

Supplemental Environmental Assessment

Interim Flows Project – Water Year 2011



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List of Abbreviations and Acronyms

Act	San Joaquin River Restoration Settlement Act
ATR	Annual Technical Report
BA	Biological Assessment
Banks	Harvey O. Banks Pumping Plant
BNLL	Blunt Nose Leopard Lizard
BO	Biological Opinion
CCR	California Code of Regulations
CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
cfs	cubic feet per second
CVP	Central Valley Project
Delta	Sacramento-San Joaquin Delta
D-1641	Water Rights Decision 1641
DMC	Delta Mendota Canal
DO	Dissolved Oxygen
DPS	Distinct Population Segment
DWR	Department of Water Resources
EA	Environmental Assessment
EFH	Essential Fish Habitat
ESA	Endangered Species Act
FERC	Federal Energy Regulatory Commission
FONSI	Finding of No Significant Impact
FONNSI	Finding of No New Significant Impact
IS	Initial Study
Jones	C.W. Bill Jones Pumping Plant
MND	Mitigated Negative Declaration
MSFCMA	Magnuson-Stevens Fishery Conservation and Management Act
NEPA	National Environmental Policy Act

San Joaquin River Restoration Program

NMFS	National Marine Fisheries Service
NOI	Notice of Intent
NOP	Notice of Preparation
NRDC	Natural Resources Defense Council
NTU	Nephelometric Turbidity Unit
PEIS/R	Program Environmental Impact Statement/Report
RA	Restoration Administrator
Reclamation	U.S. Department of the Interior, Bureau of Reclamation
ROD	Record of Decision
RPA	Reasonable and Prudent Alternative
Settlement	Stipulation of Settlement in <i>NRDC, et al. v. Kirk Rodgers, et al.</i>
SJR	San Joaquin River
SJRRP	San Joaquin River Restoration Program
State	State of California
SMND	Subsequent Mitigated Negative Declaration
SWP	State Water Project
SWAMP	Surface Water Ambient Monitoring Program
SWRCB	State Water Resources Control Board
TAF	Thousand Acre-Feet
µ/L	Micrograms per Liter
USC	United States Code
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VAMP	Vernalis Adaptive Management Plan
WY	Water Year

1.0 Introduction and Statement of Purpose and Need

1.1 Introduction

The San Joaquin River Restoration Program (SJRRP) was established in late 2006 to implement the Stipulation of Settlement in *NRDC, et al. v. Kirk Rodgers, et al.* (Settlement). As an initial action to guide implementation, the Settlement required that the U.S. Department of the Interior, Bureau of Reclamation (Reclamation), modify releases from Friant Dam beginning in Water Year 2010 (WY 2010 or from October 1, 2009, to September 30, 2010). As described in the Settlement, water releases from Friant Dam prior to release of full Restoration Flows are referred to as Interim Flows. Reclamation, as the lead agency under the National Environmental Policy Act (NEPA), and the California Department of Water Resources (DWR), as the lead agency under the California Environmental Quality Act (CEQA) prepared an Environmental Assessment/Initial Study (EA/IS) to evaluate activities necessary to convey the flows in the San Joaquin River from Friant Dam to the Sacramento-San Joaquin Delta (Delta), and to conduct data collection and monitoring activities during Interim Flow releases during Water Year (WY) 2010. The Draft EA/IS for the WY 2010 Interim Flows Project was made available for public comment on June 3, 2009. Public and agency comments were reviewed and responses to comments were incorporated in the Final EA/IS (herein referred to the WY 2010 Final EA/IS and included as Appendix A of this document). Reclamation approved the Finding of No Significant Impact (FONSI) and DWR adopted the Mitigated Negative Declaration (MND) on September 25, 2009.

The intent of the Interim Flows Project is to allow data to be collected on flows, temperatures, fish needs, seepage losses, and water recirculation, recapture, and reuse. These data will be useful in evaluating channel characteristics and capacity, infiltration losses, levee stability and seepage, water temperature, fish management, and recapture conditions. This Supplemental EA is being prepared to extend the period of modified releases of water from Friant Dam for one additional year (WY 2011 or October 1, 2010 to September 30, 2011) in accordance with the flow schedule in Exhibit B of the Settlement, and in a manner consistent with Federal, State and local laws, and any agreements with downstream agencies, entities, and landowners. The Proposed Action includes continuation of activities necessary to convey the flows in the San Joaquin River from Friant Dam to the Delta, and to continue data collection and monitoring activities during Interim Flow releases consistent with the provisions and conditions described in the WY 2010 Final EA/IS. Authorization for implementing the Settlement, including release of WY 2011 Interim Flows, is provided in the San Joaquin River Restoration Settlement Act (Act) (Public Law 111-11).

Although the WY 2010 Final EA/IS was a joint federal and state environmental document, it has been determined that a Supplemental EA will be prepared to satisfy the requirements of the National Environmental Policy Act (NEPA). DWR does not have the same discretionary action necessary to implement WY 2011 Interim Flow releases as described in the WY 2010 Final EA/IS. Therefore, there is not a California Environmental Quality Act (CEQA) review requirement for DWR related to the release of WY 2011 Interim Flows. Reclamation is preparing this Supplemental EA consistent with its lead role in preparing the future Program Environmental Impact Statement/Report (PEIS/R) for the implementation of the Settlement and the San Joaquin River Restoration Settlement Act (Act).

The WY 2010 Interim Flows Project, as approved and authorized, is currently underway. The purpose of this Supplemental EA is to describe and analyze the effects of an additional year of Interim Flows for WY 2011. This document extends the project originally described in the WY 2010 Final EA/IS for one additional year, but generally does not change other aspects of the project. This Supplemental EA includes a review of the WY 2010 Final EA/IS, synthesizes discussions/results where conditions have not changed, and evaluates potential impacts due to implementation of WY 2011 Interim Flows in consideration of changed conditions or new data/information that have occurred since the approval of the WY 2010 Final EA/IS. The results of this Supplemental EA will provide the basis for determining whether a Finding of No New Significant Impact (FONNSI) can be issued or if additional environmental review such as an Environmental Impact Statement is required.

Additionally, Reclamation will submit a petition for temporary transfer of water (less than 1 year), pursuant to California Water Code Section 1725 et seq., to address the release and redirection of WY 2011 Interim Flows. In acting on a water right petition, the State Water Resources Control Board (SWRCB) must consider potential impacts to other legal users of the water, and whether there would be any unreasonable effects from the transfer on fish, wildlife, or other instream beneficial uses. This Supplemental EA will be used to support Reclamation's petition to the SWRCB.

1.2 Purpose and Need for the Proposed Action

1.2.1 Project Background

In 1988, a coalition of environmental groups, led by the Natural Resources Defense Council (NRDC), filed a lawsuit challenging renewal of long-term water service contracts between the United States and Central Valley Project (CVP) Friant Division contractors. After more than 18 years of litigation of this lawsuit, known as *NRDC, et al., v. Kirk Rodgers, et al.*, a settlement was reached. On September 13, 2006, the Settling Parties, including NRDC, Friant Water Users Authority, and the U.S. Departments of the Interior and Commerce, agreed on the terms and conditions of the Settlement, which was subsequently approved by the U.S. Eastern District Court of California on October 23, 2006.

The Settlement establishes two primary goals:

- **Restoration Goal** – To restore and maintain fish populations in “good condition” in the main stem San Joaquin River below Friant Dam to the confluence of the Merced River, including naturally reproducing and self-sustaining populations of salmon and other fish.
- **Water Management Goal** – To reduce or avoid adverse water supply impacts on all of the Friant Division long-term contractors that may result from the Interim Flows and Restoration Flows provided for in the Settlement.

The SJRRP will implement the Settlement and the Act. The “Implementing Agencies” responsible for managing and implementing the SJRRP include the U.S. Department of the Interior, through Reclamation and the U.S. Fish and Wildlife Service (USFWS), the U.S. Department of Commerce through the National Marine Fisheries Service (NMFS), and the State of California (State) Natural Resources Agency through DWR and the California Department of Fish and Game (CDFG). The Settlement also stipulates the appointment of a Restoration Administrator (RA), who is to make recommendations to the U.S. Secretary of the Interior (Secretary), in consultation with a technical advisory committee, to help meet the Restoration Goal.

The RA also consults with the Technical Advisory Committee on topics including how River Restoration hydrographs are to be implemented; when Buffer Flows (two releases of up to an additional 10 percent of the applicable hydrograph flows) may be needed; and Interim Flows for data collection purposes.

The Settlement identifies the releases of both Interim Flows and Restoration Flows. The Settlement stipulates the release of Interim Flows beginning no later than October 1, 2009, and continuing until full Restoration Flows begin on January 1, 2014, whichever occurs first. The intent of the Interim Flows release is to enable collection of relevant data on flows, temperatures, fish needs, seepage losses, and water recirculation, recapture, and reuse. Full Restoration Flows are described in Exhibit B of the Settlement that was provided as Appendix B of the WY 2010 Final EA/IS.

The actions proposed by Reclamation to implement Interim Flows in WY 2011 are needed to achieve compliance with the Act. The general approach to defining these actions includes evaluation of information acquired from ongoing investigations, reported in Annual Technical Reports (ATR), recommendations from the various working groups, (e.g., FMWG), such as those presented in annual implementation plans. Routine evaluations of information as it is acquired during the investigations, provides opportunity to modify actions within a water or calendar year. Results will be routinely reported via the SJRRP website (www.restoresjr.net), as they become available, with the expectation that preliminary results will be made available to the appropriate work groups quarterly.

Specific topics related to the overall program objectives that are to be addressed beginning in WY 2010 and will be continued into WY 2011 are identified as Problem Statements in the Draft Annual Technical Report for Fall 2009 Interim Flows (SJRRP

2010c) and targeted actions in the Fisheries Implementation Plan 2009-2010 (SJRRP 2010f). The Problem Statements, presented below, focus on addressing issues related to flow, seepage, and channel capacity (SJRRP 2010c). Fishery issues associated with Interim Flows and prioritized for investigations beginning in WY 2010, also listed below, include water quality, water temperature, aquatic habitat, Hills Ferry Barrier, instream fish passage, spawning habitat, and benthic macroinvertebrate communities. The overall need to address all issues pertinent to eventually defining restoration actions, including restoration flow, habitat restoration or enhancement, channel modifications, to accommodate the Settlement

- Identify the volume of losses and diversions in order to release the necessary volume to meet Gravelly Ford flow targets.
- Identify the volume of water required to support the acquisition of water to meet unexpected seepage losses downstream of Gravelly Ford.
- Identify a relationship between San Joaquin River flow and groundwater levels, to help guide Restoration Flow releases in managing the potential for adverse impacts, including seepage and channel capacity limitations.
- Identify San Joaquin River hydraulics, including channel geometry, sediment mobilization thresholds and rates, and flow routing, sufficient to preserve flow conveyance.
- Evaluate the effectiveness of the Hills Ferry Barrier under a variety of flow conditions, including identify timing and composition of fish species and lifestages that arrive at the barrier, identify problems, limitations and improvements in operation, including evaluation of structural and non-structural barrier modifications and/or locations that may increase barrier effectiveness.
- Conduct a benthic macroinvertebrate assessment to establish baseline measures to estimate the impact of restoration flows and other SJRRP actions on the ecological integrity and water quality conditions, as indicated by changes in assemblages in the Restoration Area.
- Identify and prioritize fish passage barriers in the Restoration Area.
- Quantify potential salmon spawning habitat availability.
- Determine water quality conditions at potential, spring-run Chinook salmon holding pools; monitor water quality with a focus on selenium, dissolved oxygen levels, total ammonia, and nitrogen.
- Document thermal response of upper San Joaquin River Basin water operations in conjunction with environmental conditions, evaluate the relationship between discharge from Millerton Reservoir and water temperatures in the San Joaquin River, including support development and calibration of a temperature model to simulate the relationship between water management operations and water temperatures.

1.2.2 Statement of Purpose and Need for Proposed Action

NEPA regulations require a statement of “the underlying purpose and need to which the agency is responding in proposing the alternatives, including the Proposed Action” (40 Code of Federal Regulations (CFR) 1502.13). CEQA Guidelines require a clearly written statement of objectives, including the underlying purpose of the project (Guidelines Section 15124(b)).

The purpose of the Proposed Action has not changed from WY 2010 and is to implement the provisions of Paragraph 15 of the Settlement pertaining to Interim Flows. The need for action is to support collection of relevant data to guide future releases of Interim Flows and Restoration Flows under the SJRRP. The two key objectives of the Proposed Action are as follows:

- Release of Interim Flows according to the Settlement and the Act, as limited by downstream channel capacities, and consistent with Federal, State, and local laws, and any agreements with downstream agencies and entities.
- Collect data to better evaluate flows, temperatures, fish needs, biological effects, and seepage losses, and water recirculation, recapture, and reuse opportunities for future Interim Flows and Restoration Flows.

1.3 Purpose and Need for this Supplemental EA

1.3.1 Project Background

On June 3, 2009, Reclamation and DWR released the WY 2010 Interim Flows Project Draft EA/IS for public review and comment. The Draft EA/IS (State Clearinghouse #2009061019) identified two alternatives: the No-Action Alternative and the Proposed Action. On September 25, 2009, Reclamation signed the FONSI and DWR signed the MND for the Proposed Action identified in the WY 2010 Final EA/IS.

Interim Flow releases from Friant Dam began at 350 cubic feet per second (cfs) on October 1, 2009. Interim flow releases were increased to 700 cfs on November 1, 2009, and then reduced back to 350 cfs on November 11, 2009. Interim Flows during this period reached downstream of Sack Dam (River Mile 182). Friant Dam releases were decreased from 350 cfs back to riparian demand (approximately 120 cfs) on November 21, 2009.

Interim Flow releases resumed on February 1, 2010 at 350 cfs. On March 1, 2010, Interim Flows increased to 500 cfs and were further increased to 800 cfs on March 16, 2010. The next scheduled Interim Flow increase was to occur on March 25, 2010. However, on March 25, 2010, Reclamation determined that the surface and groundwater system had not yet stabilized and delayed the flow increase to March 29, 2010. Reclamation increased Interim Flow releases from Friant Dam to 1,100 cfs on March 29, 2010, followed by an increase on April 12, 2010, to 1,500 cfs. Subsequent changes in releases, ranging from 1,100 cfs to 1,350 cfs were made between April 13 and May 1,

2010, to achieve a 700 cfs flow downstream of Sack Dam. On May 1, 2010, the Interim Flow release was increased from 1,350 cfs to 1,550 cfs, in order to provide 1,400 cfs at Gravelly Ford. Table 1-1 shows the actual and anticipated Interim Flow releases from February 1 to September 30, 2010.

**Table 1-1
Actual or Anticipated Interim Flow Releases
From Friant Dam From February to September 2010**

Release Date	Friant Dam Release (cfs)	Comment
February 1	350	Begin Calendar Year 2010 Interim Flows
February 11	400	Adjusted to meet Gravelly Ford flow target
February 26	350	Adjusted to meet Gravelly Ford flow target
March 1	500	Adjusted to meet RA flow target
March 16	800	Adjusted to meet RA flow target
March 29	1,100	Adjusted to meet RA flow target
April 12	1,500	Adjusted to meet RA flow target
April 13	1,250	Adjusted to meet target of 700 cfs downstream of Sack Dam, and Mendota Pool Demand
April 17	1,350	Adjusted to meet target of 700 cfs downstream of Sack Dam, and Mendota Pool Demand
April 19	1,100	Adjusted due to water quality concerns in Mendota Pool
April 23	1,350	Adjusted to meet RA flow target and not to exceed 700 cfs downstream of Sack Dam
May 1	1,550	Adjusted to meet RA flow target and Mendota Pool Demand
July 1	350	Estimated release through October 1

The Interim Flows listed in Table 1-1 are consistent with the Settlement and are guided by Reclamation’s determination of water year type. In February 2010, Reclamation declared a normal-dry water year; however, based on increased inflows into Millerton Reservoir, on April 1, 2010, Reclamation declared a normal-wet year. The water year type determination is not finalized until June. As such, the water year type and the total flow releases are subject to additional adjustments if inflow conditions to Millerton Reservoir change. However, all flows will be limited such that no flooding or seepage

impacts are expected to occur. Reclamation is prepared to reduce flows, if necessary, if information from the groundwater monitoring network or from local landowners indicates that seepage or related impacts may occur.

The original schedule indicated that Interim Flows from October 1, 2009 through September 30, 2010 would proceed as evaluated in the WY 2010 Final EA/IS. After such time, it was anticipated a Final PEIS/R, Program Biological Assessment, Program Biological Opinion, and the related Record of Decision (ROD) would be issued prior to October 1, 2010. Thus, the environmental compliance and permitting for WY 2011 Interim Flows and beyond would be obtained as part of the PEIS/R ROD and programmatic permitting process. Due to unanticipated schedule changes, it is unlikely that finalization of the PEIS/R, issuance of the ROD, and acquisition of all required permits for post-WY 2010 Interim Flows will occur prior to September 30, 2010. Therefore, it is critical that an alternative environmental review and permitting process be undertaken to allow for an additional year of Interim Flows for WY 2011.

The Settlement requires a program of Interim Flows to begin no later than October 1, 2009 and are to continue until full Restoration Flows begin. The Interim Flows will be used to collect data related to flows, temperatures, fish needs, seepage, recirculation, recapture, and reuse. The Settlement states that if the highest priority channel improvements are not completed as specified in subsequent years so as to allow full Restoration Flows, Interim Flows will continue at timing and magnitude developed for the specific water year type hydrograph, and will not exceed existing channel capacities.

Therefore, this Supplemental EA addresses an additional year of Interim Flows for WY 2011 (October 1, 2010 through September 30, 2011). The Supplemental EA has been prepared using the existing Water Year 2010 Interim Flows Project - Final Environmental Assessment and Finding of No Significant Impact/Initial Study and Mitigated Negative Declaration document to form the basis of the Supplemental EA and proposed FONNSI, and therefore is incorporated by reference into this Supplemental EA. Additionally, the WY 2010 Final EA/IS is included as Appendix A for reader reference.

1.3.2 Statement of Purpose and Need for this Supplemental EA

This document has been prepared to satisfy the NEPA requirements for implementation of the WY 2011 Interim Flows and supporting the permitting effort. The purpose and need for continuation of Interim Flows during WY 2011 is to implement the provisions of Paragraph 15 of the Settlement as authorized and directed in the Act and as described above in Section 1.2.2.

1.4 Study Area

The study area for this Supplemental EA is the same as that identified in the WY 2010 Final EA/IS (pages 1-7 through 1-10) and includes areas that may be affected directly, indirectly, or cumulatively by the Proposed Action. The study area, shown in Figure 1-1, has been broadly defined to include the San Joaquin River upstream from Friant Dam, the

Restoration Area, the San Joaquin River from the confluence with the Merced River to the Delta, the Delta, and portions of the CVP/State Water Project (SWP) water service areas, including the Friant Division. The Restoration Area, which is the San Joaquin River from Friant Dam to the confluence of the Merced River, is shown in Figure 1-2. The San Joaquin River and flood bypasses within the Restoration Area are described as a series of physically and operationally distinct reaches, as shown in Figure 1-2 and defined in Table 1-2. Table 1-2 also identifies the river reaches and bypasses included in the study area for this Supplemental EA.

