

# South Delta Improvements Program

## Executive Summary

### Introduction

Dating back to 1991, actions have been proposed by the California Department of Water Resources (DWR) and the U.S. Department of the Interior, Bureau of Reclamation (Reclamation) to improve water supply for south Delta agriculture, improve fish protection, and increase the amount and reliability of water supply for the State Water Project (SWP) and the Central Valley Project (CVP). In 2000, these proposed actions were incorporated into the State and Federal multi-agency CALFED Bay-Delta Program (CALFED Program) to improve the condition of all beneficial uses of water in the San Francisco Bay/Sacramento–San Joaquin River Delta (Bay-Delta) Estuary.

Consistent with the CALFED Program, DWR and Reclamation have now prepared a joint Draft Environmental Impact Statement/Environmental Impact Report (EIS/EIR) to implement the South Delta Improvements Program (SDIP). SDIP represents the next important step in meeting the objective of sound water management and coordination between state and federal water projects. This Draft EIS/EIR is designed to be fully consistent with CALFED’s overall goals of water supply reliability, water quality, ecosystem restoration, and levee system integrity.

The SDIP alternatives consist of two major components: a physical/structural component and an operational component. The SDIP physical/structural component includes the construction and operation of permanent operable gates at up to four locations in south Delta channels to protect fish and meet the water level and, through improved circulation, water quality needs for local irrigation diversions; channel dredging to improve water conveyance; and modification of 24 local agricultural diversions (Figure ES-1). The operational component considers raising the permitted diversion limit into the SWP Clifton Court Forebay (CCF) from 6,680 cubic feet per second (cfs) to 8,500 cfs.

DWR worked with a broad coalition of stakeholders including Reclamation to develop alternative operational scenarios for the SDIP operational component. This process, referred to as the 8,500 Stakeholders Process, included representatives of resource agencies, water agencies and districts, and environmental groups. Facilitated meetings were held through most of 2002 producing four operational component scenarios. One operational scenario was subsequently dropped because it did not provide the CVP with reliable capacity

for exporting CVP supplies via CCF and SWP Banks Pumping Plant (SWP Banks). Of the remaining three, one was modified after discussions with CVP and SWP contractors in the summer of 2003 to improve integrated operation of the SWP and CVP. Each of these operational scenarios is evaluated in combination with at least one proposed physical/structural component in the Draft EIS/EIR.

