation.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Fish-27: Effects of Gate Operation on Splittail Migration.	X		2A–2C, 3B, 4B	Beneficial		Beneficial impact
Fish-28: Construction-Related Loss of Spawning Habitat Area for Striped Bass.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Fish-29: Construction-Related Loss of Rearing Habitat Area for Striped Bass.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Fish-30: Construction-Related Reduction in Food Availability for Striped Bass.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Fish-31: Construction-Related Loss of Striped Bass to Accidental Spill of Contaminants.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant

**Table 4-1.** Continued

Resource Topic/Impact	Stage		Applicable Alternative	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
	1	2				
Fish-32: Construction-Related Loss of Striped Bass to Direct Injury.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Fish-33: Construction-Related Loss of Striped Bass to Predation.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Fish-34: Effects of Gate Operation on Striped Bass Migration.	X		2A–2C, 3B, 4B	Beneficial		Beneficial impact
Fish-35: Construction-Related Loss of Spawning Habitat Area for Green Sturgeon.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Fish-36: Construction-Related Loss of Rearing Habitat Area for Green Sturgeon.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Fish-37: Construction-Related Reduction in Food Availability for Green Sturgeon.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Fish-38: Construction-Related Loss of Green Sturgeon to Accidental Spill of Contaminants.	X		2A–2C, 3B, 4B	Less than significant	None required.	Beneficial impact
Fish-39: Construction-Related Loss of Green Sturgeon to Direct Injury.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Fish-40: Construction-Related Loss of Green Sturgeon to Predation.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Fish-41: Effects of Gate Operation on Green Sturgeon Migration.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Fish-42: Operations-Related Loss of Spawning Habitat Area for Chinook Salmon.		X	2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Fish-43: Operations-Related Loss of Rearing Habitat Area for Chinook Salmon.		X	2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Fish-44: Operations-Related Decline in Migration Habitat Conditions for Chinook Salmon.		X	2A–2C, 3B, 4B	Less than significant	None required.	Less than significant



**Table 4-1.** Continued

Resource Topic/Impact	Stage		Applicable Alternative	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
	1	2				
Fish-45: Operations-Related Reduction in Survival of Chinook Salmon in Response to Changes in Water Temperature.		X	2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Fish-46: Operations-Related Increases in Entrainment-Related Losses of Fall-/Late Fall–Run Chinook Salmon from the San Joaquin River Basin.		X	2A, 2C	Significant	Fish-MM-1: Minimize Entrainment-Related Losses of Juvenile Fall-/Late Fall–Run Chinook Salmon from the San Joaquin River Basin That May Be Caused by Increased SWP Pumping from May 16 through May 31.	Less than significant
Fish-46: Operations-Related Increases in Entrainment-Related Losses of Fall-/Late Fall–Run Chinook Salmon from the San Joaquin River Basin.		X	2B, 3B, 4B	Less than significant	None required.	Less than significant
Fish-47: Operations-Related Increases in Entrainment-Related Losses of Chinook Salmon from the Sacramento River Basin.		X	2A, 2C	Significant	Fish-MM-2: Minimize Entrainment-Related Losses of Juvenile Winter- and Spring-Run Chinook Salmon That May Be Caused by Increased SWP Pumping from March 1 through April 14 and May 16 through May 31.	Less than significant
Fish-47: Operations-Related Increases in Entrainment-Related Losses of Chinook Salmon from the Sacramento River Basin.		X	2B, 3B, 4B	Less than significant	None required.	Less than significant
Fish-48: Operations-Related Reduction in Food Availability for Chinook Salmon.		X	2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Fish-49: Operations-Related Loss of Spawning Habitat Area for Coho Salmon in the Trinity River.		X	2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Fish-50: Operations-Related Loss of Rearing Habitat Area for Coho Salmon in the Trinity River.		X	2A–2C, 3B, 4B	Less than significant	None required.	Less than significant