**Table 1-2
San Joaquin River Reaches and Flood Bypasses in the Restoration Area**

San Joaquin River Reaches and Flood Bypasses in Restoration Area				Restoration Area Reaches Included in Water Year 2010 Interim Flows Study Area
River or Bypass	Reach	Head of Reach or Bypass	Downstream End of Reach or Bypass	
San Joaquin River	1A	Friant Dam	State Route 99	✓
	1B	State Route 99	Gravelly Ford	✓
	2A	Gravelly Ford	Chowchilla Bypass Bifurcation Structure	✓
	2B	Chowchilla Bypass Bifurcation Structure	Mendota Dam	✓
	3	Mendota Dam	Sack Dam	✓
	4A	Sack Dam	Sand Slough Control Structure	✓
	4B1	Sand Slough Control Structure	Confluence with Mariposa Bypass	
	4B2	Confluence with Mariposa Bypass	Confluence with Bear Creek and Eastside Bypass	✓
	5	Confluence with Bear Creek and Eastside Bypass	Confluence with Merced River	✓
Chowchilla Bypass		Chowchilla Bypass Bifurcation Structure	Confluence with Fresno River and Eastside Bypass	
Eastside Bypass		Confluence with Fresno River and Chowchilla Bypass	Confluence with Bear Creek and San Joaquin River	✓
Sand Slough Bypass		Sand Slough Control Structure	Eastside Bypass	✓
Mariposa Bypass		Mariposa Bypass Bifurcation Structure	Confluence with San Joaquin River	✓

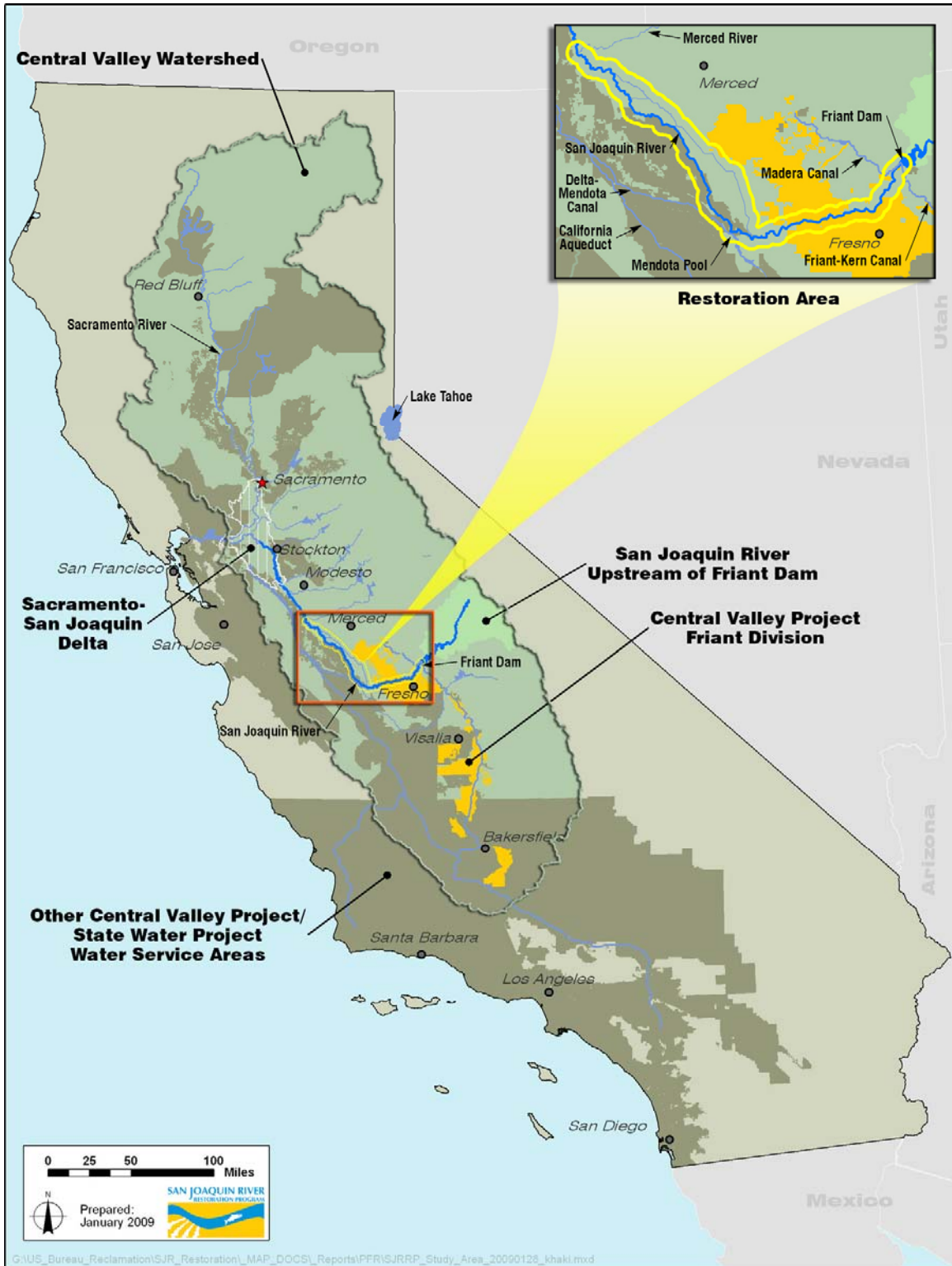


Figure 1-1.
Water Year 2011 Interim Flows Study Area

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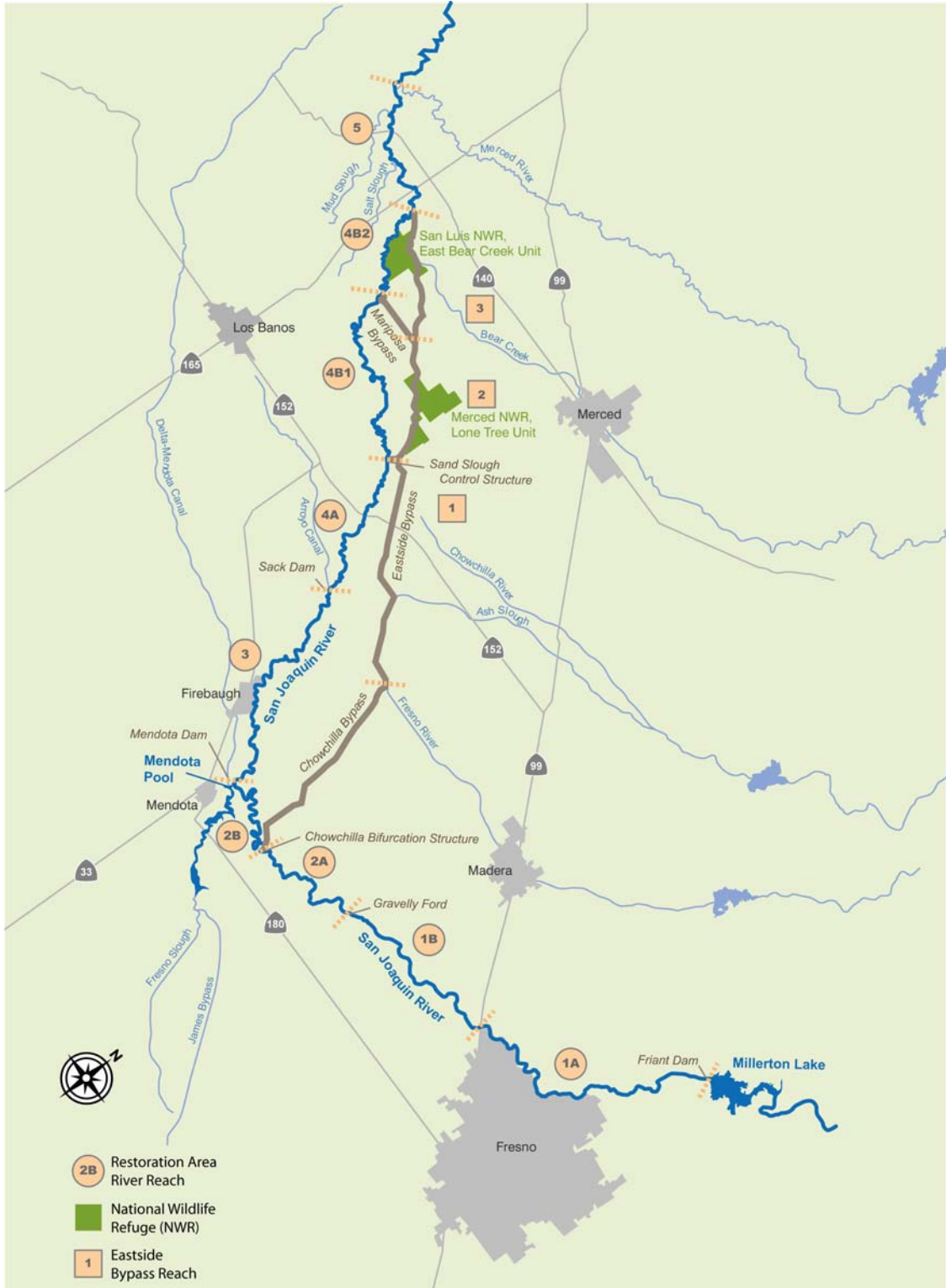


Figure 1-2.
San Joaquin River Reaches and Flood Bypass System in the Restoration Area

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1.5 Document Organization

This document is divided into the following sections:

- **Section 1, Introduction and Statement of Purpose and Need**, introduces the Proposed Action, and provides background information; describes the purpose of and need for the Proposed Action; discusses the purpose of this Supplemental EA; provides study area information; and describes document organization.
- **Section 2, Description of Alternatives**, describes the No-Action Alternative, changes or new information made available since preparation of the WY 2010 Final EA/IS, and the Proposed Action analyzed in this Supplemental EA.
- **Section 3, Affected Environment and Environmental Consequences**, describes the similarities and differences between the environmental setting, the impact analysis methodology, and the analytical results used for this Supplemental EA from those presented in the WY 2010 Final EA/IS.
- **Section 4, Consultation and Coordination**, describes the public involvement in the NEPA and CEQA review process for previous efforts and for this Supplemental EA.
- **Section 5, List of Preparers**, presents agency staff and consultants directly responsible for preparing or reviewing this document.
- **Section 6, Literature Cited**, lists references cited in this Supplemental EA.

The appendices to the WY 2010 Final EA/IS also pertain to this Supplemental EA and are incorporated by reference with that document. Appendices to this Supplemental EA, providing pertinent supporting information and data used while preparing this document, are include as follows:

Appendix A – Water Year 2010 Interim Flows Project - Final Environmental Assessment and Finding of No Significant Impact/Initial Study and Mitigated Negative Declaration

Appendix B – Restoration Administrator 2010 Interim Flow Program Recommendations – SJR February 1-December 1, 2010

Appendix C – March 25, 2010 Letter to the Restoration Administrator Regarding Management of Interim Flows

Appendix D – Draft San Joaquin River Interim Flow Unsteady Modeling Analysis

Appendix E – 2009-2013 Interim Flow Release Program, Water Quality Monitoring Plan

Appendix F – Groundwater Atlas

Appendix G – Draft 2009 Annual Technical Report

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2.0 Description of Alternatives

The NEPA No-Action Alternative and the Proposed Action are described in this section. The No-Action Alternative represents existing conditions in the San Joaquin River and existing operations at Friant Dam because of the immediate short-term nature of the Proposed Action. The Proposed Action is the implementation of the WY 2011 Interim Flows, including the release and potential downstream recapture of Interim Flows, the activities necessary to convey the flows in the San Joaquin River from Friant Dam to the Delta, and monitoring activities to be conducted during the WY 2011 Interim Flow releases. Additional details are provided in the following sections.

2.1 No-Action Alternative

The No-Action Alternative includes the continued operation of Friant Dam under existing conditions. Under CEQA Guidelines section 15125(a), the physical environmental conditions, as they exist at the time of the environmental analysis is commenced, “will normally constitute the baseline conditions by which a Lead Agency determines whether an impact is significant.” (See also CEQA Guidelines §15126.2(a).). Under NEPA, the affected environment is usually similar to or the same as the existing conditions used to determine the environmental impacts under CEQA. However, the Interim Flows in accordance with the flow schedule in Exhibit B of the Settlement and as described in the WY 2010 Final EA/IS are in effect now and are nearly the same as the WY 2011 Interim Flows considered under this Supplemental EA. Thus, if the WY 2010 Interim Flows were used as the baseline physical conditions for the environmental analysis, then the analysis would show no changes between the baseline physical conditions and the Proposed Action, because they would be the same. For this reason, and because the WY 2010 Interim Flows are scheduled to end on September 30, 2010, the baseline for the analysis of potential environmental impacts associated with implementation of the WY 2011 Interim Flows assumes that WY 2010 Interim Flows are not in place and that the existing conditions (and No-Action Alternative) operations characterized in the WY 2010 Final EA/IS would be in place (see Sections 2 and 3 of the WY 2010 Final EA/IS for a more detailed discussion of the No-Action Alternative and existing conditions).

As described in the WY 2010 Final EA/IS, under the No-Action Alternative, Reclamation would continue to release a base flow from Friant Dam to meet the existing holding contract obligations to maintain a 5-cubic-foot-per-second (cfs) flow at Gravelly Ford. Nonflood releases from Friant Dam typically range from 180 cfs to 250 cfs in summer and 40 cfs to 100 cfs in winter. Average simulated end-of month storage in Millerton Lake and the average, simulated, daily San Joaquin River flows under the No-Action Alternative are shown in Figures 2-1 through 2-6 of the WY 2010 Final EA/IS (pages 2-1 through 2-4). These simulations have not changed for the No-Action Alternative in this Supplemental EA.

2.2 Proposed Action

The release of Interim Flows during WY 2011 would be made according to the Settlement and the Act, as limited by downstream channel capacities and potential material adverse impacts from groundwater seepage, and consistent with Federal, State, and local laws, and any agreements with downstream agencies, entities, and landowners. Interim Flows would be released to the San Joaquin River from Friant Dam during WY 2011, from October 1, 2010, through December 1, 2010, and from February 1, 2011, through September 30, 2011. The temporal and longitudinal magnitude and timing of flow releases will be in accordance with Exhibit B of the Settlement and based on recommendations from the Restoration Administrator (RA). Recapture and recirculation of Interim Flows will occur to the maximum extent possible within the constraints of the Settlement and existing regulations and requirements. The Proposed Action is described in more detail below.

2.2.1 Interim Flow Releases Under the Proposed Action

Daily Interim Flow releases from Friant Dam would be based on the Restoration Year type (water year type per Exhibit B) and associated flow schedule per Exhibit B and other applicable Settlement provisions including recommendations by the RA. An example Exhibit B Interim Flow schedule for the wet water year type is provided in Table 2-1, and an example change in estimated maximum flows in a wet water year is provided in Table 2-2. These tables include water that would be released for water rights purposes and other deliveries, in combination with implementation of the WY 2011 Interim Flows.

**Table 2-1.
Example Estimated Maximum Regulated Nonflood Flows Under the Proposed Action in a Wet Year¹**

Begin Date	End Date	Estimated Maximum Flows Consisting of Interim Flows and Water Right Flows at Locations in the Restoration Area (cubic feet per second)									
		Head of Reach 1 ³	Head of Reach 2A ⁴	Head of Reach 2B ⁵	Head of Reach 3 ⁶	Head of Reach 4A	In Reach 4B1 ⁷	In Reach 4B2	In Bypass System ⁸	Head of Reach 5	Merced River Confluence ⁹
10/1/2010	10/31/2010	350	195	115	715	115	0	115	115	115	415
11/1/2010	11/6/2010	700	575	475	1,075	475	0	475	475	475	775
11/7/2010	11/10/2010	700	575	475	1,075	475	0	475	475	475	775
11/11/2010	12/01/2010	350	235	155	755	155	0	155	155	155	555
12/02/2010 ²	1/31/2011 ²	120	5	0	0	0	0	0	0	0	0
2/1/2011	2/28/2011	350	255	175	775	175	0	175	175	175	675
3/1/2011	3/15/2011	500	375	285	885	285	0	285	285	285	785
3/16/2011	3/31/2011	1,500	1,375	1,225	1,300	1,225	0	1,225	1,225	1,225	1,700
4/1/2011	4/15/2011	1,620	1,475	1,300	1,300	1,300	0	1,300	1,300	1,300	1,700
4/16/2011	4/30/2011	1,620	1,475	1,300	1,300	1,300	0	1,300	1,300	1,300	1,700
5/1/2011	6/30/2011	1,660	1,475	1,300	1,300	1,300	0	1,300	1,300	1,300	1,700
7/1/2011	8/31/2011	350	125	45	645	45	0	45	45	45	320
9/1/2011	9/30/2011	350	145	65	665	65	0	65	65	65	340

Notes:

¹ Example only. Actual Interim Flows may vary depending on a variety of factors. Flows may be lower under other water year types.

² No Water Year 2011 Interim Flows during this period.

³ Assumes up to 230 cubic feet per second diverted by instream water right holders (e.g., holding contracts), consistent with Exhibit B of the Settlement.

⁴ Assumes up to 200 cubic feet per second lost through infiltration, consistent with Exhibit B of the Settlement.

⁵ Estimated maximum Water Year 2011 Interim Flows at the head of Reach 2B account for seepage losses experienced in Reach 2A, consistent with Exhibit B of the Settlement.

⁶ Assumes up to 600 cubic feet per second released to Reach 3 from the Mendota Pool for diversions at Sack Dam into the Arroyo Canal.

⁷ The Proposed Action does not include any activity in Reach 4B1.

⁸ Includes Eastside and Mariposa bypasses.

⁹ Assumes accretions from Mud and Salt sloughs in Reach 5, consistent with Exhibit B of the Settlement.

**Table 2-2.
Example Change in Estimated Maximum Regulated Nonflood Flows Under the Proposed Action from
No-Action Alternative/Existing Conditions in Wet Years¹**

Begin Date	End Date	Change in Estimated Maximum Flows Under the Proposed Action at Locations in the Restoration Area (cubic feet per second)									
		Head of Reach 1 ³	Head of Reach 2A ⁴	Head of Reach 2B ⁵	Head of Reach 3 ⁶	Head of Reach 4A	In Reach 4B1 ⁷	In Reach 4B2	In Bypass System ⁸	Head of Reach 5	Merced River Confluence ⁹
10/1/2010	10/31/2010	190	190	115	115	115	0	115	115	115	115
11/1/2010	11/6/2010	570	570	475	475	475	0	475	475	475	475
11/7/2010	11/10/2010	570	570	475	475	475	0	475	475	475	475
11/11/2010	12/01/2010	230	230	155	155	155	0	155	155	155	155
12/02/2010 ²	1/31/2011 ²	0	0	0	0	0	0	0	0	0	0
2/1/2011	2/28/2011	250	250	175	175	175	0	175	175	175	175
3/1/2011	3/15/2011	370	370	285	285	285	0	285	285	285	285
3/16/2011	3/31/2011	1,370	1,370	1,225	700	1,225	0	1,225	1,225	1,225	1,225
4/1/2011	4/15/2011	1,470	1,470	1,300	700	1,300	0	1,300	1,300	1,300	1,300
4/16/2011	4/30/2011	1,470	1,470	1,300	700	1,300	0	1,300	1,300	1,300	1,300
5/1/2011	6/30/2011	1,470	1,470	1,300	700	1,300	0	1,300	1,300	1,300	1,300
7/1/2011	8/31/2011	120	120	45	45	45	0	45	45	45	45
9/1/2011	9/30/2011	140	140	65	65	65	0	65	65	65	65

Notes:

- ¹ Example schedule only. Actual Interim Flows may vary depending on a variety of factors. Flows may be lower under other water year types.
- ² No Water Year 2011 Interim Flows during this period.
- ³ Assumes up to 230 cubic feet per second diverted by instream water right holders (e.g., holding contracts), consistent with Exhibit B of the Settlement.
- ⁴ Assumes up to 200 cubic feet per second lost through infiltration, consistent with Exhibit B of the Settlement.
- ⁵ Estimated maximum Water Year 2011 Interim Flows at the head of Reach 2B account for seepage losses experienced in Reach 2A, consistent with Exhibit B of the Settlement.
- ⁶ Assumes up to 600 cubic feet per second released to Reach 3 from the Mendota Pool for diversions at Sack Dam into the Arroyo Canal.
- ⁷ The Proposed Action does not include any activity in Reach 4B1.
- ⁸ Includes Eastside and Mariposa bypasses.
- ⁹ Assumes accretions from Mud and Salt sloughs in Reach 5, consistent with Exhibit B of the Settlement.