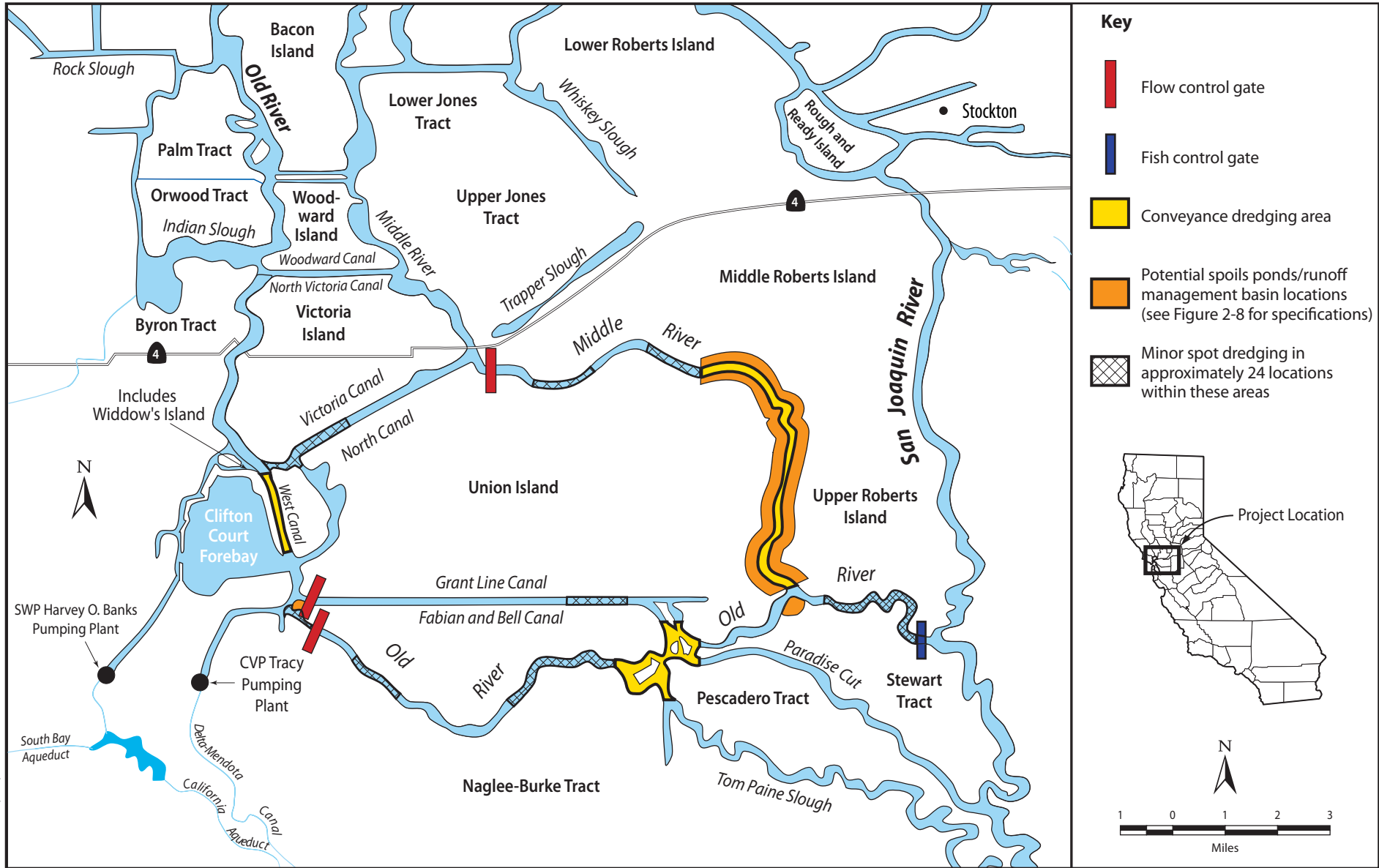
## SDIP Decision Stages

After certifying and filing the Final EIS/EIR for the SDIP, DWR and Reclamation will each adopt a project and issue a decision during each of two stages of the SDIP decision-making process. Stage 1 will include making a decision on the physical/structural component. For this decision, DWR will assume the existing operational rules including the permitted limit for SWP diversions at CCF. DWR will issue a Notice of Determination (NOD) and Reclamation will issue a Record of Decision (ROD) for the decision regarding the actions and mitigation needed to implement any physical/structural component adopted during the Stage 1 decision-making process. The added flexibility and adaptability provided by the physical/structural component alone will achieve, to some extent, each of the SDIP objectives, regardless of the operational decision made during Stage 2.

The decision-making process for Stage 2 will begin after the Stage 1 decision is made. Assuming a physical/structural component is selected in Stage 1, Stage 2 will include the selection of the preferred operational component, based upon the operational scenarios presented in the Draft EIS/EIR and incorporating public input, and additional information collected on the condition of pelagic organisms in the Delta. During this stage, and prior to the selection of the preferred operational component, the public will be provided the opportunity to comment on the preferred operational component. A supplemental document for NEPA and CEQA compliance describing the preferred operational component will be made available for public review for at least 45 days prior to finalizing the decision on the operational component. A second NOD from DWR and an ROD from Reclamation regarding the selection of the preferred operational component will complete the environmental analysis for Stage 2 of the SDIP. More information about this process is presented below in the 'Public Involvement and Next Steps' section.

## The Need, Purpose, and Objectives of the SDIP

The SDIP is being pursued to address the needs of the Delta aquatic environment, as well as longstanding statewide, regional, and local water supply needs. Flows into and out of the Delta can have a major effect on these resources. Fish survival as well as water quality and quantity in the south Delta is affected by the natural split of San Joaquin River flow at the head of Old River; tidal fluctuation; local diversions; local agricultural return flows; channel capacity resulting in



**Figure ES-1**  
**Preferred Physical/Structural Component**

restricted circulation; and water exports. The SDIP is proposed in response to three important water management needs:

- Under natural conditions, about half the flow in the San Joaquin River flowed down Old River. The operations of the SWP and CVP export facilities in the south Delta can change flow patterns in the local channels. These factors can cause migrating San Joaquin River fall-/late fall–run Chinook salmon, a candidate for listing under the federal Endangered Species Act, to move into the south Delta, primarily through Old River where fish mortality increases due to predators and higher levels of exposure to export facilities and agricultural diversions. Keeping fall-/late fall–run Chinook salmon in the main channel of the San Joaquin River until they reach the central Delta may increase survival.
- Local South Delta water users downstream of the head of Old River are affected by water quality and water levels at each intake location. Water levels are influenced by many factors, one of which is diversions in the south Delta by the SWP and CVP. In addition, there are opportunities to improve circulation and therefore water quality in the south Delta.
- There are unmet water supply needs, with respect to quantity and reliability of deliveries, south of the Delta for agriculture, municipal and industrial, and environmental uses.

DWR and Reclamation have, therefore, identified the following project objectives and purpose:

- 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, through improved circulation, water quality available for agricultural diversions in the south Delta, downstream of the head of Old River; and
- increase water deliveries and delivery reliability for SWP and CVP water contractors south of the Delta and provide opportunities to convey water for fish and wildlife purposes by increasing the maximum permitted level of diversion through the existing intake gates at CCF to 8,500 cfs.

Meeting these objectives by implementing the SDIP will provide increased operational flexibility and the ability to respond to real-time fish conditions while improving water supply reliability.

## SDIP Alternatives

The SDIP consists of a physical/structural component combined with an operational component designed to meet the purpose and objectives of the project. Alternatives, along with the No Action alternative, have been evaluated in the Draft EIS/EIR and are shown in Table ES-1. The alternative

physical/structural components are shown as 2, 3, and 4. The preferred physical/structural component is identified as 2. The alternative operational components are shown in Table ES-1 as A, B, and C. There is no preferred operational component identified in the Draft EIS/EIR. The selected physical/structural component combined with the existing operational rules, including the permitted limit for SWP diversions at CCF, will be used to develop appropriate mitigation measures for the Stage 1 decision. The preferred operational component and any additional appropriate mitigation measures will be developed during Stage 2 and will not be selected until after the Stage 1 decision is made.

The following describes the basic actions related to the physical/structural component and the operational component of the SDIP:

### **Physical/Structural Component Actions**

- *Replace the seasonal barrier with a permanent operable fish control gate on Old River*

Where Old River splits from the San Joaquin River, a permanent operable fish control gate will be constructed and operated to keep young salmon in the San Joaquin River as they migrate to the ocean in the spring. In the fall, and in coordination with other water management needs in the south Delta, the gate will be operated to improve dissolved oxygen in the San Joaquin River for adult salmon in the river as they migrate upstream.

- *Replace inefficient seasonal barriers with permanent operable flow control gates on Middle River, Grant Line Canal and Old River*

Up to three permanent operable flow control gates will be constructed and operated to allow water to flow during times of high water and flooding, while maintaining water levels in Delta channels for local water users during the irrigation season. The flow control gates will also improve water circulation, helping to manage water quality in the south Delta.

- *Dredge portions of Middle River, Old River, and West, Grant Line, Victoria and North Canals to improve flows in the south Delta channels*

Portions of Middle River, Old River, and West Canal would be dredged to improve conveyance and the operation of private local agricultural siphons and pumps for irrigation. Siphons and pumps in Old River, Grant Line, North, and Victoria Canals would be extended and dredged around to ensure diversion capability.

### **Operational Component Action**

- *Increase permitted limit for diversions into Clifton Court Forebay*

SWP Banks Pumping Plant (SWP Banks) has an existing installed pumping capacity of 10,300 cfs. Flow diverted from the Delta into Clifton Court Forebay, which is pumped by SWP Banks, is limited by permit to 6,680 cfs except in July-September when an additional 500 cfs is allowed for the Environmental Water Account (EWA) and during winters when the San

**Table ES-1.** South Delta Improvements Program Alternatives

Alternative	Existing Temporary Barriers and 6,680 cfs	Operational Components			Physical/Structural Components						
		8,500 cfs (A)	8,500 cfs (B)	8,500 cfs (C)	Head of Old River Fish Control Gate <sup>3</sup>	Flow Control Gates			Conveyance Dredging <sup>1</sup>	Spot Dredging <sup>2</sup>	Agricultural Diversions Extension
						Middle River	Old River at DMC	Grant Line Canal			
No Action	X										
2A		X			X	X	X	X	X	X	X
2B			X		X	X	X	X	X	X	X
2C				X	X	X	X	X	X	X	X
3B			X		X	X	X		X	X	X
4B			X		X				X	X	X

Notes:

<sup>1</sup> In Middle River, West Canal, and Old River.