**Table 4-1.** Continued

Resource Topic/Impact	Stage		Applicable Alternative	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
	1	2				
Fish-51: Operations-Related Decline in Migration Habitat Conditions for Coho Salmon in the Trinity River.		X	2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Fish-52: Operations-Related Reduction in Survival of Coho Salmon in Response to Changes in Water Temperature in the Trinity River.		X	2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Fish-53: Operations-Related Reduction in Food Availability for Coho Salmon in the Trinity River.		X	2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Fish-54: Operations-Related Loss of Spawning Habitat Area for Steelhead.		X	2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Fish-55: Operations-Related Loss of Rearing Habitat Area for Steelhead.		X	2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Fish-56: Operations-Related Decline in Migration Habitat Conditions for Steelhead.		X	2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Fish-57: Operations-Related Reduction in Survival of Steelhead in Response to Changes in Water Temperature.		X	2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Fish-58: Operations-Related Increases in Entrainment Losses of Steelhead.		X	2A, 2C	Significant	Fish-MM-1: Minimize Entrainment-Related Losses of Juvenile Fall-/Late Fall–Run Chinook Salmon from the San Joaquin River Basin That May Be Caused by Increased SWP Pumping from May 16 through May 31.  Fish-MM-2: Minimize Entrainment-Related Losses of Juvenile Winter- and Spring-Run Chinook Salmon That May Be Caused by Increased SWP Pumping from March 1 through April 14 and May 16 through May 31.	Less than significant

**Table 4-1.** Continued

Resource Topic/Impact	Stage		Applicable Alternative	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
	1	2				
Fish-58: Operations-Related Increases in Entrainment Losses of Steelhead.		X	2B, 3B, 4B	Less than significant	None required.	Less than significant
Fish-59: Operations-Related Reduction in Food Availability for Steelhead.		X	2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Fish-60: Operations-Related Loss of Spawning Habitat Area for Delta Smelt.		X	2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Fish-61: Operations-Related Loss of Rearing Habitat Area for Delta Smelt.		X	2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Fish-62: Operations-Related Decline in Migration Habitat Conditions for Delta Smelt.		X	2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Fish-63: Operations-Related Increases in SWP Pumping and Resulting Entrainment Losses of Delta Smelt.		X	2A, 2C	Significant	Fish-MM-3: Minimize Entrainment Losses of Delta Smelt Associated with Increased SWP Pumping.	Less than significant
Fish-63: Operations-Related Increases in SWP Pumping and Resulting Entrainment Losses of Delta Smelt.		X	2B, 3B, 4B	Less than significant	None required.	Less than significant
Fish-64: Operations-Related Reduction in Food Availability for Delta Smelt.		X	2A, 2C	Significant	Fish-MM-3: Minimize Entrainment Losses of Delta Smelt Associated with Increased SWP Pumping.	Less than significant
Fish-64: Operations-Related Reduction in Food Availability for Delta Smelt.		X	2B, 3B, 4B	Less than significant	None required.	Less than significant
Fish-65: Operations-Related Loss of Spawning Habitat Area for Splittail.		X	2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Fish-66: Operations-Related Loss of Rearing Habitat Area for Splittail.		X	2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Fish-67: Operations-Related Decline in Migration Habitat Conditions for Splittail.		X	2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Fish-68: Operations-Related Increases in Entrainment Losses of Splittail.		X	2A–2C, 3B, 4B	Less than significant	None required.	Less than significant

Table 4-1. Continued

Resource Topic/Impact	Stage		Applicable Alternative	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
	1	2				
Fish-69: Operations-Related Reduction in Food Availability for Splittail.		X	2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Fish-70: Operations-Related Loss of Spawning Habitat Area for Striped Bass.		X	2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Fish-71: Operations-Related Loss of Rearing Habitat Area for Striped Bass.		X	2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Fish-72: Operations-Related Decline in Migration Habitat Conditions for Striped Bass.		X	2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Fish-73: Operations-Related Increases in SWP Pumping and Resulting Entrainment Losses of Striped Bass.		X	2A, 2C	Significant	<p>Fish-MM-1: Minimize Entrainment-Related Losses of Juvenile Fall-/Late Fall–Run Chinook Salmon from the San Joaquin River Basin That May Be Caused by Increased SWP Pumping from May 16 through May 31.</p> <p>Fish-MM-2: Minimize Entrainment-Related Losses of Juvenile Winter- and Spring-Run Chinook Salmon That May Be Caused by Increased SWP Pumping from March 1 through April 14 and May 16 through May 31.</p> <p>Fish-MM-3: Minimize Entrainment Losses of Delta Smelt Associated with Increased SWP Pumping.</p>	Less than significant
Fish-73: Operations-Related Increases in SWP Pumping and Resulting Entrainment Losses of Striped Bass.		X	2B, 3B, 4B	Less than significant	None required.	Less than significant
Fish-74: Operations-Related Reduction in Food Availability for Striped Bass.		X	2A, 2C	Significant	Fish-MM-3: Minimize Entrainment Losses of Delta Smelt Associated with Increased SWP Pumping.	Less than significant
Fish-74: Operations-Related Reduction in Food Availability for Striped Bass.		X	2B, 3B, 4B	Less than significant	None required.	Less than significant
Fish-75: Operations-Related Loss of Spawning Habitat Area for Green Sturgeon.		X	2A–2C, 3B, 4B	Less than significant	None required.	Less than significant