The actual daily WY 2011 Interim Flow releases (the resulting hydrograph) would be subject to the application of flexible flow provisions described in Exhibit B and other ramping and flow scheduling changes, as recommended by the RA. WY 2011 Interim Flow releases would be ramped up slowly over time with flows held at constant levels to allow surface water and groundwater conditions to stabilize before the next increase. As described in Paragraph 15 of the Settlement, the RA makes recommendations to assist Reclamation in implementing Interim Flows (see **Appendix B** of this Supplemental EA). The WY 2011 ramping rate and stable flow durations may depend on RA recommendations and real-time flow management decisions based on the monitoring information and to avoid impacts. Maximum Interim Flow releases from Friant Dam in a wet water year, with consideration of the Settlement’s flexible flow periods that would occur under the Proposed Action are shown in Table 2-3.

**Table 2-3.
Maximum Interim Flow Release from Friant Dam Under the Proposed Action**

Start Date	End Date	Maximum Interim Flow Release from Friant Dam Under the Proposed Action (cfs)¹
Oct. 1, 2010	Oct. 31, 2010	575
Nov. 1, 2010	Nov. 10, 2010	575
Nov. 11, 2010	Dec. 1, 2010	575
Dec. 2, 2010	Jan. 31, 2011	0
Feb. 1, 2011	Feb. 15, 2011	375
Feb. 16, 2011	Feb. 28, 2011	1,375
Mar. 1, 2011	Mar. 15, 2011	1,475
Mar. 16, 2011	Mar. 31, 2011	1,475
Apr. 1, 2011	Apr. 15, 2011	1,475
Apr. 16, 2011	Apr. 30, 2011	1,475
May. 1, 2011	May. 31, 2011	1,475
Jun. 1, 2011	Jun. 30, 2011	1,475
Jul. 1, 2011	Jul. 31, 2011	1,475
Aug. 1, 2011	Aug. 31, 2011	125
Sep. 1, 2011	Sep. 30, 2011	145

1. Includes 5 cfs of riparian releases. Includes both the fall and spring flexible flow periods as described in Exhibit B of the Settlement. Actual releases may be less. Total Interim Flows volume released from Friant Dam will not exceed 389,355 acre-feet in a wet year. WY 2011 may include a small pulse flow of up to 2,000 cfs release from Friant Dam for a 12-hour period.

Additional factors considered during implementation of the release of WY 2011 Interim Flows include water supply demand; Mendota Dam operations; Sack Dam operations; any agreements with landowners or other Federal, State, and local agencies; impacts to special-status species; potential for seepage; and real time management strategies. Each of these topics is discussed in further detail in Sections 2.2.5 through 2.2.7.

2.2.2 Recapture and Recirculation

The Proposed Action includes potentially recapturing¹ WY 2011 Interim Flows, to the extent possible, at locations along the San Joaquin River and/or in the Delta, consistent with and limited by existing operating criteria, prevailing and relevant laws, regulations, biological opinions (BO), and court orders in place at the time the water is recaptured.

The furthest downstream where WY 2011 Interim Flows could be recaptured would be at the C.W. “Bill” Jones (Jones) and Harvey O. Banks (Banks) pumping plants. The Proposed Action includes potential recapture of Interim Flows at several diversion including: facilities downstream of the Restoration Area in the Delta; in the San Joaquin River at the Banta-Carbona Irrigation District facility and the West Stanislaus Irrigation District facility downstream of the Stanislaus River confluence; at the Patterson Irrigation District facility between the Tuolumne and Merced River confluences; and, facilities within the Restoration Area including the East Bear Creek Unit of the San Luis National Wildlife Refuge (East Bear Creek Unit) in Eastside Bypass Reach 3, the Lone Tree Unit of the Merced National Wildlife Refuge (Lone Tree Unit) in Eastside Bypass Reach 2, Sack Dam at the downstream end of Reach 3, and the Mendota Pool at the downstream end of Reach 2B. WY 2011 Interim Flows recaptured along the San Joaquin River may provide deliveries in lieu of Delta-Mendota Canal (DMC) supplies. Recirculation² would be subject to available capacity within CVP/SWP storage and conveyance facilities, including the Jones and Banks pumping plants, California Aqueduct, DMC, San Luis Reservoir and related pumping facilities, and other facilities of CVP/SWP contractors (facilities are identified in Figure 2-13 of the WY 2010 Final EA/IS, shown on Page 2-11). Available capacity is the capacity that is available after satisfaction of all statutory and contractual obligations to existing water service or supply contracts, exchange contracts, settlement contracts, transfers, or other agreements involving or intended to benefit CVP/SWP contractors served water through CVP/SWP facilities. Under the Proposed Action, recaptured water would be exchanged for a like amount of CVP water and/or would be recirculated and held in storage in San Luis Reservoir. Reclamation is working with the Friant Division long-term water contractors to prepare a separate Environmental Assessment and contract process to determine possible mechanisms to recirculate water by exchange, transfer, or delivery to the Friant Division long-term contractors recaptured water stored in San Luis Reservoir.

¹ For the purposes of this document, recapture is defined as the point of redirection of Interim Flows downstream of Friant Dam.

² For the purposes of this document, recirculation is defined as the conveyance of recaptured water to the Friant Division long-term water contractors.

Implementing the Proposed Action could increase flows entering the Delta from the San Joaquin River. Delta export facilities would continue to operate consistent with existing operating criteria, and prevailing and relevant laws, regulations, BOs, and court orders in place at the time the water is recaptured. Water recirculation via the CVP/SWP facilities would be possible using south-of-Delta facilities. No additional agreements would be required to recapture flows in the Restoration Area. However, recirculation of recaptured water to the Friant Division could require mutual agreements between Reclamation, DWR, Friant Division long-term contractors, and other south-of-Delta CVP/SWP contractors. Reclamation would assist in developing these agreements. As previously described, recirculation would be subject to available capacity within CVP/SWP storage and conveyance. Furthermore, implementation of the WY 2011 Interim Flows would remain consistent with the Reasonable and Prudent Alternative (RPAs), to the extent that they are in place, by the USFWS Delta Smelt Biological Opinion for the Continued Long-term Operations of the Central Valley Project and State Water Project (USFWS Operations BO) (USFWS 2008) and the NMFS Biological and Conference Opinion on the Continued Long-Term Operations of the Central Valley Project and State Water Project (NMFS Operations BO) (NMFS 2009), respectively or as amended by court action.³ Continued implementation of the RPAs or other measures that are in place at the time would avoid jeopardy of protected species, including Central Valley steelhead on the Stanislaus River and Delta, and spring- and winter-run Chinook salmon, green sturgeon, and delta smelt in the Delta (see Section 2.2.8 for further discussion).

Recaptured water available for transfer to Friant Division long-term contractors would range from zero to the quantity of water under Interim Flows that reaches the Mendota Pool and would vary based upon the water year type. During a Critical-Low water year, the quantity of water available for recapture and transfer to the Friant Division long-term contractors would be zero, because there are no WY 2011 Interim Flow releases under this water year type. During Wet years, the water available for recapture and transfer to the Friant Division long-term contractors would range between zero and 321 TAF (as shown in Table 2-4). Reclamation would identify actual delivery reductions to Friant Division long-term contractors associated with the release of WY 2011 Interim Flows consistent with Paragraph 16 of the Settlement.

Recapturing water downstream of the Restoration Area could increase fish entrainment risks. Both the Patterson Irrigation District and West Stanislaus Irrigation District facilities are unscreened. The Banta-Carbona Facility has a state-of-the-art fish screen and the Delta facilities will be operated in compliance with the long-term operation BOs and RPAs and other applicable requirements to preclude recapture from increasing entrainment risks. Recapture downstream of the Restoration Area will not result in any increase in diversions at the unscreened facilities during critical salmon and steelhead migration periods (e.g., September 1 through June 30). All recapture actions will be conducted in a manner consistent with Federal, State and local laws, and any agreements with downstream agencies, entities, and landowners.

³ If conditions change as challenges to the USFWS and NMFS Operations BOs move forward, Reclamation will release WY 2011 Interim Flows in compliance with the regulations and legal requirements in place at that time.

**Table 2-4.
Estimated Maximum Water Available for Recapture and Recirculation
Under the Proposed Action**

Start Date	End Date	Example Interim Flow and Riparian Release Amount at the Head of Reach 2B (cfs)¹	Riparian Release Amount at Head of Reach 2B (cfs)	Interim Flows at Mendota Pool Available for Transfer (cfs)
Oct. 1, 2010	Oct. 31, 2010	115	5	110
Nov. 1, 2010	Nov. 6, 2010	475	5	470
Nov. 7, 2010	Nov. 10, 2010	475	5	470
Nov. 11, 2010	Dec. 1, 2010	155	5	150
Dec. 2, 2010	Jan. 31, 2011	0 ²	5	0
Feb. 1, 2011	Feb. 28, 2011	175	5	170
Mar. 1, 2011	Mar. 15, 2011	285	5	280
Mar. 16, 2011	Mar. 31, 2011	1225	5	1220
Apr. 1, 2011	Apr. 15, 2011	1300	5	1295
Apr. 16, 2011	Apr. 30, 2011	1300	5	1295
May. 1, 2011	Jun. 30, 2011	1300	5	1295
Jul. 1, 2011	Aug. 31, 2011	45	5	40
Sep. 1, 2011	Sep. 30, 2011	65	5	60
Total amount of Interim Flows available for Recapture and Recirculation (Acre-feet)				321,055
1. Includes 5 cfs of riparian releases that must be maintained at Gravelly Ford.				
2. No additional releases are to occur between Dec. 2 - Jan. 31				

Key: cfs = cubic feet per second
TAF = thousand acre-feet
WY = Water Year

Under the Proposed Action, the water released under WY 2011 Interim Flows that is available for recapture and recirculation is estimated to be equal to the amount of water that reaches the Mendota Pool at the downstream end of Reach 2B (e.g., the first location where water can be recaptured and recirculated). Flows that reach the Mendota Pool are not the same as those that reach the head of Reach 2B due to channel losses in Reach 2A. Therefore, the overall quantity of water available for recapture and recirculation is somewhat lower due to these losses. The estimated maximum water released for WY 2011 Interim Flows that could be available for recapture and recirculation under the Proposed Action is shown in Table 2-4. This table has been updated from the WY 2010 Final EA/IS (Table 2-3. Estimated Maximum Water Available for Transfer Under the

Proposed Action, shown on page 2-10 of the WY 2010 Final EA/IS) to reflect the current understanding of Interim Flows implementation.

2.2.3 Settlement Flow Schedules

The quantity of water to be released from Friant Dam as WY 2011 Interim Flows under the Proposed Action is defined by the hydrologic year type classifications provided in Exhibit B, consistent with the Restoration Flow Guidelines (included in Appendix C of the WY 2010 Final EA/IS), and recent direction by Reclamation on management of Interim Flows (see **Appendix C** in this Supplemental EA). The allocated annual quantity will be applied to the hydrographs in Exhibit B and reduced, as appropriate, within the limits of channel capacity (see Table 2-5), anticipated infiltration losses, and diversion capacities. Reductions in flow could be made, in consideration of water supply demands, presence of special-status species, potential seepage and groundwater effects, along with real time management strategies as described in Sections 2.2.5 through 2.2.7 and in the Seepage Monitoring and Management Plan that was included as Appendix D in the WY 2010 Final EA/IS.

For the reasons described in the WY 2010 Final EA/IS, Settlement provisions related to buffer flow and purchased water provisions are not being considered for WY 2011 Interim Flows, and therefore are not included in the Proposed Action. The timing and magnitude of flow releases, as well as additional flow modifications, would be further defined under guidance provided in the Settlement and recent direction from Reclamation on the management of Interim Flows (see Appendix C of this Supplemental EA).

Restoration Year Type Classification

Exhibit B of the Settlement identified water year types based on the percentages of years from 1922 through 2005 with relative inflows. The SJRRP has developed a correlation between these data and the complete range of potential unimpaired inflow to Millerton Lake, as shown in Table 2-6. The need for and continued development of the year type classification system was described in Appendix C of the WY 2010 Final EA/IS.

The Restoration year type for Interim Flow releases in 2010 and 2011 would be determined using information considered in making water supply allocations, including the DWR Bulletin 120 forecast (finalized in May 2009 and to be finalized in May 2010). Reclamation makes an initial water year determination on or before February 20 each year. Adjustments to that declaration are made to reflect updated information on the water year, including snow survey information and inflows to Millerton Reservoir. Although the final declaration of water year type is not made until June, Reclamation has a declaration beginning in late February which it operates under. The Restoration year type is currently a normal-wet year. Unless this year type changes as a result of changes in inflows to Millerton Lake, the Restoration year type for releases in fall 2010 would be a normal-wet year; the Restoration year type for Interim Flows releases in 2011 would be based upon the initial water year determination made in February 2011 and finalized in June 2011. Releases before June 2011 would be based on information considered in making water supply allocations, including the DWR Bulletin 120 forecast, as described above.

**Table 2-5.
Estimated Maximum Water Year 2011 Interim Flows by Reach**

Reach	Estimated Deliveries ¹ (cfs)	Infiltration Losses ¹ (cfs)	Estimated Existing Channel Capacity ² (cfs)	Estimated Maximum Flow in Reach ^{3,4} (cfs)
1	230	0	8,000	1,660
2A	0	200	8,000	1,475
2B	0	0	1,300	1,300
3	0	0	1,300	1,300 ⁶
4A	0	0	4,500	1,300
4B1 ⁵	0	0	0	0
4B2	0	0	4,500	1,300
5	0	0	26,000	1,775 ⁷
Mariposa Bypass	0	0	8,500	1,300
Eastside Bypass Reach 1	0	0	10,000	1,300
Eastside Bypass Reach 2	0	0	16,500	1,300
Eastside Bypass Reach 3	0	0	12,000	1,300

Sources: *McBain and Trush 2002; Resource Management Coalition 2003, 2007*

Notes:

- 1 Loss estimates incorporated into flow targets, as defined in Exhibit B of the Settlement. Includes infiltration losses in Reach 2, and water right diversions in Reach 1.
- 2 Estimated existing nondamaging channel capacity is based on best available information and may be revised as new information becomes available as part of the SJRRP.
- 3 Nonflood conditions.
- 4 Does not include potential discontinuous local flow such as agricultural and natural drainage.
- 5 The Proposed Action does not include any activity in Reach 4B1. As with the WY 2010 Interim Flows Project, Reclamation would not route WY 2011 Interim Flows into the Reach 4B1 channel (the channel between the Reach 4B1 headgates/Sand Slough Control Structure and the Mariposa Bypass channel). Non-damaging flow-through channel capacity in this reach is currently unknown and believed to be zero in some locations. Reclamation is working with local landowners to better understand the Reach 4B1 channel and determine a non-damaging channel capacity for future (e.g., post-WY 2011) flows.
- 6 Maximum flow in Reach 3 includes both Water Year 2011 Interim Flows and irrigation delivery flows to Arroyo Canal.
- 7 Includes existing inflow from Mud and Salt sloughs of up to 500 cfs, as defined in Exhibit B.

Key:

cfs = cubic foot per second

**Table 2-6.
Restoration Year Types**

Restoration Year Type¹	Range of Unimpaired Inflow to Millerton Lake (acre-feet per year)	Percentage of Years from 1922 Through 2005²
Wet	Greater than 2,500,000	20 percent
Normal-Wet	Greater than 1,450,000 to 2,500,000	30 percent
Normal-Dry	Greater than 930,000 to 1,450,000	30 percent
Dry	Greater than 670,000 to 930,000	15 percent
Critical-High	400,000 up to 670,000	5 percent
Critical-Low	Less than 400,000	

Notes:

- ¹ A Restoration year begins October 1 and ends September 30 of the following calendar year.
- ² The year types in Exhibit B of the Settlement were identified based on these data. The SJRRP has developed a correlation between these data and the range of unimpaired inflow to Millerton Lake, as shown in the table.

Timing and Magnitude of Restoration Flow Releases

The RA may recommend additional changes in specific release schedules, such as ramping rates, to smooth the transition through the hydrograph. Implementing these recommended changes would be considered to the extent that they would not alter the total amount of water required to be released pursuant to the applicable hydrograph; would not result in additional water delivery reductions to Friant Division long-term contractors; and could be accomplished consistent with channel capacity limitations, measures to reduce or avoid seepage to adjacent lands, and any agreements established to support implementation of the Proposed Action. Alternative release schedules considered to date were described in Appendix C of the WY 2010 Final EA/IS (shown in Figure 2-14 of the WY 2010 Final EA/IS, shown on page 2-15). The Wet year flow schedule (provided in Figure 2-15 of the WY 2010 Final EA/IS, shown on page 2-16) identifies the estimated maximum effects associated with WY 2010 Interim Flow releases, which is be reduced, as appropriate, by the limits of channel capacity and other factors such as monitoring, to reduce or avoid seepage to adjacent lands. The release schedule also is subject to change based on recommendations from the RA (see Appendix B of this Supplemental EA) and changes, if any, in the water year type. This methodology is applicable to the implementation of WY 2011 Interim Flows and is used to determine potential impacts in this Supplemental EA.

Flow Modifications

The Settlement defines several potential modifications to flow schedules to help achieve the Restoration Goal. These modifications include flexible flow periods, a spring pulse, buffer flows, and the acquisition and release of additional water. Because Chinook salmon will not be reintroduced to the river during WY 2011, and because the purpose of WY 2011 Interim Flows is to collect relevant data, WY 2011 Interim Flows would not include applying buffer flows or releasing additional water.

WY 2011 Interim Flow releases would be less than full Restoration Flows identified in Exhibit B of the Settlement because of limited downstream channel capacities; potential material adverse effects from groundwater seepage; requirements of Federal, State, and local laws; and potential conditions in any agreements with downstream agencies, entities, and landowners. WY 2011 Interim Flows could include RA recommendations to apply flexible flow periods to create additional data collection opportunities. Applying flexible flow periods would be considered to the extent that they would not alter the total amount of water required to be released pursuant to the applicable hydrograph, and would not result in additional water delivery reductions to Friant Division long-term contractors.

As described in the Settlement, the RA will recommend the shape (ramping schedule and maximum flows) and timing of flows subject to flood control needs, channel conveyance capacity, Settlement stipulations, and permit requirements. The Proposed Action includes a spring pulse consistent with the Settlement flow schedule, as constrained by existing channel capacity. The spring pulse, as presented in Exhibit B of the Settlement, could be scheduled within the spring flexible flow period (between February 1 and May 28, 2011), and would include a release from Friant Dam of up to 2,000 cfs for a 12-hour period. Total spring pulse volumes depend on the water year type; drier years have lower allocated spring pulse volumes.