<sup>2</sup> In Victoria, North, and Grant Line Canals, and in Old River and Middle River.

<sup>3</sup> Construction of Head of Old River fish control gate is required by CVPIA.

Joaquin River flow is above 1000 cfs. Increasing the permitted limit for diversions into CCF from 6,680 cfs to 8,500 cfs will provide opportunities to increase water deliveries to SWP and CVP contractors and for environmental uses south of the Delta by improving the operational flexibility of SWP Banks. The additional permitted capacity could also be used by those seeking to transfer water. This Draft EIS/EIR evaluates three proposed scenarios for the operational component using this increased capacity for a range of exports.

While the permitted capacity for diversions into CCF could increase by up to 27%, the ability to use this capacity is extremely limited by water availability and environmental conditions. The operational scenarios analyzed in the Draft EIS/EIR would increase the average amount of water diverted for SWP and CVP contract deliveries and environmental uses from less than 1% to 3%. Figure ES-2 shows how each of the operational scenarios evaluated for the operational component would affect Delta exports compared to the No Action alternative.

Water transfers can vary significantly from year to year. Historically during wet years, transfers are minimal and during dry years, transfers can reach 600,000 acre-feet. If 600,000 acre-feet of transfers were sought every year, wet or dry, analysis shows the average amount of water diverted would increase by about 2% as a result of implementing any of the operational scenarios. This additional amount of water is approximately 100,000 acre-feet per year for each operational scenario (Figure ES-2). Therefore, the total average increase in water diverted for SWP and CVP contract deliveries, environmental uses, and transfers would be less than 3% to 5% depending upon the specific operational scenario.

## Impacts and Mitigation Measures

DWR and Reclamation are proposing SDIP as a self-mitigating project where each significant impact identified in the EIS/EIR has a corresponding mitigation measure that reduces the potentially significant impact to a less-than-significant level. The impacts identified in the EIS/EIR as significant, and corresponding mitigation that will reduce impacts to less than significant levels, are presented in Table ES-2. Mitigation needed for impacts that would occur due to implementing the Stage 2 decision would not be adopted until the Stage 2 decision is made.

Approximately 14 acres of nonjurisdictional riparian habitat, 1 acre of tule and cattail tidal emergent wetland, and 6 acres of tidal perennial aquatic habitat would be purchased to offset impacts to terrestrial biological resources resulting from the construction and operation of the gates, dredging, and other construction activities during the implementation of the Stage 1 decision. Depending on the results of preconstruction surveys, DWR and Reclamation may also need to purchase Mason's lilaeopsis habitat at a ratio of 5–10 acres per acre affected by the project.

An expanded Environmental Water Account (EWA) program as described in the CVP/SWP Operation Criteria and Plan (OCAP), or the implementation of an avoidance-and-crediting system augmenting the current EWA program, would be implemented to avoid diversion effects on fish resulting from implementing the Stage 2 decision. Therefore, these measures would be adopted if necessary during the Stage 2 decision-making process.

Bottom-hinged lift gates, the preferred design, allow an array of permanent gate operations to regulate water flows to benefit water quality and environmental conditions. The CCF intake gates would be operated to allow flushing of south Delta channels. The Middle River and Old River flow control gates would be operated to maintain a higher water elevation for a longer period of time, and the head of Old River gate would only be fully closed during the Vernalis Adaptive Management Period (VAMP) in April and May.

In addition, 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. DWR and Reclamation will also jointly develop criteria to address any stage deficiencies at the Tracy Pumping Plant due to transfers through the SWP Banks Pumping Plant prior to the transfers occurring.