**Table 4-1.** Continued

Resource Topic/Impact	Stage		Applicable Alternative	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
	1	2				
Fish-76: Operations-Related Loss of Rearing Habitat for Green Sturgeon.		X	2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Fish-77: Operations-Related Decline in Migration Habitat Conditions for Green Sturgeon.		X	2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Fish-78: Operations-Related Increases in SWP Pumping and Resulting Entrainment Losses of Green Sturgeon.		X	2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Fish-79: Operations-Related Reduction in Food Availability for Green Sturgeon.		X	2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
<b>Vegetation and Wetlands</b>						
VEG-1: Loss or Alteration of Nonjurisdictional Woody Riparian Communities as a Result of Gate Construction, Gate Operation, and Channel Dredging.	X		2A–2C, 3B, 4B	Significant	VEG-MM-1: Minimize Impacts on Sensitive Biological Resources. VEG-MM-2: Compensate for Unavoidable Temporary and Permanent Loss of Riparian Habitats.	Less than significant
VEG-2: Loss of Agricultural Land and Ruderal Vegetation as a Result of Gate Construction and Disposal of Dredged Material.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
VEG-3: Removal of Giant Reed for Gate Construction.	X		2A–2C, 3B, 4B	Beneficial impact	None required.	Less than significant
VEG-4: Spread of Noxious Weeds as a Result of Gate Construction and Channel Dredging.	X		2A–2C, 3B, 4B	Significant	VEG-MM-3: Avoid Introduction and Spread of New Noxious Weeds during Project Construction and Dredging.	Less than significant

**Table 4-1.** Continued

Resource Topic/Impact	Stage		Applicable Alternative	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
	1	2				
VEG-5: Loss or Disturbance of Mason’s Lilaeopsis Stands or Potential Habitat as a Result of Gate Construction, Gate Operation, and Channel Dredging.	X		2A–2C, 3B, 4B	Significant	<p>VEG-MM-1: Minimize Impacts on Sensitive Biological Resources.</p> <p>VEG-MM-4: Conduct Preconstruction Surveys for Special-Status Plants.</p> <p>VEG-MM-5: Minimize Impacts on and Compensate for Loss of Mason’s Lilaeopsis.</p> <p>VEG-MM-6: Monitor Existing Stands of Mason’s Lilaeopsis during Gate Operations.</p>	Less than significant
VEG-6: Loss or Disturbance of Delta Mudwort Stands as a Result of Gate Construction, Gate Operation, and Channel Dredging.	X		2A–2C, 3B, 4B	Significant	<p>VEG-MM-1: Minimize Impacts on Sensitive Biological Resources.</p> <p>VEG-MM-4: Conduct Preconstruction Surveys for Special-Status Plants.</p> <p>VEG-MM-5: Minimize Impacts on and Compensate for Loss of Mason’s Lilaeopsis.</p> <p>VEG-MM-6: Monitor Existing Stands of Mason’s Lilaeopsis during Gate Operations.</p>	Less than significant
VEG-7: Loss of Rose-Mallow Stands as a Result of Gate Construction, Gate Operation, and Channel Dredging.	X		2A–2C, 3B, 4B	Significant	<p>VEG-MM-1: Minimize Impacts on Sensitive Biological Resources.</p> <p>VEG-MM-4: Conduct Preconstruction Surveys for Special-Status Plants.</p> <p>VEG-MM-7: Avoid and Minimize Impacts on Special-Status Plants.</p> <p>VEG-MM-8: Compensate for Unavoidable Impacts on Tule and Cattail Tidal Emergent Wetlands.</p>	Less than significant