A report of San Joaquin River Interim Flow Unsteady Hydraulic Modeling was prepared on August 25, 2009 (**Appendix D**). The primary objective of the hydraulic modeling was to identify the appropriate hydrographs that would not exceed a 1,300 cfs threshold at the Chowchilla Bifurcation Structure for flows of no greater than 1,300 cfs into Reach 2B. Results of the hydraulic modeling indicated that all hydrographs at 2,000 cfs, 12 hours and below would not exceed the 1,300-cfs threshold at the Bifurcation Structure. Therefore, a 12-hour, 2,000 cfs pulse flow to test gravel mobilization in Reach 1 during the WY 2011 Interim Flows Project is being considered during the spring pulse period.

2.2.4 Flow Considerations by Reach

The WY 2010 Final EA/IS described the river reaches and flood bypasses within the Restoration Area as a series of physically and operationally distinct reaches, with channel capacity constraints, estimated gains, and estimated infiltration losses. Considerations within each reach and below the Merced River confluence were described in detail in Section 2.2.2 of the WY 2010 Final EA/IS (pages 2-17 through 2-29) and have not changed for this Supplemental EA.

Under existing nonflood conditions, most reaches of the San Joaquin River and the associated bypass system within the Restoration Area only convey local agricultural return flows and runoff. Under flood conditions, seepage through levees has been observed. The release of WY 2011 Interim Flows would begin on October 1, 2010 when WY 2010 releases should be 350 cfs. Flows would gradually and incrementally be increased above 350 cfs according to the Exhibit B flows schedules, and consistent with recommendations of the RA. The maximum release for WY 2011 Interim Flows in fall 2010 would be 700 cfs. Flows would not be released between December 2, 2010, and January 31, 2011.

Beginning February 1, 2011, Interim Flow releases From Friant Dam would begin again and incrementally increased based on channel capacities, information collected on changes in the shallow groundwater elevations, recommendations of the RA, and consistency with Exhibit B of the Settlement.

The release of WY 2011 Interim Flows would be managed to avoid interfering with operations of the San Joaquin River Flood Control Project. This includes operations of the Chowchilla Bypass Bifurcation Structure, Sand Slough Control Structure, Eastside Bypass Bifurcation Structure, and Mariposa Bypass Bifurcation Structure, as well as San Joaquin River Flood Control Project levee maintenance. Specifically, under the Proposed Action, no change in flood operations at the Chowchilla Bypass Bifurcation Structure would occur. Releases of flood flows to the San Joaquin River would be unchanged from existing operations, which are based on the estimated capacity of the portion of Reach 2B below the Chowchilla Bypass Bifurcation Structure. In periods when flood flows would satisfy part or all of the flow targets identified in Exhibit B of the Settlement (as modified by channel capacity), WY 2011 Interim Flows would not be released in addition to flood flows. Also, the release and conveyance of flood flows would have a higher priority over WY 2011 Interim Flows to channel capacity in all reaches. The Lower San Joaquin Levee District regularly conducts operation and maintenance (O&M) activities to maintain channel capacity within the San Joaquin River Flood Control Project. These O&M activities would continue under the Proposed Action, and could occur more frequently.

Each of the river reaches and flood bypass structures within the Restoration Area along with the segments of the Project Area below the confluence with the Merced River are described in detail in Section 2.2.2 of the WY 2010 Final EA/IS and are not repeated in this Supplemental EA because they have not changed.

2.2.5 Additional Implementation Considerations

Additional implementation considerations, such as potential environmental, regulatory, or legal issues, could further limit the release of WY 2011 Interim Flows and are summarized below.

Implementation Coordination

Implementing the WY 2011 Interim Flows would require coordination with Federal, State, and/or local agencies, as well as landowners, for the release and conveyance of flows through some reaches of the San Joaquin River and bypass system, and/or the potential diversion of flows. WY 2011 Interim Flows would be constrained by any agreements in place at the time of release. Reclamation has initiated discussions with numerous entities that would be involved, through coordination, in implementing the Proposed Action. Anticipated coordination to be accomplished as part of the Proposed Action would be the same as described in the WY 2010 Final EA/IS (pages 2-19 through 2-31).

Special-Status Species

The presence of certain special-status species in the study area may determine specific quantities and routing of Interim Flows, as discussed below.

Blunt-Nosed Leopard Lizard (BNLL) Preflow Release Surveys. Reclamation conducted BNLL habitat and protocol-level surveys for the WY 2010 Interim Flows Project in areas of the Eastside Bypass where access to private lands had been obtained. Based on those surveys, Reclamation concluded that habitat for BNLL in the bypass in the areas surveyed was generally suboptimal or unsuitable for BNLL (ESRP 2009). Reclamation, with input from DWR and in coordination with USFWS and CDFG, are working to determine the presence of BNLL in those areas that were found to be suitable habitat in 2010 and for those areas not surveyed 2010, in accordance with USFWS and CDFG survey methodologies for BNLL developed specific to the SJRRP.

Fish Species. Informal consultations on fish species with USFWS, NMFS, and CDFG are ongoing to comply with the Federal Endangered Species Act (ESA) and Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA). The ESA listed species include winter- and spring-run Chinook salmon, delta smelt, green sturgeon, and Central Valley steelhead. Species subject to consultation per the MSFCMA include starry flounder and all four races of Chinook salmon. Implementation of the Proposed Action could increase Delta inflow as much as 1,300 cfs. It would also result in small changes to Delta exports relative to existing conditions, but would be constrained by prevailing and relevant laws, regulations, biological opinions, and court orders in force at the time the water is recaptured. Any additional Delta exports would be eligible for recirculation to the Friant Division. Recapture of WY 2011 Interim Flows at the Jones and Banks pumping plants would be subject to existing or future regulatory requirements in place at the time of recapture.

Reclamation will coordinate with NMFS and USFWS to ensure that impacts to listed species will be avoided or minimized. This will be accomplished by continually providing and discussing streamflow, and the contribution of Interim Flows to that metric, and water quality data summaries. During periods when WY 2011 Interim Flows pass the confluence of the Merced River, specific streamflow and water quality measurements that will be addressed include dissolved oxygen (DO), water temperature, pH, turbidity, streamflow, and specific conductivity at locations on the San Joaquin River just upstream and downstream from the confluence with the Merced River and in the Merced River. Monitoring results for additional constituents, including selenium, ammonia, and boron, will be reviewed when available. Sources of these data are identified in the Draft Monitoring Plan for Physical Parameters Technical Memorandum (SJRRP 2008a), Surface Water Ambient Monitoring Program (SWAMP), and the Interim Flow Release Program Water Quality Monitoring Plan (SJRRP 2010c) (**Appendix E**) that were described in Section 3 of the WY 2010 Final EA/IS, and the Grassland Bypass Project as described in Section 3 of the WY 2010 Final EA/IS.

In the event that WY 2011 Interim Flows are anticipated to cause impacts that are greater than described in the WY 2011 Interim Flow Project Biological Assessment and in consultation with the fishery agencies, Reclamation will work with the agencies to modify WY 2011 Interim Flow releases as needed to avoid or minimize impacts. Possible modifications include reducing flow releases, upstream diversions of flows to avoid downstream impacts, or constraining flows to the upper San Joaquin River (upstream of the confluence with the Merced River). This coordination between the agencies and Reclamation's commitment to modify flows based on real time conditions would ensure that the impacts of the WY 2011 Interim Flows would remain at levels that would result in less than significant impacts to listed species, with specific emphasis on Central Valley steelhead.

2.2.6 Environmental Commitments

Environmental commitments are measures or practices adopted by a project proponent to reduce or avoid adverse effects that could result from project operations. The following sections describe the environmental commitments that would be conducted in coordination with WY 2011 Interim Flows implementation to avoid any potentially adverse environmental consequences.

Vehicular Traffic Detour Plan

As described in the WY 2010 Final EA/IS convenient and parallel vehicular traffic detours would be provided for public routes that would be closed because of inundation by WY 2011 Interim Flows. A detour plan has been prepared and is under review by local traffic agencies. The plan will be implemented upon approval and in accordance with current California Department of Transportation Standard Plans and Specifications.

Recreation Outreach Program

The Recreation Outreach Program implemented for the WY 2010 Interim Flows (described on pages 2-33 through 2-34) would continue during implementation of the Proposed Action, beginning in summer 2010 and extending through the WY 2011 Interim Flows period, ending in September 2011. The purpose of the recreation outreach program would be to inform recreating public, as well as agencies and organizations that serve the recreating public, of changes in river flows that would occur as a result of the Proposed Action, and of the potential effects associated with those changes, including recreational boating, swimming/wading, fishing, and hunting hazards. The program also informs the public of similar alternative river boating and fishing opportunities in the area, such as those available on the lower Kings River below Pine Flat Lake and alternative swimming/wading opportunities, such as those available at Millerton Lake.

The Recreation Outreach Program employs a variety of methods and media to share information with the recreating public, such as messages posted on the SJRRP Web site and Web sites of agencies and organizations providing recreation access, facilities, and services in Reach 1; signage at public and private access points and facilities in Reach 1;

and verbal messages delivered as part of regular recreation programs offered by agencies and organizations, such as the Public Canoe Program conducted by the San Joaquin River Parkway and Conservation Trust.

Outreach targets both English-speaking and non-English-speaking residents. Additional measures, such as roving contacts and other methods that agencies may suggest, could be used to target audiences that may not be reached by other means, such as young adults and those recreating on the river in undeveloped areas. Central to the Recreation Outreach Program is coordination with agencies and organizations that provide recreation access, facilities, and services in Reach 1, where most recreation in the Restoration Area takes place. Specifically, this includes coordinating with the following public and nonprofit agencies and organizations: the San Joaquin River Parkway and Conservation Trust; San Joaquin River Conservancy; Fresno County; City of Fresno Parks, After School, Recreation and Community Services Department; and CDFG. Coordination would also include private entities that provide public recreation access and facilities at a few locations in Reach 1.

Seepage Monitoring and Management Plan

The Act (included as Appendix B of the WY 2010 Final EA/IS) requires that a seepage monitoring program be prepared before releasing Interim Flows. The Seepage Monitoring and Management Plan (see Appendix D of the WY 2010 Final EA/IS) described the monitoring and management guidelines included in the Final EA/IS, which also apply to the Proposed Action, as related to groundwater or levee seepage. Some portions of the Restoration Area have historically experienced groundwater seepage to adjacent lands associated with elevated flows. Groundwater seepage has the potential to cause water logging of crops and salt mobilization in the crop root zone. Similarly, some portions of the Restoration Area have experienced levee instability resulting from through-levee and under-levee seepage during periods of elevated flows. The WY 2010 Interim Flows Project Seepage Monitoring and Management Plan included flow monitoring, groundwater elevation monitoring, levee patrols, and landowner contact. Reclamation began implementation of the WY 2010 Interim Flows Project Seepage Monitoring and Management Plan for the WY 2010 Interim Flows Project and would continue implementing this plan for the release of WY 2011 Interim Flows.

As part of the SJRRP, monitoring wells have been permitted and installed on public lands at several transects along the San Joaquin River in the Restoration Area to identify groundwater level responses to river flows. Groundwater levels observed in these and other wells monitored by Reclamation, DWR, and local districts would be used in determining when to reduce flow releases from Friant Dam, as required by the Act. Following installation of each monitoring well, groundwater elevations thresholds have been developed in consideration of nearby land uses, known groundwater and subsurface conditions, and other information available or provided by landowners. In general, groundwater depth thresholds are classified in three ranges: an acceptable level at which groundwater levels are not expected to affect agricultural production; a potential buffer zone indicating an increased likelihood that seepage could affect agricultural production without flow modification; and a threat zone representing groundwater levels that affect

agricultural production. The threat zone is determined based in part on the rooting depth associated with any crops located near the monitoring well. The Proposed Action includes flow reductions in response to groundwater levels observed in the buffer or threat zones. If groundwater levels at a monitoring well exceed an identified threshold, WY 2011 Interim Flows would be reduced or diverted.

Existing groundwater monitoring well locations, groundwater thresholds, and recent groundwater elevations at all of the wells that are part of the SJRRP's Seepage Monitoring and Management Plan are provided in the SJRRP's Groundwater Atlas. The Groundwater Atlas is updated monthly and posted on the SJRRP's website. The April 14, 2010 update to the Groundwater Atlas is provided in **Appendix F**.

As of mid-April 2010, the SJRRP has installed 77 groundwater monitoring wells. An additional 9 are currently being installed during spring 2010 Interim Flows. An additional round of monitoring wells, chosen based largely on landowner areas of concern, is tentatively planned for November 2010, in preparation for Water Year 2011 Interim Flows. Three existing wells are equipped with realtime telemetered stations, reporting to CDEC. Two recently installed wells are being equipped with realtime stations as well. All wells are being installed with hourly dataloggers, which will be downloaded twice a year and the data will be put into the Annual Technical Report. In addition, weekly manual measurements are made of most wells, which are reported via the Groundwater Atlas described above. Finally, weekly manual measurements in certain key wells are posted on the SJRRP website in the Weekly Groundwater Report.

2009-2013 Interim Flow Release Program, Water Quality Monitoring Plan

The SJRRP's Interagency Streamflow and Water Quality Monitoring Subgroup prepared the Interim Flow Release Program, Monitoring Plan (Monitoring Plan) to monitor water quality changes that may occur with the 2010-2013 Interim Flow Release Program⁴(SJRRP 2010d) (Appendix E). The Monitoring Plan was implemented in conjunction with the WY 2010 Interim Flows Project and will continue to be implemented as part of the Proposed Action as described in this Supplemental EA.

The primary objective of the Monitoring Plan is to obtain high quality data to support the SJRRP. Data collection and analysis would provide information to evaluate potential impacts on a broad range of beneficial uses including, but not limited to, fisheries. Fisheries resources in the area associated with existing native species and proposed reintroduction of Chinook salmon stand to benefit from the knowledge of general trends in water quality, flow and temperature. The Monitoring Plan describes monitoring activities including real-time, grab, and composite sampling using auto-samplers that will make measurements of physical conditions including flow, depth, temperature, specific conductance (salinity), pH, dissolved oxygen (DO), turbidity, and chlorophyll (SJRRP 2010d).

⁴ As described in the Settlement, Interim Flows may occur through 2013 and, thus, the Water Quality Monitoring Plan was prepared to address the entire Interim Flows timeframe.

Real Time Management. Real time management allows the SJRRP to adapt to the uncertainty associated with Chinook salmon and native fish population restoration by adjusting to new information and taking advantage of a variety of strategies and techniques that are adjusted, refined, and/or modified based on an improved understanding of system dynamics. Results of the monitoring and evaluation will be used to redefine problems, reexamine goals, and/or refine conceptual and quantitative models, to ensure efficient learning and adaptation of management techniques. Table 2-7 shows the real-time water quality monitoring physical parameters.

**Table 2-7.
Real-Time Monitoring Physical Parameters**

Temperature	
Method	Digital thermometer (YSI 6600 sonde)
Range	-5 to +45 °C
Resolution	0.01 °C
Accuracy	± 0.15 °C
Salinity – Specific Conductance	
Method	Conductivity meter (YSI 6600 sonde)
Range	0 to 100 mS/cm
Resolution	0.001 to 0.1 mS/cm (range-dependent)
Accuracy	± 0.5%, ±0.1 mS/cm
Dissolved Oxygen	
Method	Digital probe (YSI 6600 sonde)
Range	0 to 50 mg/L
Resolution	0.01 mg/L
Accuracy	0 to 20 mg/L: ± 2% of reading or 0.2% mg/L 20 to 50 mg/L: ± 6% of reading
pH	
Method	Digital probe (YSI 6600 sonde)
Range	0 to 14 units
Resolution	0.01 unit
Accuracy	± 0.2% unit
Turbidity	
Method	Turbidity meter (YSI 6600 sonde)
Range	0 to 1,000 NTU
Resolution	0.1 NTU
Accuracy	± 5% of reading or 2 NTU
Depth	200 feet
Chlorophyll	
Method	Digital sensor (YSI 6600 sonde)
Range	0 to 400 µg/L
Resolution	0.1 µg/L Chlorophyll; 0.1% FS
Depth	200 feet

Source: 2009-2010 Interim Flow Release Program Water Quality Monitoring Plan.

Key: °C = degrees Celsius; FS = fluorescence; µg/L = micrograms per liter; mg/L = milligrams per liter; mS/cm = milliSiemens per centimeter; NTU = Nephelometric turbidity unit

Interim Flow water will be tracked and sampled at several sites along the river for the benefit of flow and fishery management using sensors to collect real-time measurements of physical conditions (Table 2-8). Water quality monitoring related spatial and temporal scales are available in Appendix E.

**Table 2-8.
Real Time Water Quality Monitoring Sites**

River Mile	Location	Operating Agency	CDEC	Stage	Flow	EC	Temperature	DO	Turbidity	ChlorophyllII
268.0	Millerton Lake	Reclamation	MIL	C	C					
267.6	San Joaquin River at Friant Dam (bottom of spillway)	Reclamation	X			C	C	C	C	C
266.0	San Joaquin River below Friant Dam (Lost Lake Park)	USGS	SJF	C	C	C	C			
255.2	San Joaquin River at Highway 41	Reclamation	H41	C		C	C			
240.7	San Joaquin River at Donny Bridge	Reclamation	DNB	C	C	C	C			
227.6	San Joaquin River at Gravelly Ford	Reclamation	GRF	C	C	C	C	P	P	P
216.0	San Joaquin River below bifurcation	Reclamation	SJB	C	C	C	C	P	P	P
211.8	San Joaquin River at San Mateo Road	Reclamation	P	P	P	P	P			
202.1	San Joaquin River near Mendota (below Mendota Dam)	USGS	MEN	C	C					
181.5	San Joaquin River near Dos Palos (below Sack Dam)	DWR	SDP	C	C	C	C	C	C	C
168.4	San Joaquin River at top of Reach 4B	DWR	P	C	C	C	C	C	C	C
125.1	San Joaquin River at Fremont Ford Bridge	USGS	FFB	C	C	C	C			
118.3	San Joaquin River at Hills Ferry	USGS	P	C	C	C	C	P	P	P
118.0	San Joaquin River near Newman (below Merced River)	USGS	NEW	C	C					
107.2	San Joaquin River near Crows Landing	USGS	SCL	C	C	C	C			

Source: 2009-2010 Interim Flow Release Program Water Quality Monitoring Plan.

Notes: C- continuous measurements; P – Proposed sites, scheduled to operate in 2010; X – Sonde installed, not linked to the California Data Exchange Center.

2.2.7 Results of WY 2010 Interim Flows Monitoring

SJRRP Daily Seepage and Flow Bench Evaluation

Condition 8 of Order Water Right 2009-0058-DWR for the WY 2010 Interim Flows Project requires Reclamation to implement a Seepage Monitoring and Management Plan, including the installation of seepage monitoring wells, and the establishment of groundwater elevation thresholds. Condition 9 of Order Water Right 2009-0058-DWR for the WY 2010 Interim Flows Project requires Reclamation to conduct a daily evaluation of groundwater levels and flow and stage levels when flows are greater than 475 cfs in Reaches 2A and 3 and post the evaluation results to a publicly available website. Preliminary data indicates that real-time groundwater in Reach 2A and 3 has not risen above identified groundwater level thresholds (SJRRP 2010a). The seepage hotline has received several phone calls to date. Follow-up evaluations on those calls were conducted and planned releases can proceed, with potential flow restrictions below Sack Dam, subject to monitoring (SJRRP 2010a). Weekly groundwater reports for certain key wells can be found on SJRRP's website. Manually monitored groundwater wells as of the week ending April 17, 2010 found three wells above identified thresholds but within the buffer zone and one well above the top of the buffer zone. SJRRP discussed this well with the landowner and they agreed to let groundwater levels in the well potentially rise to 5 feet below ground surface.