## Environmental Commitments

As part of the project planning and environmental assessment process, DWR and Reclamation will incorporate certain environmental commitments and best management practices (BMPs) into the SDIP to avoid or minimize potential impacts when implementing the applicable components of the SDIP. DWR and Reclamation will also coordinate planning, engineering, design, construction, operation, and maintenance of the project with the appropriate agencies when implementing the applicable components of the SDIP. These commitments will be incorporated into the project and include:

- certain studies recommended by the California Department of Fish and Game,
- adaptive management of gate operations,
- coordination with south Delta water users,
- coordination with marinas and other recreational facilities,
- erosion and sediment control plan
- stormwater pollution prevention plan,
- dredging sampling and analysis plan,
- traffic and navigation control plan and emergency access plan,
- hazardous materials management plan, and
- appropriate dredged material disposal.



**Table ES-2.** Summary of Significant Impacts, Mitigation Measures, and Mitigation Costs 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>Geology, Seismically, 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
<b>Air Quality</b>						
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
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-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
<b>Fisheries</b>						
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-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

**Table ES-2.** 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	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
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-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-73: Operations-Related Increases in SWP Pumping and Resulting Entrainment Losses of Striped Bass.		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.  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	2A, 2C	Significant	Fish-MM-3: Minimize Entrainment Losses of Delta Smelt Associated with Increased SWP Pumping.	Less than significant

**Table ES-2.** Continued

Resource Topic/Impact	Stage		Applicable Alternative	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
	1	2				
<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-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
VEG-5: Loss or Disturbance of Mason’s Lilaopsis Stands or Potential 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-4: Conduct Preconstruction Surveys for Special-Status Plants. VEG-MM-5: Minimize Impacts on and Compensate for Loss of Mason’s Lilaopsis. VEG-MM-6: Monitor Existing Stands of Mason’s Lilaopsis during Gate Operations.	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	VEG-MM-1: Minimize Impacts on Sensitive Biological Resources. VEG-MM-4: Conduct Preconstruction Surveys for Special-Status Plants. VEG-MM-5: Minimize Impacts on and Compensate for Loss of Mason’s Lilaopsis. VEG-MM-6: Monitor Existing Stands of Mason’s Lilaopsis during Gate Operations.	Less than significant

**Table ES-2.** Continued

Resource Topic/Impact	Stage		Applicable Alternative	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
	1	2				
VEG-7: Loss of Rose-Mallow Stands 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-4: Conduct Preconstruction Surveys for Special-Status Plants.  VEG-MM-7: Avoid and Minimize Impacts on Special-Status Plants.  VEG-MM-8: Compensate for Unavoidable Impacts on Tule and Cattail Tidal Emergent Wetlands.	Less than significant
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
<b>Wildlife</b>						
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 ES-2.** 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-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 ES-2. 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 ES-2.** 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

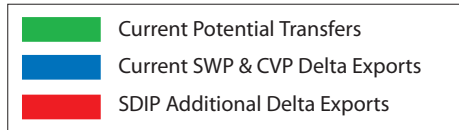
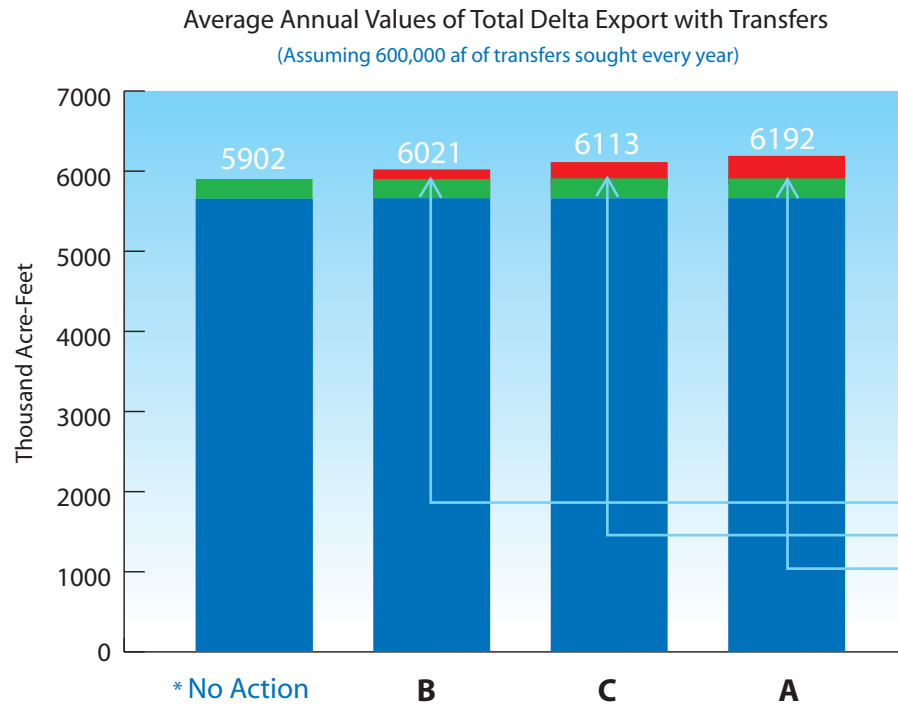
Resource Topic/Impact	Stage		Applicable Alternative	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
	1	2				
WILD-14: Loss of Tricolored Blackbirds or Suitable Nesting Habitat as a Result of Gate Construction, Channel Dredging, and Siphon Extensions.	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 ES-2.** Continued