**Table 4-1.** Continued

Resource Topic/Impact	Stage		Applicable Alternative	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
	1	2				
VEG-8: Filling of Tule and Cattail Tidal Emergent Wetland and Jurisdictional Riparian Communities as a Result of Gate Construction, Gate Operation, and Channel Dredging.	X		2A–2C, 3B, 4B	Significant	VEG-MM-1: Minimize Impacts on Sensitive Biological Resources.  VEG-MM-2: Compensate for Unavoidable Temporary and Permanent Loss of Riparian Habitats.  VEG-MM-7: Avoid and Minimize Impacts on Special-Status Plants.  VEG-MM-9: Monitor Existing Stands of Tidal Emergent Wetland and Riparian Wetland Vegetation during Gate Operation.	Less than significant
VEG-9: Filling or Disturbance of Tidal Perennial Aquatic Habitat as a Result of Gate Construction, Gate Operation, and Channel Dredging.	X		2A–2C, 3B, 4B	Significant	VEG-MM-1: Minimize Impacts on Sensitive Biological Resources.  VEG-MM-10: Compensate for Loss of Tidal Perennial Aquatic Habitat.	Less than significant
VEG-10: Potential Degradation of Wetland Communities as a Result of Release of Contaminants by Channel Dredging.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
<b>Wildlife</b>						
WILD-1: Potential for Adverse Effects on Wildlife Species at the Existing Barrier Locations.			1	No impact	None required.	No impact
WILD-2: Loss of Riparian-Associated Wildlife Habitat as a Result of Gate Construction, Channel Dredging, and Siphon Extensions.	X		2A–2C, 3B, 4B	Significant	WILD-MM-1: Replace Riparian Land Cover Types  WILD-MM-2: Avoid and Minimize Effects on Nesting Birds during Construction and Maintenance.  WILD-MM-3: Minimize Impacts on Sensitive Biological Resources.	Less than significant

**Table 4-1.** Continued

Resource Topic/Impact	Stage		Applicable Alternative	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
	1	2				
WILD-3: Loss of Tidal Emergent Wetland–Associated Wildlife Habitat as a Result of Gate Construction, Channel Dredging, and Siphon Extensions.	X		2A–2C, 3B	Significant	WILD-MM-2: Avoid and Minimize Effects on Nesting Birds during Construction and Maintenance.  WILD-MM-3: Minimize Impacts on Sensitive Biological Resources.  WILD-MM-4: Replace Wetland Land Cover Types	Less than significant
WILD-4: Loss of Tidal Perennial Aquatic–Associated Wildlife Habitat as a Result of Gate Construction, Channel Dredging, and Siphon Extensions.	X		2A–2C, 3B, 4B	Significant	WILD-MM-3: Minimize Impacts on Sensitive Biological Resources.  WILD-MM-5: Compensate for Loss of Tidal Perennial Aquatic Habitat.	Less than significant
WILD-5: Loss of Agricultural Land and Ruderal-Associated Wildlife Habitat as a Result of Gate Construction, Channel Dredging, and Siphon Extensions.	X		2A–2C, 3B, 4B	Potentially significant	No mitigation is required.  WILD-MM-2: Avoid and Minimize Effects on Nesting Birds during Construction and Maintenance.  WILD-MM-3: Minimize Impacts on Sensitive Biological Resources.	Less than significant
WILD-6: Temporary Disturbance and Possible Mortality of Common Wildlife Species as a Result of Gate Construction, Channel Dredging, and Siphon Extensions.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
WILD-7: Disruption of Wildlife Movement Corridors as a Result of Gate Construction, Channel Dredging, and Siphon Extensions.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
WILD-8: Loss of Valley Elderberry Longhorn Beetle or Suitable Habitat as a Result of Gate Construction, Channel Dredging, and Siphon Extensions.	X		2A–2C, 3B, 4B	Significant	WILD-MM-6: Perform Preconstruction and Postconstruction Surveys for Elderberry Shrubs.  WILD-MM-7: Avoid and Minimize Impacts on Elderberry Shrubs.  WILD-MM-8: Compensate for Unavoidable Impacts on Elderberry Shrubs.	Less than significant