Draft 2009 Annual Technical Report

The draft 2009 Annual Technical Report (ATR) for the SJRRP describes monitoring and analyses conducted during the fall of the WY 2010 Interim Flows period, from October 1, 2009 to November 20, 2009 (**Appendix G**). The ATRs are prepared annually to provide stakeholders a description of monitoring, analysis, and management activities that were conducted to implement Settlement flow-related actions during the reporting period. An overview of the Flow-Related Monitoring and Management components of the 2009 ATR are presented in Table 2-9. Fisheries objectives developed in the Fisheries Management Plan (SJRRP 2009) will be integrated into and presented in the ATR beginning in 2010.

**Table 2-9.
Components of the SJRRP's Flow-Related Monitoring and Management**

Component	Objectives	Monitoring Parameters	Indicators	Potential Actions	
				Immediate	Long-Term
Flow	Comply with Friant Dam releases, Settlement monitoring location flow requirements, State Water Resources Control Board, Division of Water Rights, Order WR 2009-0058-DWR, and identify recapture quantities	Surface water stage and flow rate	Volumes and rates of Restoration Flows at seven specified monitoring locations	Report to Restoration Administrator (RA), begin negotiations for purchased water from willing sellers	Release purchased water from willing sellers and evaluate enforcement actions in case of increased diversions
Seepage	Reduce or avoid impacts from shallow groundwater due to increased river flow and stage	Groundwater elevation, visual inspection/patrol, landowner contact	Groundwater level relative to thresholds	Change releases/redirect flows through bypasses	Evaluate easements, compensate for damage, pursue engineering solutions
Capacity	Preserve flow conveyance	Aerial vegetation and topographic surveys, surface water stage and flow rate	Stage, roughness, width, and bed elevation	Reduce flows, monitor, and remove obstructions and debris	Evaluate flow, removal of sediment and vegetation, and evaluate channel work

Source: 2009 Annual Technical Report

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Fall 2009/Spring 2010 Interim Flows Monitoring Activities

A variety of data collection and monitoring activities were conducted or are being conducted during the WY 2010 Interim Flows. These data collection and monitoring activities will provide detailed information that will be used to validate the hydraulic models and sediment transport analyses which support planning and design. The data will assist the SJRRP in identifying and addressing fisheries and flow-related issues that are linked to the physical processes of the river system under current and future anticipated restoration conditions. The data collection and monitoring activities for the WY 2010 Interim Flows are summarized in Table 2-10 and are described in more detail below along with the findings of these activities, when available.

**Table 2-10.
Fall 2009/Spring 2010 SJRRP Interim Flows Monitoring Activities**

Agency	Reach	Activity Description
DWR	1-3	Control survey establishment
DWR	1-2	Measurement of water-surface profiles
DWR	1-3	Flow Measurements
DWR	1	Installation and operation of water-level recorders
DWR	1-2	Bed material sampling
DWR	1A	Marked-rock tracer studies to assess gravel/cobble mobilization
DWR	2A	Topographic surveys of monitoring cross sections
DWR	2A	Installation and monitoring of scour chains
DWR	2A	High flow bed profiling (bathymetry)
DWR	2B	Geotechnical borings
DWR	1B	Bathymetric surveys
DWR	1-5	Fish passage evaluation
DWR	1	Sand source assessment
DFG	1A	Mesohabitat surveys
DFG	1A, 1B, 3, 4A	Surface water temperature
DWR, Reclamation and USGS	1A-5	Surface water stage and flow
CVRWQCB, Reclamation, SLDMWA, and USGS	1A-5	Surface water quality
DWR and Reclamation	1A-5	Groundwater depth and temperature
Reclamation	2-4	Soil salinity surveys
Reclamation	2, 3, 4A, 4B2, 5	Water surface profiles, periodic discharge measurements, bathymetric surveys
USFWS	3, 4A, 4B2, 5	Fisheries habitat surveys
Reclamation and USGS	1-3	Suspended sediment and bedload sampling
USGS	Gravelly Ford	Suspended sediment surrogate research at Gravelly Ford
Reclamation	1-5	Aerial imagery of the Restoration Area
Reclamation	2A	Cross section vegetation surveys in Reach 2A

Control survey establishment. Control points are being established throughout the river system to facilitate future monitoring activities. All control points for the initial phase of the monitoring program in Reaches 1A and 2A were successfully established. Additional control will still need to be established for portions of the river outside of Reaches 1A and 2A.

Measurement of water-surface profiles in Reaches 1A, 2A, and 2B. Surveyed water-surface elevations were collected to define the shape of the water-surface profiles at Friant Dam releases of 350 cfs and 700 cfs during the fall 2009 Interim Flow releases. Surveyed water-surface elevations appear to have successfully captured all significant hydraulic controls. Data collected during this effort is expected to be of significant value in the improved calibration of the hydraulic model. Additional water surface profile information is being collected for the spring 2010 releases.

Flow Measurements in Reaches 1 through 3. Flow measurements in Reaches 1A, 2A, and 2B were conducted during the fall 2009 releases. Measured flow data will support refinements in the distribution of the flow losses. Data collected during this effort is expected to be of significant value in the improved calibration of the hydraulic model. Flow measurements are underway for the spring 2010 releases in various reaches.

Installation and operation of water-level recorders. Monitoring efforts in fall 2009 led to an improved understanding of site selection and installation methods for water-level recorders. These recorders will provide a continuous record of water surface elevation and stage at key locations to inform hydraulic models.

Bed material sampling in Reaches 1 and 2. A total of 98 pebble counts and 66 bulk samples were collected in Reach 1A. Silt and clay were found in negligible amounts. Mean sand content was between 10.2 percent and 28.9 percent. In total, 59 (88 percent) of undifferentiated samples met the criterion for suitable Chinook salmon egg and alevin incubation. Linear modeling indicates that Reach 1A is generally characterized by grain size compositions that are suitable for Chinook spawning. Bed material samples were also collected at 20 locations along Reach 2. Gravels were shown to be present at a few of the locations along Reach 2. As expected, the majority of the bed material consisted of coarse sand.

Marked-rock tracer studies in Reach 1A to assess gravel/cobble mobilization. A pilot study using tracers was implemented at a single riffle in Reach 1A. In-stream conditions made application of tracer paint difficult, and may affect future data collection. However, valuable information was obtained regarding implementation procedures that will likely lead to improvements for similar future studies. A significant high flow event has not yet occurred since installation of the pilot tracer study. As a result, detailed data regarding potential bed mobilization has not yet been collected.

Topographic surveys of monitoring cross sections in Reach 2A. Topographic surveys were conducted at 11 sites in Reach 2A. Six to eight cross sections were surveyed at each site. Surveys are expected to adequately show localized changes in bed formations due to various flows at each monitoring location after post-flow resurveys.

Installation and monitoring of scour chains in Reach 2A. A total of 4 scour chains were installed at each of two cross sections in Reach 2A. After the initial fall 2009 flow releases, the scour chains were re-inspected and were found to indicate scour and re-deposition in two cases.

High flow bed profiling (bathymetry) in Reach 2A. As part of a data collection program meant to improve and validate hydraulic and sediment transport models being used for the SJRRP, bathymetric profiles of the channel bed at two sites in Reach 2A are planned during peak spring flows. The profiles will produce bed topography along a several-hundred-foot section of the channel at different times during the event to show bed form and scour changes over the event period.

Geotechnical borings in Reach 2B. Collection of subsurface soils and groundwater data is ongoing in Reach 2B. This data will be used to develop comprehensive evaluations for the Mendota Pool Bypass/Reach 2B Channel Improvements Project, including determining the conditions of existing levees and possible setback alignment. In addition, the collected soils data would be used to confirm river seepage losses and evaluate potential seepage impacts on adjacent lands. Geotechnical investigations will include the Standard Penetration Test and Cone Penetrometer Test. A borrow investigation of the soils in the area will be conducted to determine their adequacy to serve as borrow material.

Bathymetric surveys in Reach 1B. Bathymetric surveys of the channel and connected gravel pits in Reach 1B were surveyed in March 2010. The data will be used to update reach mapping.

Fish passage evaluation in Reaches 1-5. Approximately 70 sites are being assessed for fish passage suitability in Reaches 1 through 5 during the spring 2010 flow releases. Assessments include photographs, measurements, and site sketches.

Sand source assessment in Reach 1. Aerial photography review and field assessments are being conducted to identify and map existing channel, pit, bank, tributary, and overbank sand deposits that might be active at future Restoration Flows as determined from model review. Deposits will be mapped for area, probed for depth, and small samples taken for gradation testing.

Mesohabitat surveys in Reach 1A. Habitat assessment surveys to evaluate habitat abundance and adequacy are being conducted in Reach 1A during the spring 2010 flow releases. These surveys are intended to determine the suitability of the existing habitat in meeting the lifecycle needs of Chinook salmon.

Surface water temperature. Surface water temperature is being collected by data loggers on an hourly basis at 20 monitoring stations in Reach 1A, 3 stations in Reach 1B, 1 station in Reach 3, and 1 in Reach 4A.

Surface water stage and flow. Surface water stage (height of the water surface above a reference elevation) is measured at stream gauging stations on the river. Flow measurements are derived from stage using an established stage-discharge relationship,

which is necessary to form a continuous record of discharge. Flow measurements are also acquired using the velocity-area method where a current meter is used to measure velocity across the river cross-section. Additionally, an Acoustic Doppler Current Profiler is used to determine discharge through measurement of water velocities, boat velocities, and water depths.

Surface water quality. Real-time, continuous monitoring of physical water quality parameters is being conducted at eight sites. Additionally, auto-samplers at three locations collect composite daily samples, and grab samples for water and sediment are taken at multiple locations on a weekly or monthly basis.

Groundwater depth and temperature. The SJRRP monitoring well network continues to expand and will include approximately 85 wells in Reaches 1 through 5 by the end of the spring 2010 monitoring period. The wells collect data to improve models used to anticipate groundwater response to changes in surface water stage, and establish and monitor thresholds for avoiding seepage-related impacts. Data are reported by telemetry (6 wells), manual measurements (weekly for key wells), and hourly to data loggers (downloaded 2-3 times annually).

Soil salinity surveys in Reaches 2 to 4. Real-time soil salinity measurements and soil sampling have been and are being conducted in Reaches 2 to 4 to establish baseline soil salinity levels on private properties where monitoring has been approved.

Water surface profiles, discharge measurements, and bathymetric surveys in Reaches 2, 3, 4A, 4B2, and 5. Water surface profiles are being collected by boat simultaneously with periodic discharge measurements to help determine locations of substantial flow losses and gains.

Fisheries habitat surveys in Reaches 3, 4A, 4B2, and 5. Fisheries habitat surveys are being conducted by boat to identify areas where juvenile salmonids may be able to find refuge in side channels, floodplain areas, and along the channel banks. Qualitative descriptions of the availability and quality of the potential rearing areas will be documented.

Suspended sediment and bedload sampling in Reaches 1 through 3. Suspended sediment samples are being collected at 5 sites and analyzed for sand/fine split.

Suspended sediment surrogate research at Gravelly Ford. Testing of instrumentation for continuous monitoring of suspended sediment concentration and particle size distribution is being conducted at Gravelly Ford.

Aerial imagery of the Restoration Area. Five sets of aerial imagery of the project area are being conducted during the spring 2010 flows. This imagery will be used for flow and vegetation mapping.

Cross section vegetation surveys in Reach 2A. During the last week of February 2010, vegetation was surveyed along a tagline on the north bank at three previously established cross sections in Reach 2A. The vegetation survey will be repeated in late spring after

Interim Flows return to 350-500 cfs. The data will be used to verify vegetation growth and mortality (primarily vegetation removal by flow erosion) computations in the San Joaquin River SRH-1DV model.

Water Quality Monitoring Results

The Interim Flow Release Program, Monitoring Plan (Monitoring Plan) (SJRRP 2010d) (Appendix E), prepared by the SJRRP's Interagency Streamflow and Water Quality Monitoring Subgroup, defines the water quality monitoring approach that Reclamation initiated in WY 2010. Sediment and water quality sampling and monitoring results obtained during fall 2009 of the WY 2010 period, were submitted to the State Water Resources Control Board and the Central Valley Regional Water Quality Control Board on January 22, 2010 (Tables 2-11 and 2-12). A scan for four pesticides in the water column found that all four were below the reporting limit at the sample locations (SJRRP 2010e). The reporting limits, however, are above levels of concern to aquatic life and, as such, the results are under review by the Central Valley Regional Water Quality Control Board. New aquatic resources reporting limits will be accommodated with future sampling/monitoring procedures should they be developed.

Water quality monitoring results for dissolved oxygen, trace elements, bacteria, total suspended solids, organic carbon, and other field measurements were below levels of concern for human and aquatic life (SJRRP 2010e). Sampling and monitoring resumed in February 2010 and those results will be submitted, when available.

Water Temperature Variation from Friant Dam to Sack Dam during the 2009 Fall Interim Flow Period.

USFWS and CDFG jointly collected water temperature data during the 2009 fall Interim Flow Period to better understand the longitudinal distribution of temperatures relative to the Restoration Flows on the San Joaquin River and to prepare the system for the reintroduction of Chinook salmon. A report on water temperature data collected in the reach immediately below Friant Dam and downstream to Sack Dam was prepared (Brewer, et al 2010). This monitoring effort found that water temperatures were relatively stable immediately below Friant Dam. Daily variation increased with distance downstream of the reservoir, but mean temperatures remained relatively consistent (generally 9-12 °C). Maximum temperatures were higher in the river channel associated with mining pits than the other reaches. The authors find it difficult to evaluate the impacts of the fall Interim Flows on temperature data collected and expected the spring Interim Flow to provide more insight to the influence of discharge on the water temperature regime. Since temperature fluctuations and maximum temperatures were substantially higher from the mining pits downstream, additional temperature loggers have been added at some of these locations to help determine whether there are cooler-water pockets in some of the mining pits and downstream areas.

Restoration Administrator 2010 Interim Flow Program Recommendations

On January 20, 2010, the RA provided recommendations for the WY 2010 Interim Flow Program (February 1 - December 1, 2010) to Reclamation, which is included as Appendix B to this Supplemental EA. Additional information and materials regarding RA reports and recommendations are available on the SJRRP website (www.restoresjr.net). The RA recommendations to Reclamation address the following topics:

- Recommended 2010 Interim Flow Program objectives;
- Priority information needs and objectives;
- Modeling and Monitoring Objectives;
- Recommended Interim Flow volumes, release magnitudes and water release schedules for different water year types; and,
- Other recommendations to assist Reclamation in implementing Interim Flows.

Based on updated information on the water year, including snow survey information and inflows to Millerton Reservoir, the Restoration year type for Interim Flow releases can be adjusted after initial declaration in late February until June, when the final declaration is made by Reclamation. The RA considers water year type and additional information (e.g., potential seepage and groundwater monitoring results) when making Interim Flow Program recommendations.

**Table 2-11.
Bed Sediment Analyses Results**

BOR Analysis	Water Rights Order	Units	Base-line	Routine Samples									Post-Release
				Oct. 1 2009	Oct. 7 2009	Oct. 9 2009	Oct. 13 2009	Oct. 16 2009	Oct. 19 2009	Oct. 27 2009	Nov. 3 2009	Nov. 10 2009	Nov. 17 2009
Total Organic Carbon		mg/L	X										X
Trace Elements	Copper	mg/L	X										X
	Chromium	mg/L	X										X
	Lead	mg/L	X										X
	Nickel	mg/L	X										X
	Zinc	mg/L	X										X
	Arsenic	mg/L	X										X
	Mercury	mg/L	X										X
Pesticides	Organochlorine Scan	µg/L	X										X
	Pyrethroid Scan	µg/L	X										X
Acute Toxicity	Ten-Day Survival	Percent	81.8%										X
	Ten-Day Dry Weight	mg	0.08										X
	TIE		X										X
	Grain Size		X										X
	Percent Moisture		X	X									
Not Required for Water Rights Order (WR 2009-0058-DWR); X – Results Pending Source: Reclamation 2010													

**Table 2-12.
Water Sample Analyses Results**

BOR Analysis	Water Rights Order	Units	Base-line	Routine Samples									Post-Release
			Oct. 1 2009	Oct. 7 2009	Oct. 9 2009	Oct. 13 2009	Oct. 16 2009	Oct. 19 2009	Oct. 27 2009	Nov. 3 2009	Nov. 10 2009	Nov. 17 2009	After Nov. 20
Total Suspended Solids		mg/L	21 T	1.8	1.2 T	X	4	5.3	2.4	<1.0	2.8	<1.0	
	Nitrate and Nitrite as N	mg/L		<0.050T	<0.050T		<0.076T	<0.050T	<0.050	<0.050	0.061	0.062	
	Ammonia as N	mg/L		<0.50	<0.50		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
Nutrients	Total Kjeldal Nitrogen	mg/L		<0.50	<0.50		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
	Phosphorus, Total as P	mg/L		<0.050	<0.050		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	
	Chlorophyll A	µg/L		<2.0	X		<2.0	<2.0	<2.0	<2.0	<5.0T	<2.0	
Total Organic Carbon		mg/L		2.6	2.6		3.4	2.7	2.7	2.4	2.5	2.4	
Dissolved Organic Carbon		mg/L		3.3T	2.6T		3.1T	4.4T	2.7	2.5	2.5	3.6	
Bacteria	Fecal Coliform	#/100ml		50	X		50	4	23	30	X	23	
	Total Coliform	#/100ml		900	X		500	300	300	900	X	350	
	E. Coli	#/100ml		50	X		50	13	23	30	25T	23	
Trace Elements, Cations	Calcium	mg/L	X	3	3		4	4	4	3	3	3	
	Magnesium	mg/L	X	<1	<1		<1	<1	<1	<1	<1	<1	
	Potassium	mg/L	X	<1	<1		1	<1	<1	<1	<1	<1	
	Sodium	mg/L	X	4	4		3	4	4	3	3	3	
	Chloride	mg/L	3.2	3.2	3.1		3.1	3.2	32	2.9	2.6	2.7	

Table 2-12. *continued*

BOR Analysis	Water Rights Order	Units	Base-line	Routine Samples									Post-Release
			Oct. 1 2009	Oct. 7 2009	Oct. 9 2009	Oct. 13 2009	Oct. 16 2009	Oct. 19 2009	Oct. 27 2009	Nov. 3 2009	Nov. 10 2009	Nov. 17 2009	After Nov. 20
Trace Elements, Anions	Carbonate Alkalinity	mg/L	<5.0 T	<5.0	<5.0		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	
	Bicarbonate Alkalinity	mg/L	15T	14	15		16	14	16	15	14	14	
	Alkalinity	mg/L	15T	14	15		14	15	15	14	14	13	
	Copper	µg/L	X	0.8	0.6		1.1	1.5	0.7	0.6	0.9	0.7	
	Chromium	µg/L	X	0.5	<0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
	Lead	µg/L	X	0.5	<0.5		<0.5	0.6	<0.5	<0.5	<0.5	<0.5	
Trace Elements, Total	Nickel	µg/L	X	<1.0	<1.0		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
	Zinc	µg/L	X	4.4	2.8		2.6	4.7	<2.0	<2.0	2.6	<2.0	
	Arsenic	µg/L	X	1.2	1.4		1.2	1.6	1.6	1.7	2.4	2.3	
	Mercury	µg/L		<2.0	<2.0		2.3	<2.0	<2.0	<2.0	<2.0	<2.0	
	Selenium	µg/L		<0.4	<0.4		<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	
Pesticides	Organochlorine Scan	µg/L		ND (22)	ND (22)		ND (22)	ND (22)	ND (22)	ND (22)	ND (22)	ND (22)	
	Pyrethroid Scan	µg/L		ND (6) T	ND (6) T		ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	
	Carbamates	µg/L		X	X		ND (10)	ND (10)	X	X	ND (10)	ND (10)	
	Organophosphates	µg/L	ND (29)	ND (29)	ND (29)		ND (29)	ND (29)	ND (29)	ND (29)	ND (28*)	ND (29)	

Table 2-12. continued

BOR Analysis	Water Rights Order	Units	Base-line	Routine Samples									Post-Release	
			Oct. 1 2009	Oct. 7 2009	Oct. 9 2009	Oct. 13 2009	Oct. 16 2009	Oct. 19 2009	Oct. 27 2009	Nov. 3 2009	Nov. 10 2009	Nov. 17 2009	After Nov. 20	
Field Measurements	pH	units		6.8	5.9			6.7	7.2	6.4	6.8	6.3	6.8	
	Conductivity	µS/cm		36	39			41	53	41	39	40	44	
	Turbidity	NTU		3	3			2	3	4	4	7	3	
	Dissolved Oxygen	mg/L						5.6		6.6	8.9			
	Temperature	°C		18.6	18.4			19.1	18.1	15.2	15.2	14.9	13.1	
* Nov. 11. 2009 Sulfate = 1.5 µg/L = Reporting limit; X – Results Pending; T – Result Obtained Past the Holding Time; Not Required for Water Rights Order (WR 2009-0058-DWR)														
Source: Reclamation 2010														

2.2.8 Relationship to Related Projects

Federal Energy Regulatory Commission (FERC) Ruling on Tuolumne River (Project No 2299-065)

The *1995 New Don Pedro Settlement Agreement* contains instream flow requirements on the Tuolumne River for the anadromous fishery downstream from the project (FERC 2009). NMFS, USFWS, and CDFG, as well as several non-governmental organizations, have sought to modify the requirements to provide flow and related conditions they believe are necessary to protect threatened Central Valley steelhead and Chinook salmon Essential Fish Habitat (EFH). The recommendations are being considered by FERC and no decision has been made at this time. The Federal Energy Regulatory Commission ruling could result in increased flow releases from Don Pedro Reservoir that would increase flows in the San Joaquin River downstream from its confluence with Tuolumne River, and thus, could affect flow conditions within the San Joaquin River during WY 2011. In such an event, the Reclamation would work with the fish agencies to evaluate resulting changes in flows to ensure that listed species are not adversely affected by the Proposed Action.