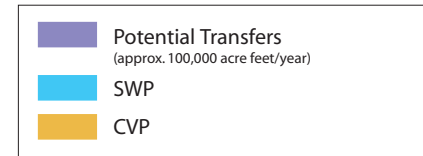
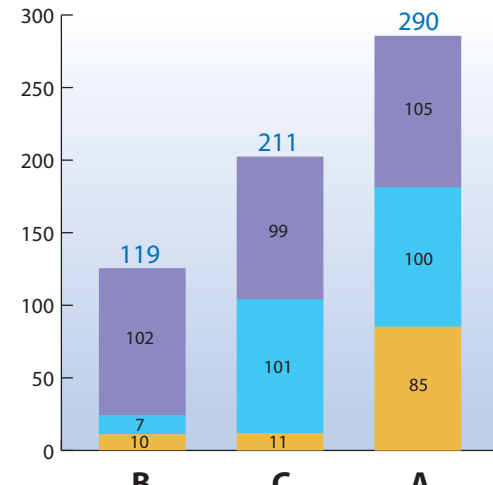
Resource Topic/Impact	Stage		Applicable Alternative	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
	1	2				
WILD-16: Loss or Disturbance of California Black Rail or Suitable Nesting Habitat as a Result of Gate Construction, Channel Dredging, and Siphon 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
<b>Visual/Aesthetic</b>						
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-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-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-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

Resource Topic/Impact	Stage		Applicable Alternative	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
	1	2				
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
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
<b>Cultural Resources</b>						
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
Notes:						
cfs = cubic feet per second.						
CVP = Central Valley Project.						
NOx = oxides of nitrogen.						
PM10 = particulate matter 10 microns or less in diameter.						
SWP = State Water Project.						



\* 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

02053.02.101.07/22/05

## SDIP Costs

In total, up to \$24 million is proposed to fund protection and restoration of fish habitat in the Delta and wildlife habitat, and to study the effectiveness of mitigation for the special-status fish and wildlife species. Of this \$24 million, \$2 million would be allocated to the indirect effects conservation measure only applicable to the Stage 2 decision, and the \$6 million allocated for fishery investigations would be applicable to both the Stage 1 and Stage 2 decisions. Table ES-3 shows the estimated cost of constructing and operating the SDIP physical/structural and operational components, and the estimated cost for mitigation, enhancement, and conservation actions.

**Table ES-3.** SDIP Estimated Costs for Construction, Operations and Maintenance, and Mitigation, Enhancement, and Conservation

Action	Estimated Cost (\$)	Yearly Estimated Cost (\$)
<b>Construction</b>		
Permanent operable gates	75 million	
Dredging	9 million	
Agricultural Extensions	2.5 million	
<b>Operations &amp; Maintenance</b>		Up to 1 million
<b>Mitigation, Enhancement, and Conservation</b>		
Acquire and Restore Habitats in the South Delta	10 million	
Mitigation for other project impacts (e.g., dredging impacts)	Up to 6 million	
Fishery Investigations <sup>1</sup>	6 million <sup>1</sup>	
Indirect Effects Conservation Measure <sup>2</sup>	2 million <sup>2</sup>	
<b>Total</b>	110.5 million	Up to 1 million
Notes:		
<sup>1</sup> This amount includes the total mitigation necessary for implementing both Stage 1 and Stage 2 decisions.		
<sup>2</sup> This measure applies to the implementation of the Stage 2 decision.		