Table 4-1. Continued

Resource Topic/Impact	Stage		Applicable Alternative	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
	1	2				
WILD-9: Loss or Disturbance of Swainson’s Hawk Nests or Foraging Habitat as a Result of Gate Construction, Channel Dredging, and Siphon Extensions.	X		2A–2C	Significant	<p>WILD-MM-1: Replace Riparian Land Cover Types.</p> <p>WILD-MM-3: Minimize Impacts on Sensitive Biological Resources.</p> <p>WILD-MM-9: Perform Preconstruction Surveys for Nesting Swainson’s Hawks Prior to Construction and Maintenance.</p> <p>WILD-MM-10: Avoid and Minimize Construction-Related Disturbances within ½ Mile of Active Swainson’s Hawk Nest Sites.</p> <p>WILD-MM-11: Replace or Compensate for the Loss of Swainson’s Hawk Foraging Habitat.</p> <p>WILD-MM-12: Avoid Removal of Occupied Nest Sites.</p>	Less than significant
WILD-9: Loss or Disturbance of Swainson’s Hawk Nests or Foraging Habitat as a Result of Gate Construction, Channel Dredging, and Siphon Extensions.	X		3B, 4B	Significant	<p>WILD-MM-1: Replace Riparian Land Cover Types.</p> <p>WILD-MM-2: Avoid and Minimize Effects on Nesting Birds during Construction and Maintenance.</p> <p>WILD-MM-3: Minimize Impacts on Sensitive Biological Resources.</p> <p>WILD-MM-9: Perform Preconstruction Surveys for Nesting Swainson’s Hawks Prior to Construction and Maintenance.</p> <p>WILD-MM-10: Avoid and Minimize Construction-Related Disturbances within ½ Mile of Active Swainson’s Hawk Nest Sites.</p> <p>WILD-MM-11: Replace or Compensate for the Loss of Swainson’s Hawk Foraging Habitat.</p> <p>WILD-MM-12: Avoid Removal of Occupied Nest Sites.</p>	Less than significant

**Table 4-1.** Continued

Resource Topic/Impact	Stage		Applicable Alternative	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
	1	2				
WILD-10: Loss or Disturbance of San Joaquin Kit Fox or Suitable Habitat as a Result of Gate Construction, Channel Dredging, and Siphon Extensions.	X		2A–2C, 3B, 4B	Significant	WILD-MM-13: Perform Preconstruction Surveys for San Joaquin Kit Fox.  WILD-MM-14: Minimize Construction-Related Disturbances near Active Den Sites.  WILD-MM-15: Replace Lost San Joaquin Kit Fox Habitat.	Less than significant
WILD-11: Loss of Giant Garter Snake or Suitable Habitat as a Result of Gate Construction, Channel Dredging, and Siphon Extensions.	X		2A–2C, 3B, 4B	Significant	WILD-MM-4: Replace Wetland Land Cover Types.  WILD-MM-16: Conduct Preconstruction Surveys for Giant Garter Snake.  WILD-MM-17: Minimize Construction-Related Disturbances in the Vicinity of Occupied Habitat.	Less than significant
WILD-12: Loss of Western Pond Turtle or Suitable Habitat as a Result of Gate Construction, Channel Dredging, and Siphon Extensions.	X		2A–2C, 3B, 4B	Significant	WILD-MM-4: Replace Wetland Land Cover Types.  WILD-MM-18: Avoid and Minimize Construction-Related Disturbances in the Vicinity of Occupied Habitat.	Less than significant
WILD-13: Loss or Disturbance of Raptor Nest Sites as a Result of Gate Construction, Channel Dredging, and Siphon Extensions.	X		2A–2C, 3B, 4B	Significant	WILD-MM-2: Avoid and Minimize Effects on Nesting Birds during Construction and Maintenance.  WILD-MM-3: Minimize Impacts on Sensitive Biological Resources.	Less than significant

Table 4-1. Continued

Resource Topic/Impact	Stage		Applicable Alternative	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
	1	2				
WILD-14: Loss of Tricolored Blackbirds or Suitable Nesting Habitat as a Result of Gate Construction, Channel Dredging, and Siphon Extensions.	X		2A–2C, 3B, 4B	Significant	<p>WILD-MM-1: Replace Riparian Land Cover Types.</p> <p>WILD-MM-2: Avoid and Minimize Effects on Nesting Birds during Construction and Maintenance.</p> <p>WILD-MM-3: Minimize Impacts on Sensitive Biological Resources.</p> <p>WILD-MM-4: Replace Wetland Land Cover Types.</p> <p>WILD-MM-19: Conduct Preconstruction Surveys for Tricolored Blackbird.</p> <p>WILD-MM-20: Minimize Construction-Related Disturbances in the Vicinity of Active Tricolored Blackbird Colonies.</p>	Less than significant
WILD-15: Loss or Disturbance of Nesting or Wintering Western Burrowing Owls as a Result of Gate Construction, Channel Dredging, and Siphon Extensions.	X		2A–2C, 3B, 4B	Significant	<p>WILD-MM-2: Avoid and Minimize Effects on Nesting Birds during Construction and Maintenance.</p> <p>WILD-MM-3: Minimize Impacts on Sensitive Biological Resources.</p> <p>WILD-MM-21: Conduct Preconstruction Surveys for Burrowing Owls.</p> <p>WILD-MM-22: Minimize Construction-Related Disturbances near Occupied Nest Sites.</p> <p>WILD-MM-23: Avoid or Minimize Disturbance to Active Nest and Roost Sites.</p> <p>WILD-MM-24: Mitigation of Impacts on Occupied Burrows.</p> <p>WILD-MM-25: Replace Lost Burrowing Owl Foraging Habitat.</p>	Less than significant