Specific flow conditions that are being addressed and could change as a result of a FERC decision include:

- Spawning flow – October 1 to March 31
- Attraction pulse flows - Fall
- Outmigration flows - Spring
- Oversummering flow - June 1 through September 30

Hills Ferry Barrier

As described in the WY 2010 Final EA/IS (pages 2-38 through 2-39), the Hills Ferry Barrier is a resistance weir consisting of panels aligned perpendicular to the flow of the river with evenly spaced pipes that allow water, small fish, and particles to pass but prevent larger fish such as adult Chinook salmon from passing upstream. The barrier has been operated by DFG on the San Joaquin River since 1992. SJRRP plans to conduct an evaluation of the Hills Ferry Barrier during the fall 2010 to assess the effectiveness of the barrier in blocking the upstream passage of Chinook salmon and steelhead into the San Joaquin River.

The barrier is usually installed and operated from mid-September through December each year. The barrier is staffed 24 hours a day to visually monitor its success, remove accumulated debris and assist boaters in passing the structure. The barrier has been highly effective at redirecting salmon, but is not without limitations. The barrier's effective sustained flow capacity is 1,000 cfs, with the ability to withstand short-duration flows up to 1,500 cfs. Flows greater than 1,750 cfs will totally submerge the barrier. Interim Flows will begin October 1 and continue through December 1, 2010, with Friant Dam releases

ranging from 350-700 cfs. Flows at the barrier are not expected to reach 1,000 cfs during the typical barrier operation period in WY 2011 (see Table 2-1).

The Hills Ferry Barrier has not been operated in the spring when juvenile salmon and steelhead are emigrating from the downstream tributaries. The opportunity for these juveniles to access the San Joaquin River upstream of the Merced River has been extremely low due to inhospitable water flow and water quality conditions. However, Interim Flows will likely provide conditions that could allow emigrating juvenile salmon and steelhead to stray upstream of the Merced River. The need to maintain a barrier at Hills Ferry during the spring period, prior to reintroduction, is to be evaluated by CDFG as part of the SJRRP fishery investigations (SJRRP 2010f).

Vernalis Adaptive Management Plan

The SWRCB adopted the 1995 Bay-Delta Water Quality Control Plan (WQCP) on May 22, 1995, which became the basis of SWRCB Decision-1641 (D-1641). The SWRCB amended the WQCP in 2006, but to date, the SWRCB has made no significant changes to the 1995 WQCP framework. With D-1641, the SWRCB implements the objectives set forth in the 1995 WQCP and imposes flow and water quality objectives upon the CVP and SWP to assure protection of beneficial uses in the Delta. The various flow objectives and export restraints are designed to protect fisheries and other beneficial uses. These objectives include specific outflow requirements throughout the year, specific export restraints in the spring, and export limits based on a percentage of estuary inflow throughout the year. The water quality objectives are designed to protect agricultural, municipal and industrial, and fishery uses, and they vary throughout the year and by the wetness of the year. D-1641 modified the Vernalis salinity standard under SWRCB Decision 1422 to the corresponding Vernalis salinity objective in the 1995 WQCP.

The Vernalis Adaptive Management Plan (VAMP) was established in 2000 as an experimental program to determine how salmon survival rates change in response to alterations in flow releases (primarily from San Joaquin River tributary reservoirs), and alterations in CVP/SWP export levels that are based on flow conditions in the San Joaquin River at Vernalis.

The last VAMP experiment will occur in WY 2010. The SWRCB is committed to incorporating the results of the VAMP experiments during its review of the WQCP objectives, which is scheduled to be completed by mid-2012. An Independent Review Panel charged with a review of VAMP met on March 2 and 3, 2010. Their review will inform the SWRCB's review of the objectives. Because of the uncertainties regarding the specific future flow objectives as determined by the SWRCB review process, Reclamation will continue to operate in compliance with all applicable laws, permits, regulations, and existing BOs (and RPAs) regarding implementation of VAMP or a similar program.

Expiration of VAMP in WY 2010 leaves Reclamation and DWR solely responsible for providing the flows at Vernalis necessary to meet D-1641 requirements and the NMFS operations BO and RPAs in WY 2011. Without VAMP, or any future regulatory action,

VAMP flow contributions from the Merced and Tuolumne Rivers will be set based on existing flow requirements, and would not be subject to change in flow conditions at Vernalis, as could have occurred if Interim Flows contributed to Vernalis flows thus allowing releases from the tributaries to be correspondingly reduced. Without the requirement that all three tributaries provide flows necessary to meet Vernalis requirements, as under VAMP, WY 2011 Interim Flow contributions to Vernalis flows would not be cause for decreased releases in the Merced and Tuolumne Rivers. Also, implementation of NMFS operation BO and RPAs applicable to Stanislaus River flow releases during WY 2011 would assure that using Interim Flows to meet Vernalis flow requirements would not adversely affect conditions in the Stanislaus River. The WY 2011 Interim Flows have the potential to increase San Joaquin River flows downstream of the confluence with the Merced River by up to 1,300 cfs.

NMFS and USFWS Operations Biological Opinions

On December 15, 2008 the USFWS issued the USFWS Operations BO. The USFWS Operations BO concluded that the proposed CVP and SWP project operations were likely to jeopardize the continued existence of delta smelt (USFWS 2008). The USFWS developed a reasonable and prudent alternative (RPA) to: (1) reduce/prevent entrainment of delta smelt at Jones and Banks pumping plants; (2) provide adequate habitat conditions for migration and spawning in the Delta; (3) provide adequate habitat for larval and juvenile rearing; and (4) provide habitat suitable for successful recruitment of juvenile delta smelt to adulthood.

On June 4, 2009 NMFS issued the NMFS Operations BO. The 2009 NMFS Operations BO concluded that the proposed operations were likely to jeopardize the continued existence of the following:

- Sacramento River Winter-run Chinook Salmon
- Central Valley Spring-run Chinook Salmon
- Central Valley Steelhead
- Southern Distinct Population Segment of North American Green Sturgeon
- Southern Resident Killer Whales

The NMFS Operation BO stated that the SWP and CVP have “both directly altered the hydrodynamics of the Sacramento-San Joaquin River basins and have interacted with other activities affecting the Delta to create an altered environment that adversely influences salmon and green sturgeon population dynamics. The altered environment includes changes in habitat formation, species composition, and water quality, among others” (NMFS 2009). The opinion further concluded that the SWP/CVP operations are not likely to jeopardize the continued existence of Central California Coast steelhead. NMFS developed an RPA in accordance with ESA requirements. NMFS indicated that based on the analyses presented in the biological opinion that the “RPA cannot and does not, however, include all steps that would be necessary to achieve recovery.”

Consequently, NMFS included focused actions designed to compensate for a particular stressor (NMFS 2009).

Reclamation provisionally accepted the USFWS and NMFS Operation BOs and respective RPAs. Several urban and agricultural water suppliers have filed suit challenging the BOs, which are currently pending⁵.

On March 25, 2010, NMFS issued a determination that Reclamation's anticipated operations, as shown in the figures and tables within that memorandum, were consistent with specific actions of the RPA. The WY 2011 Interim Flows Project will be operated to comply with applicable USFWS and NMFS Operation BO RPAs, or requirements as amended by court action. The RPAs included in the USFWS and NMFS Operations BOs address conditions within the Stanislaus River and downstream that affect the Central Valley steelhead distinct population segment (DPS), and conditions within the Delta that affect the steelhead DPS, the southern green sturgeon DPS, the winter-run and the spring-run Chinook salmon ESUs, and delta smelt.

⁵ If conditions change as challenges to the USFWS and NMFS Operations BOs move forward, Reclamation will comply with the regulations and legal requirements in place at that time.

3.0 Affected Environment and Environmental Consequences

Detailed descriptions of the physical environment and existing conditions that could be affected by the Proposed Action, as well as the environmental consequences resulting from implementation of the Proposed Action or the No-Action Alternative consistent with NEPA and CEQA Guidelines are included in Sections 3 and 4, respectively, of the WY 2010 Final EA/IS (Appendix A). The following sections summarize the changes to the affected environment and environmental consequences analyses considered in the WY 2010 Final EA/IS that would potentially result from implementation of the WY 2011 Interim Flows. Although this document is a Supplemental EA, CEQA-related language and impact determinations are included in this section for consistency with the WY 2010 Final EA/IS and to allow direct reference and comparison between the two documents.

3.1 Changes to the Affected Environment

The study area (discussed in Section 1) is broadly defined to evaluate potential environmental effects of the Proposed Action. The geographic areas where effects may occur differ according to resource category; therefore, resource-specific descriptions of the affected environment are generally prepared to support the environmental consequences analyses. For implementation of the Interim Flows Project in WY 2011, the affected environment descriptions would not vary substantially from those presented in the WY 2010 Final EA/IS. Table 3-1 summarizes the changes to the resource-specific affected environment descriptions presented in Section 3 of the WY 2010 Final EA/IS.

3.1.1 Agricultural Resources

Although no specific changes to the geographic area of analysis for Agricultural Resources has occurred from the description contained in the WY 2010 Final EA/IS (pages 3-7 through 3-14), additional clarification is included to disclose potential impacts to Agricultural Resources potentially resulting from reductions in deliveries during WY 2011 to Friant Division water contractors.

Table 3-4 in the WY 2010 Final EA/IS (page 3-13) shows the acreages of land in use by Friant Division contractors. The 28 contractors include both agricultural and municipal and industrial (M&I) contractors. Locations of the Friant Division contractors are shown in Figure 3-2 of the WY 2010 Final EA/IS (page 3-14).

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**Table 3-1.
Summary of Changes to the Affected Environment and Environmental Consequences Analyses
from the WY 2010 Final EA/IS**

Resource Topic	Changes to Affected Environment	Environmental Consequences Analysis
Aesthetics	There are no changes in the affected environment from those described in the WY 2010 Final EA/IS (pages 3-2 through 3-6). The vividness, intactness, and unity of the three geographic subareas considered in the WY 2010 Final EA/IS remains the same.	Implementation of the Proposed Action or the No-Action Alternative would not result in any new significant effects or substantial increase in the severity of effects previously analyzed in the WY 2010 Final EA/IS. Therefore, for the same reasons as described in the WY 2010 Final EA/IS, the continuation of the Interim Flows through WY 2011 would result in no impacts or less than significant impacts to aesthetics.
Agricultural Resources	There are no changes to the existing conditions, although additional information made available through the implementation of the WY 2010 Interim Flows (see Section 2 of this Supplemental EA) may result in minor changes to the environmental consequences analysis for Agricultural Resources from the WY 2010 Final EA/IS. See Section 3.1.1 for additional details.	Recaptured water available for transfer to Friant Division long-term contractors would range from zero to the quantity of water under Interim Flows that reaches the Mendota Pool and would vary based upon the water year type. Although recapture opportunities could be constrained during some times under certain hydrologic conditions, it is unlikely that this limitation would result in conversion of agricultural lands to non-agricultural uses. Therefore, as discussed below and for the same reasons as described in the WY 2010 Final EA/IS (pages 4-8 through 4-10), impacts to Agricultural Resources are less than significant. See Section 3.2.3 below for additional details and analysis.
Air Quality	There are no changes in the affected environment from those described in the WY 2010 Final EA/IS (pages 3-15 through 3-22). The existing air quality conditions in the area, determined by such natural factors as topography, meteorology, and climate, in addition to the amount of emissions released by existing sources, considered in the WY 2010 Final EA/IS remains the same. Additionally, the ambient air quality conditions and existing sensitive receptors remain unchanged.	Implementation of the Proposed Action or the No-Action Alternative would not result in any new significant effects or substantial increase in the severity of effects previously analyzed in the WY 2010 Final EA/IS. Therefore, for the same reasons as described in the WY 2010 Final EA/IS, the continuation of the Interim Flows through WY 2011 would result in less than significant impacts to air quality.

Table 3-1. *continued*

Resource Topic	Changes to Affected Environment	Environmental Consequences Analysis
Biological Resources – Terrestrial Resources	Changes to the existing conditions and additional information made available through the implementation of the WY 2010 Interim Flows (see Section 2 of this Supplemental EA) result in minor changes to the affected environment for Biological Resources – Terrestrial Resources from those conditions considered in the WY 2010 Final EA/IS. See Section 3.1.2 for additional details.	Although additional data have been collected during the WY 2010 Interim Flow releases and will continue as part of the Proposed Action, no specific changes to the environmental consequences for Terrestrial Resources as presented in the WY 2010 Final EA/IS would occur related to these monitoring activities or the information collected. For the same reasons as described in the WY 2010 Final EA/IS (pages 4-39 through 4-71) and as presented in the WY 2011 Interim Flows BA, the Proposed Action would not result in substantial adverse effects to terrestrial resources (including listed, special-status, native, or migratory wildlife species) or their habitats. See Section 3.2.3 below for additional details and analysis.
Biological Resources – Fish	Changes to the existing conditions and additional information made available through the implementation of the WY 2010 Interim Flows (see Section 2 of this Supplemental EA) result in minor changes to the affected environment for Biological Resources – Fish from those conditions considered in the WY 2010 Final EA/IS. See Section 3.1.3 for additional details.	Although additional data have been collected during the WY 2010 Interim Flow releases and will continue as part of the Proposed Action, no specific changes to the environmental consequences for Fisheries Resources as presented in the WY 2010 Final EA/IS would occur related to these monitoring activities or the information collected. For the same reasons as described in the WY 2010 Final EA/IS (pages 4-39 through 4-71) and as presented in the WY 2011 Interim Flows BA, the Proposed Action would not result in substantial adverse effects to fish resources (including listed, special-status, native, or migratory fish species) or their habitats. See Section 3.2.3 below for additional details and analysis.

Table 3-1. continued

Resource Topic	Changes to Affected Environment	Environmental Consequences Analysis
Cultural Resources	There are no changes in the affected environment from those described in the WY 2010 Final EA/IS (pages 3-44 through 3-47). The prehistoric and historic-era archaeological sites, Traditional Cultural Properties, Sites of Religious and Cultural Significance, architectural properties (e.g., buildings, bridges, and structures), and/or historic properties (as defined by the National Historic Preservation Act) considered in the WY 2010 Final EA/IS remains the same.	Implementation of the Proposed Action or the No-Action Alternative would not result in any new significant effects or substantial increase in the severity of effects previously in the WY 2010 Final EA/IS. Therefore, for the same reasons as described in the WY 2010 Final EA/IS, the continuation of the Interim Flows through WY 2011 would result in no impacts or less than significant impacts to cultural resources.
Geology and Soils	There are no changes in the affected environment from those described in the WY 2010 Final EA/IS (pages 3-48 through 3-54). The geology and seismicity, land subsidence, and salt conditions considered by geologic provinces, physiographic regions, and other large-scale areas in the WY 2010 Final EA/IS remain the same.	Implementation of the Proposed Action or the No-Action Alternative would not result in any new significant effects or substantial increase in the severity of effects previously analyzed in the WY 2010 Final EA/IS. Therefore, for the same reasons as described in the WY 2010 Final EA/IS, the continuation of the Interim Flows through WY 2011 would result in no impacts or less than significant impacts to geology and soils.
Hazards and Hazardous Materials	There are no changes in the affected environment from those described in the WY 2010 Final EA/IS (pages 3-58 through 3-62). The hazards and hazardous material existing conditions considered in the WY 2010 Final EA/IS by anthropogenic hazards, West Nile virus (WNV), Valley Fever, school safety, oil and gas wells, wildland fire, and aircraft safety, remain the same.	Implementation of the Proposed Action or the No-Action Alternative would not result in any new significant effects or substantial increase in the severity of effects previously analyzed in the WY 2010 Final EA/IS. Therefore, for the same reasons as described in the WY 2010 Final EA/IS, the continuation of the Interim Flows through WY 2011 would result in no impacts or less than significant impacts to hazards and hazardous materials.

Table 3-1. *continued*

Resource Topic	Changes to Affected Environment	Environmental Consequences Analysis
Hydrology and Water Quality	Changes to the existing conditions and additional information made available through the implementation of the WY 2010 Interim Flows (see Section 2 of this Supplemental EA) result in minor changes to the affected environment for Hydrology and Water Quality from the conditions considered in the WY 2010 Final EA/IS. See Section 3.1.4 for additional details.	Although WY 2011 Interim Flows would be implemented similarly to WY 2010 Interim Flows, no new or more severe impacts would result due to implementation of WY 2011 Interim Flows from those described in the WY 2010 Final EA/IS. Additional information, monitoring results, and refined understanding of project operations (e.g., channel capacities and system operations) do not alter the discussion of hydrology and water quality effects included in the WY 2010 Final EA/IS. As discussed in the WY 2010 Final EA/IS (pages 4-84 through 4-150), the Proposed Action would not result in substantial alteration to hydrology and water quality conditions in the Restoration Area. Therefore, for the same reasons as described in the WY 2010 Final EA/IS, the Proposed Action would result in less than significant impacts to Hydrology and Water Quality. See Section 3.2.3 below for additional details and analysis.
Land Use and Planning	There are no changes in the affected environment from those considered in the WY 2010 Final EA/IS (pages 3-7 through 3-14). The Land Use and Planning conditions (included with Agricultural Resources description) considered in the WY 2010 Final EA/IS remain the same.	Implementation of the Proposed Action or the No-Action Alternative would not result in any new significant effects or substantial increase in the severity of effects previously analyzed in the WY 2010 Final EA/IS. Therefore, for the same reasons as described in the WY 2010 Final EA/IS, the continuation of the Interim Flows through WY 2011 would result in no impacts or less than significant impacts to land use and planning.
Mineral Resources	There are no changes in the affected environment from those described in the WY 2010 Final EA/IS (pages 3-55 through 3-57). The mineral resource characteristics of the region considered in the WY 2010 Final EA/IS remain the same.	Implementation of the Proposed Action or the No-Action Alternative would not result in any new significant effects or substantial increase in the severity of effects previously analyzed in the WY 2010 Final EA/IS. Therefore, for the same reasons as described in the WY 2010 Final EA/IS, the continuation of the Interim Flows through WY 2011 would result in no impacts to mineral resources.