## Response to Delta Fish Conditions

During the past three years, there have been significant declines in pelagic (open-water) fish populations in the Delta that demand immediate attention. This unexpected decline cannot be explained by relationships that have been developed in the past among environmental conditions, such as Delta flows, export rates, and fish populations. Efforts to identify the causes for the declines

are being coordinated by the Interagency Ecological Program, an estuary monitoring and research program conducted by six federal and three state agencies with assistance from the CALFED Science Program. Staffing and funding have been redirected and augmented to provide the necessary resources to aggressively and fully evaluate whether and how pesticides, invasive species, food sources, and changes in state and federal water project operations might contribute to this serious situation.

The staged decision-making process for SDIP has, in part, been selected in recognition of the uncertainties regarding the causes of the pelagic organism decline. This staged process allows time to take advantage of additional information on the pelagic organism decline that will be expeditiously developed prior to making a decision regarding the operational component. This staged decision-making process allows the actions contained in the physical/structural component to proceed in the near term and construction to be completed by early 2009. Changes in Delta operations that may be possible when SDIP is fully operational will not take place until after construction is completed and the permanent gates are operational (early 2009).

The scientific studies currently underway will not only generate information needed to better understand and address the pelagic fish conditions, but will provide additional guidance for future water management activities in the Delta. The implementation of SDIP would provide greater physical and operational flexibility in responding to changes in Delta environmental conditions and fish populations in the future.

## Public Involvement and Next Steps

CEQA and NEPA require that state and federal agencies, respectively, evaluate the environmental effects of their actions. This Draft EIS/EIR satisfies the requirement to issue a draft analysis for public review prior to implementing an action. In 2002, DWR and Reclamation held public scoping meetings to solicit public comments. In addition, DWR has held two public outreach meetings (December 2004 and April 2005) to introduce the SDIP physical/structural and operational components and some important results of the preliminary analysis. The release of this Draft EIS/EIR continues the open, public debate on the proposed SDIP. This Draft EIS/EIR will undergo public review for 90 days. Public forums and hearings will be held during that time in several locations throughout California to answer questions and to engage in an open dialog on implementing SDIP. Also, regular updates on the SDIP will be provided to both the Delta Protection Commission and the California Bay-Delta Authority (CBDA).

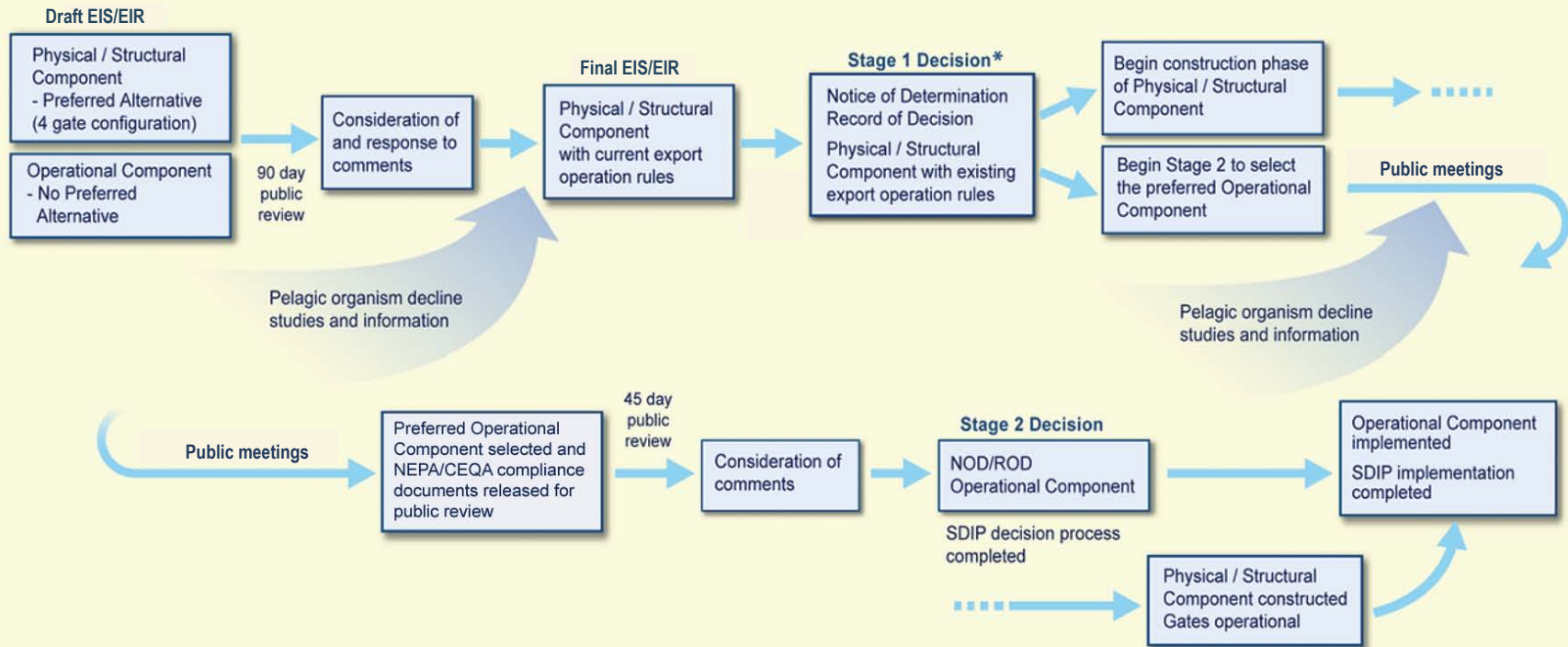
The SDIP is a single project that will be carried out in a two-staged decision process. DWR and Reclamation have identified a preferred physical/structural component of SDIP as gates at four locations in the south Delta. After public comment period for the Draft EIS/EIR, a Final EIS/EIR will be prepared that will