**Table 4-1.** Continued

Resource Topic/Impact	Stage		Applicable Alternative	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
	1	2				
WILD-16: Loss or Disturbance of California Black Rail or Suitable Nesting Habitat as a Result of Gate Construction, Channel Dredging, and Siphon Extensions.	X		2A–2C, 3B, 4B	Significant	WILD-MM-2: Avoid and Minimize Effects on Nesting Birds during Construction and Maintenance.  WILD-MM-3: Minimize Impacts on Sensitive Biological Resources.  WILD-MM-4: Replace Wetland Land Cover Types.  WILD-MM-26: Conduct Preconstruction Surveys for California Black Rail.  WILD-MM-27: Minimize Construction-Related Disturbances in the Vicinity of Active California Black Rail Nest Sites.	Less than significant
WILD-17: Potential Effects on Greater Sandhill Crane as a Result of Loss of Agricultural Lands.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
WILD-18: Potential for Adverse Effects on Common Wildlife Species and Wildlife Habitat Associated with Gate Operations.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
<b>Land and Water Use</b>						
LW-1 Conflicts with Existing Land Uses as a Result of Constructing the Permanent Fish and Flow Control Gates.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
LW-2: Conversion of Important Farmland to Nonagricultural Use as a Result of Constructing the Permanent Fish and Flow Control Gates.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
LW-3: Conflict with Williamson Act and Farmland Security Zone Contract Lands as a Result of Constructing the Permanent Fish and Flow Control Gates.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant

**Table 4-1.** Continued

Resource Topic/Impact	Stage		Applicable Alternative	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
	1	2				
LW-4: Incompatibility with Local Land Use Plans and Policies as a Result of Constructing and Operating the Permanent Fish and Flow Control Gates.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
LW-5: Conflict with Existing Land Uses as a Result of Dredging in South Delta Channels.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
LW-6: Incompatibility with Local Land Use Plans and Policies as a Result of Dredging in South Delta Channels.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
LW-7: Temporary Conversion of Important Farmland to Nonagricultural Use from the Construction of Spoils Settling Ponds for Channel Dredging.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
LW-8: Conversion of Important Farmland to Nonagricultural Use as a Result of Spoils Disposal from Channel Dredging.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
<b>Social and Economic Conditions</b>						
Soc-1: Temporary Increase in Employment and Income in the Local Area during Project Construction.	X		2A–2C, 3B, 4B	Beneficial impact	None required.	Beneficial impact
Soc-2: Temporary Increase in Demand for Housing in the Local Area during Project Construction.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Soc-3: Disruption of Local Businesses as a Result of Construction of the Gates.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
Soc-4: Permanent Increase in Employment and Income in the Local Area during Project Operation.	X		2A–2C, 3B, 4B	Beneficial impact	None required.	Beneficial impact

**Table 4-1.** Continued

Resource Topic/Impact	Stage		Applicable Alternative	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
	1	2				
Soc-5: Increase in Demand for Housing in the Local Area.	X		2A-2C, 3B, 4B	No impact	None required.	No impact
Soc-6: Disruption of Local Businesses as a Result of Operation of the Gates.	X		2A-2C, 3B, 4B	Less than significant	None required.	Less than significant
Soc-7: Change in Economic Benefits in the SWP and CVP Service Areas as a Result of Operating the Gates.		X	2A-2C, 3B, 4B	Less than significant	None required.	Beneficial impact
<b>Utilities and Public Services</b>						
PUB-1: Disruption of Electric Service.	X		2A-2C	Less than significant	None required.	Less than significant
PUB-2: Reduction in Capacity of Local Solid Waste Landfills.	X		2A-2C	Less than significant	None required.	Less than significant
PUB-3: Disruption of Public Utilities.	X		2A-2C	Less than significant	None required.	Less than significant
PUB-4: Increase in Emergency Service Response Times.	X		2A-2C	Less than significant	None required.	Less than significant
PUB 5: Increased Use of Energy.	X		2A-2C	Less than significant	None required.	Less than significant
PUB-6: Disruption of Public Utilities during Channel Dredging.	X		2A-2C	Less than significant	None required.	Less than significant
<b>Recreation Resources</b>						
REC-1: Temporary Disruption to Recreational Opportunities during Construction of Gates.	X		2A-2C, 3B, 4B	Less than significant	None required.	Less than significant
REC-2: Disruption of Recreation Opportunities from Permanent Gates.	X		2A-2C, 3B, 4B	Less than significant	None required.	Less than significant
REC-3: Reduced Accessibility to Commercial Recreation Facilities because of Gates.	X		2A-2C, 3B, 4B	Less than significant	None required.	Less than significant