Table 3-1. *continued*

Resource Topic	Changes to Affected Environment	Environmental Consequences Analysis
Noise	There are no changes in the affected environment from those described in the WY 2010 Final EA/IS (pages 3-127 through 3-128). The existing noise and vibration conditions in and surrounding the Restoration Area and in the San Joaquin River from Merced to the Delta considered in the WY 2010 Final EA/IS remain the same.	Implementation of the Proposed Action or the No-Action Alternative would not result in any new significant effects or substantial increase in the severity of effects previously analyzed in the WY 2010 Final EA/IS. Therefore, for the same reasons as described in the WY 2010 Final EA/IS, the continuation of the Interim Flows through WY 2011 would result in no impacts or less than significant impacts to noise.
Population and Housing	There are no changes in the affected environment from those described in the WY 2010 Final EA/IS (pages 3-129 through 3-130). The population and housing trends for the three-county Restoration Area and the five-county Friant Division Water Contractors Service Areas (Friant Division Service Area) considered in the WY 2010 Final EA/IS remain the same.	Implementation of the Proposed Action or the No-Action Alternative would not result in any new significant effects or substantial increase in the severity of effects previously analyzed in the WY 2010 Final EA/IS. Therefore, for the same reasons as described in the WY 2010 Final EA/IS, the continuation of the Interim Flows through WY 2011 would result in no impacts to population and housing.
Public Services	There are no changes in the affected environment from those described in the WY 2010 Final EA/IS (pages 3-145 through 3-148). The utilities and public service systems within the Restoration Area, including fire protection services, law enforcement services, and emergency services, as well as utilities and public service systems addressed to some degree in other resource section affected environments considered in the WY 2010 Final EA/IS remain the same.	Implementation of the Proposed Action or the No-Action Alternative would not result in any new significant effects or substantial increase in the severity of effects previously analyzed in the WY 2010 Final EA/IS. Therefore, for the same reasons as described in the WY 2010 Final EA/IS, the continuation of the Interim Flows through WY 2011 would result in no impacts or less than significant impacts to public services.
Recreation	There are no changes in the affected environment from those described in the WY 2010 Final EA/IS (pages 3-131 through 3-139). The recreation facilities, activities, and opportunities considered in the WY 2010 Final EA/IS remain the same.	Implementation of the Proposed Action or the No-Action Alternative would not result in any new significant effects or substantial increase in the severity of effects previously analyzed in the WY 2010 Final EA/IS. Therefore, for the same reasons as described in the WY 2010 Final EA/IS, the continuation of the Interim Flows through WY 2011 would result in no impacts or less than significant impacts to recreation.

Table 3-1. *continued*

Resource Topic	Changes to Affected Environment	Environmental Consequences Analysis
Transportation/Traffic	There are no changes in the affected environment from those described in the WY 2010 Final EA/IS (pages 3-140 through 3-144). The transportation, traffic, and infrastructure (e.g., roadway, railroad, and utility crossings) conditions considered in the WY 2010 Final EA/IS remain the same.	Implementation of the Proposed Action or the No-Action Alternative would not result in any new significant effects or substantial increase in the severity of effects previously analyzed in the WY 2010 Final EA/IS. Therefore, for the same reasons as described in the WY 2010 Final EA/IS, the continuation of the Interim Flows through WY 2011 would result in no impacts or less than significant impacts to transportation and traffic.
Utilities and Service Systems	There are no changes in the affected environment from those described in the WY 2010 Final EA/IS (pages 3-145 through 3-148). The Utilities and Service Systems (included with the Public Services description) in WY 2010 Final EA/IS remain the same.	Implementation of the Proposed Action or the No-Action Alternative would not result in any new significant effects or substantial increase in the severity of effects previously analyzed in the WY 2010 Final EA/IS. Therefore, for the same reasons as described in the WY 2010 Final EA/IS, the continuation of the Interim Flows through WY 2011 would result in no impacts or less than significant impacts to utilities and service systems.

3.1.2 Biological Resources – Terrestrial Resources

Although no specific changes to the geographic area of analysis for Terrestrial Resources has occurred from the description contained in the WY 2010 Final EA/IS (pages 3-23 through 3-39), changes to the conditions under which the project will be implemented may have an effect on this resource. Under the Proposed Action, WY 2011 Interim Flows would be released as described in Section 2. Because the Invasive Species Management Plan (Appendix F to the WY 2010 Final EA/IS) will be implemented during WY 2010 and during WY 2011 Interim Flow releases, the environmental consequences analysis for Terrestrial Resources may have changed.

3.1.3 Biological Resources – Fish

Although no specific changes to the geographic area of analysis for Fisheries Resources has occurred from the description contained in the WY 2010 Final EA/IS (pages 3-40 through 3-43), monitoring activities (e.g., flow, temperature, water quality) were conducted during WY 2010 Interim Flows Project and will be continued during implementation of WY 2011 Interim Flow releases (see Section 2 above). These data collection and monitoring activities will provide detailed information that will be used to validate the hydraulic models and sediment transport analyses which support planning and design. The data will assist the SJRRP in identifying and addressing fisheries and flow-related issues that are linked to the physical processes of the river system under current and future anticipated restoration conditions.

3.1.4 Hydrology and Water Quality

Although no specific changes to the geographic area of analysis for Fisheries Resources has occurred from the description contained in the WY 2010 Final EA/IS (pages 3-63 through 3-126), monitoring activities (e.g., seepage monitoring, flow and water temperature measurements, bed material sampling, water quality monitoring) were conducted during WY 2010 Interim Flows Project and will be continued during implementation of WY 2011 Interim Flow releases (see Section 2 above). Data collected during the Interim Flow releases (for WY 2010 and future WY 2011) will be used to adjust current assumptions of the physical and biological system and to develop a better understanding of the relationships between the river's hydrologic processes (e.g., river stage, roughness, geometry, and interaction with the unconfined aquifer).

3.2 Environmental Consequences Analysis

This section presents the environmental consequences and analysis of cumulative effects potentially resulting from implementation of the Proposed Action. Because the No-Action Alternative has not changed from the conditions described in the WY 2010 Final EA/IS, the analysis of the potential impacts associated with the No-Action Alternative for each resource area remains unchanged and is not repeated here (the WY 2010 Final EA/IS is included as Appendix A to this document).

The following sections summarize information and findings from the WY 2010 Final EA/IS relevant to implementation of the Proposed Action. Section 3.2.1 includes a discussion of the resource topics that would not result in any new significant effects or substantial increase in the severity of effects previously analyzed in the WY 2010 Final EA/IS. Although this document is a Supplemental EA, Section 3.2.2 discusses resource areas required under CEQA in accordance with the 2010 CEQA Environmental Checklist in order to provide the most current information available at the time of publication of this document. Section 3.2.3 describes those resource topics potentially affected by new information or data collected during implementation of the WY 2010 Interim Flows Project and describes any changes in significance determinations from those presented in the WY 2010 Final EA/IS.

3.2.1 Resource Topics Not Requiring Further Evaluation

The environmental consequences analyses and impact determinations for the Proposed Action from the WY 2010 Final EA/IS were reviewed with the current/new available information described above in Section 2. Based upon this review, it was determined that the following resource topics would not result in any new or more significant effects due to implementation of a second year of Interim Flows during WY 2011.

Aesthetics

Although the Proposed Action could result in changes to the visual setting, for the same reasons as described in the WY 2010 Final EA/IS (pages 4-6 through 4-7), the continuation of the Interim Flows through WY 2011 would not have a substantial effect on a scenic vista, not substantially damage scenic resources, not substantially degrade the existing visual character or quality of Millerton Lake, the Restoration Area, the San Joaquin River below the Merced River confluence to the Delta, or their surroundings, or create a new source of substantial light or glare. Therefore, impacts to Aesthetics are less than significant.

Air Quality

Although the Interim Flows Project emissions would not exceed SJVAPCD thresholds, ground-clearing activities using large mechanical equipment for vegetation removal could result in emissions of PM₁₀ and PM_{2.5} and, thus, these activities would be subject to SJVAPCD Regulation VIII: Fugitive PM₁₀ Prohibitions. However, for the same reasons as described in the WY 2010 Final EA/IS and as adopted for this Supplemental EA, the Proposed Action includes implementing measures necessary to comply with SJVAPCD Regulation VIII: Fugitive PM₁₀ Prohibitions; therefore, project-generated operational emissions would not conflict with or obstruct implementation of an applicable air quality plan, violate an air quality standard, contribute substantially to an existing or projected air quality violation, or result in a cumulatively considerable net increase of any criteria pollutant for which the Proposed Action region is nonattainment under an applicable Federal or State ambient air quality standard. For the same reasons as described in the WY 2010 Final EA/IS (pages 4-11 through 4-17), there would be less than significant impacts to Air Quality.

Cultural Resources

Although some ground-disturbing activities and operational changes (e.g., timing and magnitude of reservoir elevation fluctuations; magnitude and duration of flows) could occur, for the same reasons as described in the WY 2010 Final EA/IS (pages 4-72 through 4-74), the Proposed Action would not cause a substantial adverse change in the significance of a historical or archeological resource, not directly or indirectly destroy a unique paleontological resource/site or geologic feature, or likely disturb any human remains. Therefore, impacts to Cultural Resources are less than significant.

Geology and Soils

For the same reasons as described in the WY 2010 Final EA/IS, the Proposed Action would not involve conditions that could result in seismic activity or related ground failure or landslides. Although the Proposed Action would alter the timing and magnitude of reservoir elevation fluctuations and magnitude and duration of instream flows, for the reasons as described in the WY 2010 Final EA/IS (pages 4-75 through 4-78), potential changes to downstream stream erosion characteristics and localized changes in downstream geomorphologic characteristics would be less than significant. Additionally, the Proposed Action would not increase the risk of landslides, lateral spreading, liquefaction, or collapse, would not increase risks to life or property due to the presence of expansive soils within the region, and would not involve temporary or long-term installation or use of wastewater disposal systems. Therefore, impacts to Geology and Soils are less than significant.

Hazards and Hazardous Materials

Although the Proposed Action could involve application of herbicidal chemicals to control and manage nonnative invasive plant species, for the same reasons as described in the WY 2010 Final EA/IS (pages 4-79 through 4-83), the Proposed Action would not create a significant hazard to the public or the environment. Therefore, Hazards and Hazardous Materials impacts would be less than significant.

Land Use and Planning

For the same reasons as described in the WY 2010 Final EA/IS, implementation of the Proposed Action involves release of Interim Flows, which could temporarily disrupt local circulation through the inundation of local roads. However, for the same reasons as described in the WY 2010 Final EA/IS and as adopted for this Supplemental EA, the Proposed Action includes preparation and implementation of a detour plan. Therefore, for the same reasons as described in the WY 2010 Final EA/IS (pages 4-151 through 4-152), the Proposed Action would not physically divide and established community, not conflict with any applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect, and not conflict with any applicable habitat conservation plan or natural community conservation plan. Implementation of the Proposed Action would have less than significant impacts to Land Use and Planning.

Mineral Resources

Implementation of the Proposed Action would not result in the loss of availability of known resources that would be of value to the region or the residents of the state, and would not result in the loss of availability of a locally important mineral resource recovery site. Therefore, for the same reasons as described in the WY 2010 Final EA/IS (page 4-153), there would be no impacts to Mineral Resources.

Noise

Although the Proposed Action does not involve any construction-related activities, it does involve plant survey and removal activities involving some mechanical equipment. However, for the same reasons as described in the WY 2010 Final EA/IS, the noise-related impacts due to these activities would be temporary in nature and would not result in the exposure of persons to or generation of noise levels in excess of applicable standards, exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels, a substantial permanent increase in ambient noise levels, or a substantial temporary or periodic increase in ambient noise levels. Additionally, the Proposed Action would not be located within an airport land use plan or in the vicinity of a private airstrip where people residing or working in the project area could be exposed to excessive noise levels. Therefore, for the same reasons as described in the WY 2010 Final EA/IS (pages 4-154 through 4-157), there would be less than significant impacts to Noise.

Population and Housing

Implementation of the Proposed Action would not directly or indirectly induce substantial population growth in an area, displace substantial numbers of existing homes or people. Therefore, for the same reasons as described in the WY 2010 Final EA/IS (pages 4-158 through 4-159), there would be no impacts to Population and Housing.

Public Services

For the same reasons as described in the WY 2010 Final EA/IS, the Proposed Action has the potential to increase recreational opportunities on the San Joaquin River from Friant Dam downstream to the Delta, which could result in slightly increased demand on emergency services (e.g., fire and police protection) and parks and related public facilities. However, for the same reasons as described in the WY 2010 Final EA/IS (pages 4-160 through 4-161), the Proposed Action would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities in order to maintain acceptable service ratios, response times, or other performance objectives for the public services of fire protection, police protection, schools, parks, or other public facilities. Therefore, the Proposed Action would result in less than significant impacts on Public Services.

Recreation

Implementation of the Proposed Action has the potential to increase some recreational opportunities (e.g., boating and fishing) on the San Joaquin River from Friant Dam downstream to the Delta; however, uninformed recreationalists (e.g., boaters, swimmers, waders, anglers, and hunters) could be affected by increased spring and early summer flows in the San Joaquin River. For the same reasons as described in the WY 2010 Final EA/IS and as adopted for this Supplemental EA, the Proposed Action includes implementation of a Recreation Outreach Program. The purpose of the Recreation Outreach Program is to inform recreating public, as well as agencies and organizations that serve the recreating public, of changes in river flows that would occur as a result of the Proposed Action, and of the potential effects associated with those changes, including recreational boating, swimming/wading, and fishing hazards. Therefore, for the same reasons as discussed in the WY 2010 Final EA/IS (pages 4-162 through 4-164), the Proposed Action would not result in an increase in the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated, and would not include construction or expansion of recreational facilities. Impacts to Recreation would be less than significant.

Transportation/Traffic

Implementation of the Proposed Action has the potential to increase recreational opportunities on the San Joaquin River from Friant Dam downstream to the Delta, which could result in slightly increased traffic. Additionally, for the same reasons as described in the WY 2010 Final EA/IS, implementation of the Proposed Action involves release of Interim Flows, which could temporarily disrupt local circulation through the inundation of local roads. However, for the same reasons as described in the WY 2010 Final EA/IS and as adopted for this Supplemental EA, the Proposed Action includes preparation and implementation of a detour plan. Therefore, for the same reasons as discussed in the WY 2010 Final EA/IS (pages 4-165 through 4-167), the Proposed Action would not cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system, exceed, either individually or cumulatively, a level of service standard, result in a change in air traffic patterns, substantially increase hazards due to a design feature or incompatible uses, result in inadequate emergency access, result in inadequate parking, or conflict with adopted policies, plans, or programs supporting alternative transportation. Implementation of the Proposed Action would have less than significant impacts to Transportation/Traffic.

Utilities and Service Systems

Because the Proposed Action does not involve generation or treatment of wastewater or solid waste, demands for related facilities would not increase. Therefore, for the same reasons as discussed in the WY 2010 Final EA/IS (pages 4-168 through 4-171), the Proposed Action would not result in impacts to Utilities and Service Systems. Although the Proposed Action would involve reoperation of Friant Dam, and therefore change the distribution of water supplies (e.g., recapture and recirculation), the Proposed Action

would not increase demand on water supplies or require new or expanded entitlements. Therefore, Utilities and Service System impacts would be less than significant.

3.2.2 Other CEQA Required Resource Topics

The CEQA Checklist (Appendix G to the CEQA Guidelines [14 CCR secs. 15000-15387]) has been updated since the preparation of the WY 2010 Final EA/IS. Although this document is a Supplemental EA, additional resource topics identified in the 2010 CEQA Environmental Checklist from those considered in the WY 2010 Final EA/IS are presented below for consistency and disclosure purposes.

Agriculture and Forestry Resources

Although a discussion of Agricultural Resources was presented in the WY 2010 Final EA/IS and is discussed in relation to the Proposed Action below, a discussion of forestry resources was not specifically included in the WY 2010 Final EA/IS. However, although forestry resources do exist in the vicinity of the Proposed Action, implementation of the WY 2011 Interim Flow releases would not conflict with existing zoning for, or cause rezoning of, forest land or timberland, or result in the loss of forest land or conversion of forest land to non-forest uses. Therefore, there would be less than significant impacts to forest resources.

Greenhouse Gas Emissions

A discussion of global climate change, including greenhouse gas emissions resulting from implementation of the WY 2010 Interim Flows, was presented in the WY 2010 Final EA/IS. Because the WY 2011 Interim Flows would be implemented similarly to the WY 2010 Interim Flows, and for the same reasons as described in the WY 2010 Final EA/IS, the Proposed Project would not generate greenhouse gas emissions, either directly or indirectly, that would have a significant impact on the environment, and would not conflict with applicable plans, policies, or regulations adopted for the purposes of reducing greenhouse gasses. Therefore, for the same reasons as discussed in the WY 2010 Final EA/IS (pages 4-14 through 4-15) greenhouse gas emission impacts would be less than significant.

3.2.3 Resource Topics Potentially Affected by the Proposed Action

The environmental consequences analyses and impact determinations from the WY 2010 Final EA/IS were reviewed with the current/new available information described above in Section 2. Based upon review of the WY 2010 Final EA/IS, it was determined that the following resource topics could potentially result in changed effects (e.g., environmental consequences) due to implementation of a second year of Interim Flows during WY 2011. A discussion of the project elements with the potential to result in changed environmental conditions is provided as they relate to specific resource topics. Additionally, a discussion of the potential cumulative effects by resource topics is also included.

Agricultural Resources

Release of WY 2011 Interim Flows is a one-year action that will be consistent with the goals of the Settlement (see Appendix A of the WY 2010 Final EA/IS for additional information). Consistent with the Water Management Goal, Reclamation will take actions to reduce or avoid adverse water supply impacts on all of the Friant Division long-term contractors that may result from the WY 2011 Interim Flows. As described in Section 2, the Proposed Action includes recapturing WY 2011 Interim Flows, to the maximum extent possible, at locations along the San Joaquin River and/or in the Delta, consistent with and limited by existing operating criteria, prevailing and relevant laws, regulations, biological opinions, and court orders in place at the time the water is recaptured. Recirculation would be subject to available capacity within CVP/SWP storage and conveyance facilities, including the Jones and Banks pumping plants, California Aqueduct, DMC, San Luis Reservoir and related pumping facilities, and other facilities of CVP/SWP contractors (facilities are identified in Figure 2-13 [page 2-11] of the WY 2010 Final EA/IS).

Implementing the Proposed Action could increase flows entering the Delta from the San Joaquin River. Water recirculation via the CVP/SWP facilities would be possible using south-of-Delta facilities. Under the Proposed Action, recaptured water would be exchanged for a like amount of CVP water and/or would be recirculated and held in storage in San Luis Reservoir. However, recirculation of recaptured water to the Friant Division could require mutual agreements between Reclamation, DWR, Friant Division long-term contractors, and other south-of-Delta CVP/SWP contractors. Reclamation is working with the Friant Division long-term water contractors to prepare a separate Environmental Assessment to determine possible mechanisms to either exchange or deliver to the Friant Division long-term contractors recaptured water stored in San Luis Reservoir.