include responses to public and agency comments. DWR and Reclamation will issue a Notice of Determination/Record of Decision for the decision regarding the physical/structural component actions at the end of the Stage 1 decision-making process. No decision regarding the operational component of the SDIP will be made during the Stage 1 process.

For the Stage 1 decision of SDIP, DWR and Reclamation will assume that the current regulatory limits apply regarding SWP export operations. Proposed changes to these operating conditions will be finalized during the Stage 2 decision-making process of SDIP. DWR and Reclamation acknowledge that during the time before Stage 2 is completed, new information may become available about conditions affecting pelagic organisms in the Delta. DWR and Reclamation will complete the additional environmental analysis necessary to select and implement the operational component for Stage 2 pursuant to CEQA and NEPA using the best available information. Figure ES-3 shows the various steps of the decision-making process.

CEQA and NEPA compliance for the decision made under Stage 2 will follow the preparation and circulation of supplemental information as directed by the CEQA Guidelines (see Article 11) and CEQ NEPA Regulations (40 CFR 1502.9(c)). DWR and Reclamation will issue the necessary supplemental document for CEQA and NEPA compliance explaining the preferred operational component, the rationale for its selection, and any additional environmental effects. This document would be available for public comment and review for a period of at least 45 days, consistent with CEQA and NEPA, and will provide opportunity for the public to submit additional comments on the environmental analysis of the operational component of the SDIP. A second Notice of Determination from DWR and an ROD from Reclamation regarding the selection of the preferred operational component will be filed to complete the environmental compliance requirements for Stage 2 of the SDIP. Parties concerned about the operational component in Stage 2 should participate early in the EIS/EIR process and review and comment on this Draft EIS/EIR. With respect to the future decision for Stage 2 that relies upon the SDIP EIS/EIR certified at the time of the NOD for Stage 1, and any supplements to the EIS/EIR, a new CEQA challenge period will commence at the time of the Stage 2 decision for parties to request judicial review of DWR's decision based on any cause of action under CEQA related to the Stage 2 decision. In any decision for Stage 2, DWR will state in the Notice of Determination that DWR has relied in part upon the SDIP EIS/EIR certified in Stage 1 and intends that those aspects of the SDIP EIS/EIR relied upon in the Stage 2 decision will be subject to further judicial review.

# South Delta Improvement Program (SDIP) Staged Decision and Implementation Process



\* Note: It is possible that the No Action Alternative (Existing export operation rules and temporary barriers) would be selected in Stage 1. If this occurs, there would be no construction phase and continuing with a second stage that addresses both the Physical / Structural Component and the Operational Component would be considered.

02053.02.101