**Table 4-1.** Continued

Resource Topic/Impact	Stage		Applicable Alternative	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
	1	2				
REC-4: Conflict with Applicable Policies and Regulations.	X		2A–2C	No impact	None required.	No impact
REC-4: Conflict with Applicable Policies and Regulations.	X		3B, 4B	Less than significant	None required.	Less than significant
REC-5: Alteration of Present Patterns of Recreational Navigation in Waterways.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
REC-6: Change in Water-Dependent and Water-Enhanced Recreation Opportunities in the South Delta.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
REC-7: Temporary Disruption to Recreational Opportunities during Dredging Operations.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
REC-8: Change in Water-Dependent and Water-Enhanced Recreation Opportunities at North-of-Delta Reservoirs and Rivers.		X	2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
REC-9: Change in Water-Dependent and Water-Enhanced Recreation Opportunities at SWP South-of-Delta Reservoirs.		X	2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
<b>Power Production and Energy</b>						
POW-1: Potential Changes in SWP Electricity Generation and Consumption as a Result of Operating the Temporary Barriers.			1	Less than significant	None required.	Less than significant
POW-2: Increased Electricity Consumption as a Result of Operating the Temporary Barriers.			1	Less than significant	None required.	Less than significant
POW-3: Increased Electricity Consumption as a Result of Operating the Fish Control and Flow Control Gates.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
POW-4: Potential Changes in SWP Electricity Generation and Consumption.		X	2A–2C, 3B, 4B	Less than significant	None required.	Less than significant

**Table 4-1.** Continued

Resource Topic/Impact	Stage		Applicable Alternative	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
	1	2				
POW-5: Potential Changes in CVP Electricity Generation and Consumption.		X	2A-2C, 3B, 4B	Less than significant	None required.	Less than significant
<b>Visual/Aesthetic</b>						
VR-1: Temporary Visual Changes as a Result of Construction Activities.	X		2A-2C, 3B, 4B	Less than significant	None required.	Less than significant
VR-2: Changes in Local Scenic Character and Quality at the Head of Old River Fish Control Gate Site.	X		2A-2C, 3B, 4B	Less than significant	None required.	Less than significant
VR-3: Changes in Views at the Head of Old River Fish Control Gate Site.	X		2A-2C, 3B, 4B	Significant	VR-MM-1: Implement Measures to Reduce Visual Intrusion.	Less than significant
VR-4: Changes in Light and Glare at Head of Old River.	X		2A-2C, 3B, 4B	Significant	VR-MM-1: Implement Measures to Reduce Visual Intrusion.  VR-MM-2: Incorporate Lighting Design Specifications for Minimum Maintenance and Access Safety Standards	Less than significant
VR-5: Inconsistency with Local Visual Policies.	X		2A-2C, 3B, 4B	Less than significant	None required.	Less than significant
VR-6: Temporary Visual Changes as a Result of Construction Activities.	X		2A-2C, 3B	Less than significant	None required.	Less than significant
VR-7: Changes in Local Scenic Character and Quality at the Middle River Gate Site.	X		2A-2C, 3B	Less than significant	None required.	Less than significant
VR-8: Changes in Views of the Middle River Gate Site.	X		2A-2C, 3B	Less than significant	None required.  VR-MM-1: Implement Measures to Reduce Visual Intrusion.	Less than significant