Recaptured water available for transfer to Friant Division long-term contractors would range from zero to the quantity of water under Interim Flows that reaches the Mendota Pool and would vary based upon the water year type. Based on additional information, monitoring data, and recommendations from the RA, the potential volumes of water available for recapture would vary slightly from those as described in the WY 2010 Final EA/IS (see Section 2 for additional information). During Wet years, the water available for recapture and transfer to the Friant Division long-term contractors would range between zero and 321 TAF (as shown in Table 2-4 of this document).

Potential reductions in the amount of water delivered to agricultural users could occur under the Proposed Action relative to existing conditions due to Reclamation's ability to recapture water (e.g., if capacity in CVP/SWP storage or conveyance facilities is limited). Although potential reductions in agricultural water deliveries generally could result in reduced crop yields, endangerment of permanent crops, decreased agricultural employment, and increased ground water pumping, which potentially could result in increased production costs and worsening of groundwater basin overdraft, occurrence of delivery reductions under the Proposed Action would be reduced or avoided through recapture, recirculation, and other means consistent with and as described in the

Settlement to limit adverse water supply impacts on the Friant Division long-term contractors. Additionally, implementation of the Proposed Action is consistent with the Settlement and Act and is limited to one year. Long term implementation of the Restoration Flows and changes to contract deliveries will be evaluated in the PEIS/R for the Settlement and Act. Therefore, although recapture opportunities could be constrained during some times under certain hydrologic conditions, it is unlikely that this limitation would result in conversion of agricultural lands to non-agricultural uses.

For the same reasons as described in the WY 2010 Final EA/IS, although Interim Flows could temporarily result in the inundation of some areas of active grazing lands in the bypasses, the potential inundation of productive farmland and grazing land would be temporary and similar to existing conditions and would not result in productive farmland and grazing land being converted to non-agricultural use. Additionally, continuation of the Interim Flows Project in WY 2011 would not convert or cause other changes that would result in the conversion of agricultural lands (e.g., prime farmland, unique farmland, or farmland of statewide importance) to non-agricultural uses, and would not conflict with existing zoning for agricultural or Williamson Act contracts. Therefore, for the same reasons as described in the WY 2010 Final EA/IS (pages 4-8 through 4-10) and in consideration of the above discussion, impacts to Agricultural Resources are less than significant.

Biological Resources – Terrestrial Species

Although monitoring has occurred and additional data have been collected during the WY 2010 Interim Flow releases and will continue as part of the Proposed Action (see Section 2 for this discussion), no specific changes to the environmental consequences for Terrestrial Resources presented in the WY 2010 Final EA/IS would occur related to these monitoring activities or the information collected.

However, for the same reasons as described in the WY 2010 Final EA/IS and as presented in Section 2 of this document, continued water management operations along the San Joaquin River (including the release of Interim Flows) could potentially result in the increase of the distribution and spread of invasive species within riparian habitats or sensitive communities. An Invasive Species Management Plan (Appendix F of the WY 2010 Final EA/IS) was adopted as Mitigation Measure Bio-1, which reduced this impact to less than significant. The Invasive Species Management Plan is summarized below and is also adopted as a mitigation measure for this Supplemental EA, such that impacts from implementation of the Proposed Action related to the spread of invasive species would be less than significant.

Mitigation Measure Bio-1: Implement an Invasive Vegetation Management Plan.

Reclamation would monitor red sesbania, salt cedar, giant reed, Chinese tallow, and sponge plant along affected portions of the San Joaquin River and bypass system (before and after WY 2011 Interim Flows) and control and manage these species, as specified in the Invasive Species Management Plan (Appendix F of the WY 2010 Final EA/IS).

Additionally, Chapter 6 of the Biological Assessment for implementation of Interim Flows during WY 2011 analyzes the impacts that would result from WY 2011 Interim Flows after incorporation of conservation measures developed to minimize potential effects on listed species. The effects of the WY 2011 Interim Flows will be similar to those for the WY 2010 Interim Flows (e.g., changes in timing of Millerton Reservoir water level fluctuations, San Joaquin River stage elevation, and contribution of inflows to the Delta). The Proposed Action is not expected to result in any measureable changes later in time to water levels, riparian vegetation, or other habitat conditions for listed species.

Because WY 2011 Interim Flows would be confined within the existing channel, would not increase flood flow levels, would last for only a single year, and would fall within the range of and be timed to be similar to historical flows, implementation of Interim Flows in WY 2011 would not result in adverse changes in conditions affecting terrestrial species or their habitats in the Restoration Area, and would not result in cumulative effects.

Therefore, for the same reasons as described in the WY 2010 Final EA/IS (pages 4-18 through 4-38) and as presented in the WY 2011 Interim Flows BA, the Proposed Action would not result in substantial adverse effects to terrestrial resources (including listed, special-status, native, or migratory wildlife species) or their habitats. Implementation of the Proposed Action would result in less than significant impacts to Terrestrial Biological Resources.

Biological Resources – Fish

Updated information on water quality and temperature during the fall WY 2010 Interim Flows is discussed in Section 2. Although additional data have been collected during the WY 2010 Interim Flow releases and will continue as part of the Proposed Action, no specific changes to the environmental consequences for Fisheries Resources presented in the WY 2010 Final EA/IS would occur related to these monitoring activities or the information collected.

Reclamation will coordinate with NMFS and USFWS to ensure that impacts to listed species will be avoided or minimized. This will be accomplished by continually providing and discussing streamflow, including the contribution of Interim Flows to that metric, and water quality data summaries. During periods when WY 2011 Interim Flows pass the confluence of the Merced River, Reclamation will hold weekly conference calls with NMFS and USFWS to discuss monitoring results and identify any potential impacts that could require changes in Interim Flows.

Recapture of Interim Flows will only occur in compliance with regulatory requirements, including the NMFS and USFWS Operations BOs, or the requirements in place at the time of recapture. Additionally, no diversion of Interim Flows into unscreened facilities downstream of the Restoration Area will occur when listed fish are likely to be present (see Section 2.2.2 Additional Implementation Considerations for more information).

In the event that WY 2011 Interim Flows cause impacts that are greater than anticipated, in consultation with the fishery agencies, Reclamation will work with the agencies to modify WY 2011 Interim Flow releases as needed to avoid or minimize impacts. Possible modifications include reducing flow releases, upstream diversions of flows to avoid downstream impacts, or constraining flows to the upper San Joaquin River (upstream of the confluence with the Merced River). This coordination between the agencies and Reclamation's commitment to modify flows based on real time conditions would ensure that the impacts of the WY 2011 Interim Flows would be less than significant.

Additionally, Chapter 6 of the BA for implementation of Interim Flows during WY 2011 analyzes the impacts that would result from WY 2011 Interim Flows after incorporation of conservation measures developed to minimize potential impacts to listed species. The effects of the WY 2011 Interim Flows will be similar to those for the WY 2010 Interim Flows. The Proposed Action is not expected to result in any measureable changes later in time to water levels, riparian vegetation, or other habitat conditions for listed species.

Because WY 2011 Interim Flows would be confined within the existing channel, would not increase flood flow levels, would last for only a single year, and would fall within the range of and be timed to be similar to historical flows, implementation of Interim Flows in WY 2011 would not result in adverse changes in conditions affecting fish species or their habitats in the Restoration Area, and would not result in cumulative effects.

Therefore, for the same reasons as described in the WY 2010 Final EA/IS (pages 4-39 through 4-71) and as presented in the WY 2011 Interim Flows BA, the Proposed Action would not result in substantial adverse effects to fish resources (including listed, special-status, native, or migratory fish species) or their habitats. Implementation of the Proposed Action would result in less than significant impacts to Fish Biological Resources.

Hydrology and Water Quality

Updated information on hydrology conditions and water quality monitoring conducted during the fall WY 2010 Interim Flow releases is discussed in Section 2. Although additional data have been collected during the WY 2010 Interim Flow releases and will continue as part of the Proposed Action, no specific changes to the environmental consequences for Hydrology and Water Quality presented in the WY 2010 Final EA/IS would occur related to these monitoring activities or the information collected.

Although WY 2011 Interim Flows would be implemented similarly to WY 2010 Interim Flows, no new or more severe impacts would result due to implementation of WY 2011 Interim Flows for the same reasons as described in the WY 2010 Final EA/IS. For the same reasons as described in the WY 2010 Final EA/IS, implementation of Interim Flows will cause inundation in Reaches 2 and 4A, which have previously lacked continuous flows. The mobilization of constituents could occur under the Proposed Action, which may lead to short term increases in surface water contaminant loads during WY 2011 Interim Flows. However, as described above in Section 2, the SJRRP's Interagency Streamflow and Water Quality Monitoring Subgroup prepared the Interim Flow Release

Program, Monitoring Plan (Monitoring Plan) to monitor water quality changes that may occur with the 2010-2013 Interim Flow Release Program⁶ (SJRRP 2010d) (Appendix E). A scan for four pesticides in the water column found that all four were at non-detectable levels at the sample locations (SJRRP 2010e). Water quality results for trace elements, bacteria, total suspended solids, organic carbon, and other field measurements were below levels of concern for human and aquatic life (SJRRP 2010e).

Implementation of the Proposed Action is consistent with the Settlement and Act. Long term implementation of the Restoration Flows and changes to hydrology and water quality will be evaluated in the PEIS/R for the Settlement and Act. No cumulative effects would occur under implementation of the Proposed Action.

Additional information, monitoring results, and refined understanding of project operations (e.g., channel capacities and system operations) are available, but for the same reasons as described in the WY 2010 Final EA/IS (pages 4-84 through 4-150), the Proposed Action would not result in substantial alteration to hydrology and water quality conditions in the Restoration Area. Therefore, for the same reasons as described in the WY 2010 Final EA/IS, the Proposed Action would result in less than significant impacts to Hydrology and Water Quality.

3.2.4 Mandatory Findings of Significance

Although this document is a Supplemental EA and does not require that findings of significance be made, this section is included here for consistency with the WY 2010 Final EA/IS. Under Section 15065(a) of the CEQA Guidelines, a finding of significance is required if a project “has the potential to substantially degrade the quality of the environment.” Section XVII of the CEQA Checklist (Appendix G to the CEQA Guidelines [14 CCR secs. 15000-15387]) includes the following questions related to Mandatory Findings of Significance:

- a) **Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of an endangered, rare, or threatened species, or eliminate important examples of the major periods of California history or prehistory?**

As presented in the WY 2010 Final EA/IS (Biological Resources – Terrestrial Species and Biological Resources – Fish, pages 4-18 through 4-71) and the resource discussion above, implementing the Proposed Action would not substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or reduce the number or restrict the range of an endangered, rare, or threatened species. The Proposed Action could cause a significant adverse effect by accelerating the spread of several invasive plant species

⁶ As described in the Settlement, Interim Flows may occur through 2013 and, thus, the Water Quality Monitoring Plan was prepared to address the entire Interim Flows timeframe.

already present along the San Joaquin River, but this effect would be less than significant with mitigation. Therefore, this impact would be less than significant.

- b) Does the project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)**

CEQ regulations that implement NEPA provisions define “cumulative effects” as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions” (40 CFR 1508.7). Cumulative effects can result from individually minor, but collectively significant, actions over time, and can differ from indirect impacts (40 CFR 1508.8).

Cumulative effects are caused by the incremental increase in total environmental effects when an evaluated project is added to other past, present, and reasonably foreseeable future actions. Cumulative effects can thus arise from causes that are totally unrelated to the project being evaluated, and the analysis of cumulative effects considers the life cycle of the effects, not the project at issue. These effects can be either adverse or beneficial. Cumulative impacts are defined in the State CEQA Guidelines (14 CCR Section 15355) as “two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.” A cumulative impact occurs from “the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time” (14 CCR Section 15355(b)).

No past, current, or probable future projects were identified in the project vicinity that, when added to project-related impacts, would result in a significant cumulative impact, and that would be cumulatively considerable. Projects considered in the cumulative analysis include: WY 2010 Interim Flows Project, SJRRP, and the Friant-Kern and Madera Canals Capacity Correction Project. Although land development activities are occurring adjacent to the San Joaquin River, these activities would be conducted outside of the river corridor and would not be affected by Interim Flow releases. Implementation of releases during WY 2011 would not result in any net increase in water allocations to federal or state water contractors such that no land-based cumulative effects would be anticipated to occur.

Although the WY 2010 Interim Flows Project and SJRRP are related to implementation of the WY 2011 Interim Flows, they would not overlap with the Proposed Action. As discussed in the WY 2010 Final EA/IS (pages 4-173 through 4-174), the only potential for cumulative effects between the WY 2010 (and similarly, WY 2011) Interim Flows releases and the SJRRP PEIS/R would be Friant Division water supplies. Under the WY 2011 Interim Flows, recirculation of recaptured water to the Friant Division could require

mutual agreements between Reclamation, DWR, Friant Division long-term contractors, and other south-of-Delta CVP/SWP contractors. Reclamation is working with the Friant Division long-term water contractors to prepare a separate Environmental Assessment to determine possible mechanisms to either exchange or deliver to the Friant Division long-term contractors recaptured water stored in San Luis Reservoir. Potential reductions in the amount of water delivered to agricultural users resulting from the ability to recapture water (e.g., if capacity in CVP/SWP storage conveyance facilities is limited) could occur under the Proposed Action. Although reductions in agricultural water deliveries are possible, occurrence of delivery reductions under the Proposed Action would be reduced or avoided through recapture, recirculation, and other means consistent with and as described in the Settlement to limit adverse water supply impacts on the Friant Division long-term contractors.

The SJRRP was developed to reduce resource conflicts and to aid in fish and wildlife protection. Although the individual resource discussions consider the impacts of implementing the WY 2011 Interim Flows (e.g., one year of Interim Flow releases), the SJRRP PEIS/R will evaluate the program-level and cumulative effects of the future potential implementation of the SJRRP, including the project-level and cumulative effects of both Interim Flows and Restoration Flows.

Additionally, consideration of the potential cumulative effects of the WY 2010 Interim Flows Project with Friant-Kern and Madera Canals Capacity Correction Project was addressed in the WY 2010 Final EA/IS. The continued release of Interim Flows during WY 2011 would not overlap with the Friant-Kern and Madera Canals Capacity Correction Project spatially or temporally. Because the Friant-Kern and Madera Canals Capacity Correction Project would not be completed until after the Proposed Action is implemented, and the Proposed Action would result in no net change in Millerton Lake water storage, there would be no cumulative effects between the Proposed Action and the Friant-Kern and Madera Canals Capacity Correction Project.

Therefore, as discussed in the WY 2010 Final EA/IS (pages 4-172 through 4-174) and as described above, the Proposed Action would result in less than significant cumulative effects.

c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?

As discussed in the WY 2010 Final EA/IS and discussed in this Supplemental EA, no project-related environmental effects were identified that would cause substantial adverse effects on human beings, either directly or indirectly. The impact would be less than significant.

3.2.5 Indian Trust Assets

As described in the WY 2010 Final EA/IS (page 4-175), the proposed Action would not affect Indian Trust Assets.

3.2.6 Socioeconomic Effects and Environmental Justice

As described in the WY 2010 Final EA/IS (page 4-175), and as discussed under the resource-specific discussions above, the proposed Action would have limited socioeconomic effects and would not result in Environmental Justice effects (e.g., disproportionately burden minority groups, low-income populations, or Native American Tribes).

3.2.7 Mitigation Measures

The following mitigation measures were implemented as part of the WY 2010 Final EA/IS to avoid or minimize potential environmental impacts. These mitigation measures also would be implemented during WY 2011 Interim Flow releases to reduce the potential environmental impacts of the Proposed Action to less-than-significant levels.

- **Mitigation Measure Bio-1: *Implement an Invasive Vegetation Management Plan.*** Reclamation shall monitor red sesbania, salt cedar, giant reed, Chinese tallow, and sponge plant along affected portions of the San Joaquin River and bypass system (before and after WY 2010 Interim Flows, and during WY 2011 Interim Flows) and control and manage these species as specified in the Invasive Species Monitoring and Management Plan included as Appendix F of the WY 2010 Final EA/IS.

The Environmental Commitments described in the WY 2010 Final EA/IS (Section 2.2.4, pages 2-33 through 2-34) and in Section 2 of this document will continue during implementation of the WY 2011 Interim Flows. Therefore, the Proposed Action would result in no new significant impacts or a substantial increase in the severity of impacts previously analyzed in the WY 2010 Final EA/IS. Therefore, for the same reasons as described in the WY 2010 Final EA/IS, the Proposed Action would result in less than significant impacts with mitigation incorporated.

4.0 Consultation and Coordination

This section reviews agency consultation and coordination that occurred before and during preparation of this Supplemental EA, and reviews the steps in the NEPA review process that follow release of this Supplemental EA. A description of the overall SJRRP outreach activities is provided in Section 5 of the WY 2010 Final EA/IS.

4.1 Consultation and Coordination for WY 2010 Final EA/IS

In accordance with NEPA/CEQA review requirements, the WY 2010 Interim Flows Project Draft EA/IS was distributed for agency and public review and written comment for a 30-day period, as specified in the NOI and the Notice of Availability. At the request of reviewers, the review period was extended to 44 days. Notice of release of the Draft EA/IS was provided to all individuals on the SJRRP public notification mailing list, which is updated automatically when individuals access the public Web site (www.restoresjr.net) and place themselves on the mailing list. The Draft EA/IS distribution provided interested parties with an opportunity to express their views regarding the significant environmental effects and other aspects of the Proposed Action, and also provided information pertinent to permits and approvals to decision makers at Reclamation, DWR, other Implementing Agencies, and CEQA responsible and trustee agencies.

After the public comment period closed, Reclamation and DWR prepared written responses to comments. Based on the Final EA and all public comments, Reclamation determined that the impacts of the Proposed Action did not warrant preparation of an EIS, as documented in the FONSI signed on September 25, 2009. DWR considered the Final IS and associated MND and all comments received during the public review process, and responses to those comments, in making its decision on the project. DWR found, on the basis of the whole record before it (including the IS and any comments received), that there was no substantial evidence that the Proposed Action will have a significant effect on the environment, and that the MND reflects DWR's independent judgment and analysis. Accordingly, DWR issued a Notice of Determination and adopted the IS and associated MND on September 25, 2009.

4.2 Current Steps in the NEPA Review Process

In accordance with NEPA review requirements, this Supplemental EA is being distributed for agency and public review and written comment for a 30-day period, as specified in the press release. Notice of release of this Supplemental EA will be provided to all individuals on the SJRRP public notification mailing list. The Supplemental EA distribution provides interested parties with an opportunity to express their views

regarding the significant environmental effects and other aspects of the Proposed Action, and also provides information pertinent to relevant permits and approvals.

After the public comment period closes, Reclamation will prepare written responses to comments, as needed, and attach the comment letters and responses as an appendix to the Final Supplemental EA. If, based on the Final Supplemental EA and all public comments, Reclamation decides that the impacts of the Proposed Action do not warrant preparation of an EIS, the FONNSI will be signed by Reclamation.

Additionally, as part of the ESA Section 7 requirements for the Proposed Action, a list of Federal threatened and endangered species, species proposed for listing, and species that potentially occur within the study area was obtained from USFWS and NMFS. Reclamation is engaging in informal consultation with USFWS and NMFS on the WY 2011 Interim Flows. A BA is being prepared by Reclamation and will be provided to USFWS and NMFS.

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