**Table 4-1.** Continued

Resource Topic/Impact	Stage		Applicable Alternative	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
	1	2				
VR-9: Changes in Light and Glare at the Middle River Gate Site.	X		2A–2C, 3B	Significant	VR-MM-1: Implement Measures to Reduce Visual Intrusion.  VR-MM-2: Incorporate Lighting Design Specifications for Minimum Maintenance and Access Safety Standards.	Less than significant
VR-10: Inconsistency with Local Visual Policies.	X		2A–2C, 3B	Less than significant	None required.	Less than significant
VR-11: Temporary Visual Changes as a Result of Construction Activities at Grant Line Canal.	X		2A–2C	Less than significant	None required.	Less than significant
VR-12: Changes in Local Scenic Character at the Grant Line Canal Gate Site.	X		2A–2C	Significant	VR-MM-1: Implement Measures to Reduce Visual Intrusion.	Less than significant
VR-13: Changes in Views at the Grant Line Canal Gate Site.	X		2A–2C	Less than significant	None required.	Less than significant
VR-14: Changes in Light and Glare at the Grant Line Canal Gate Site.	X		2A–2C	Significant	VR-MM-1: Implement Measures to Reduce Visual Intrusion.  VR-MM-2: Incorporate Lighting Design Specifications for Minimum Maintenance and Access Safety Standards.	Less than significant
VR-15: Inconsistency with Local Visual Policies at the Grant Line Canal Gate Site.	X		2A–2C	Significant	VR-MM-1: Implement Measures to Reduce Visual Intrusion.	Less than significant
VR-16: Temporary Visual Changes as a Result of Construction Activities at the Old River at DMC Flow Control Gate Site.	X		2A–2C, 3B	Less than significant	None required.	Less than significant
VR-17: Changes in Local Scenic Character at the Old River at DMC Flow Control Gate Site.	X		2A–2C, 3B	Significant	VR-MM-1: Implement Measures to Reduce Visual Intrusion.	Less than significant
VR-18: Changes in Views at the Old River at DMC Flow Control Gate Site.	X		2A–2C, 3B	Significant	VR-MM-1: Implement Measures to Reduce Visual Intrusion.	Less than significant

**Table 4-1.** Continued

Resource Topic/Impact	Stage		Applicable Alternative	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
	1	2				
VR-19: Changes in Light and Glare at the Old River at DMC Flow Control Gate Site.	X		2A–2C, 3B	Significant	VR-MM-2: Incorporate Lighting Design Specifications for Minimum Maintenance and Access Safety Standards.	Less than significant
VR-20: Inconsistency with Local Visual Policies at the Old River at DMC Flow Control Gate Site.	X		2A–2C, 3B	Significant	VR-MM-1: Implement Measures to Reduce Visual Intrusion.	Less than significant
VR-21: Changes in Views as a Result of Channel Dredging.	X		2A–2C, 3B	Less than significant	None required.	Less than significant
VR-22: Changes in Light and Glare as a Result of Dredging Activities.	X		2A–2C, 3B	Less than significant	None required.	Less than significant
VR-23: Inconsistency with Local Visual policies.	X		2A–2C, 3B	Less than significant	None required.	Less than significant
VR-24: Impacts on Local Scenic Character of the State Water Project.		X	2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
<b>Cultural Resources</b>						
CR-1: Physical Alterations to Levees Resulting in Changes in Historic Integrity.	X		2A–2C, 3B, 4B	No impact	None required.	No impact
CR-2: Inadvertent Damage to or Destruction of Buried Archaeological Sites and Human Remains.	X		2A–2C, 3B, 4B	Significant	CR-MM-1: Stop Work If Archaeological Materials Are Discovered during Construction or Dredging. CR-MM-2: Stop Work If Human Remains Are Discovered during Construction or Dredging.	Less than significant
CR-3: Visual Intrusions to the Historic Setting of Cultural Resources from Gate Construction.	X		2A–2C, 3B, 4B	No impact	None required.	No impact
CR-4: Disturbance of West Canal.	X		2A–2C, 3B, 4B	No impact	None required.	No impact

**Table 4-1.** Continued

Resource Topic/Impact	Stage		Applicable Alternative	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
	1	2				
<b>Public Health and Environmental Hazards</b>						
HAZ-1: Exposure to or Release of Hazardous Materials during Construction.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
HAZ-2: Increase in Emergency Response Times.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
HAZ-3: Exposure to or Release of Hazardous Materials during Operation	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
HAZ-4: Increase in Mosquito Breeding Habitat from Creation of Settling Ponds.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
HAZ-5: Water Quality Degradation, Resuspension of Contaminants, and Exposure to Hazardous Materials from Dredging Activities.	X		2A–2C, 3B, 4B	Less than significant	None required.	Less than significant
<b>Environmental Justice</b>						
No impacts						
<b>Indian Trust Resources</b>						
No impacts.						
Notes:						
cfs = cubic feet per second.						
CVP = Central Valley Project.						
NO <sub>x</sub> = oxides of nitrogen.						
PM10 = particulate matter 10 microns or less in diameter.						
SWP = State Water Project.						