

SAN JOAQUIN RIVER
RESTORATION PROGRAM



Water Management Technical Feedback Meeting

August 20, 2010
Fresno, CA

SAN JOAQUIN RIVER
RESTORATION PROGRAM



Agenda Overview

- Comments on Meeting Notes
- MC/FKC Capacity Restoration / Reverse Flow Feasibility Studies
- Restoration Flow Guidelines
- Interim Flow Release Summary
- Recapture/Recirculation
- Next Meeting Date
- Public Comment



Comments on Meeting Notes



**Friant-Kern & Madera Canals
Capacity Restoration Project
&
Friant-Kern Canal Reverse Flow
Pump-Back Facilities Project**



Since Last Meeting

- Bi-Weekly Coordination Meetings
- Technical Meetings w/Authorities
- Completed “Full-Fix” Designs for Projects
- Completed Operations Modeling for Projects
- Completed Preliminary Benefits Modeling for CapRest
- Developed “Optimization” Model for CapRest
- Completed Cost Estimate for Reverse Pump



Friant-Kern & Madera Canals Capacity Restoration Project

SAN JOAQUIN RIVER RESTORATION PROGRAM

Outline

- Operations Results
- FKC & MC Designs
- Next Steps

SAN JOAQUIN RIVER RESTORATION PROGRAM

Operations

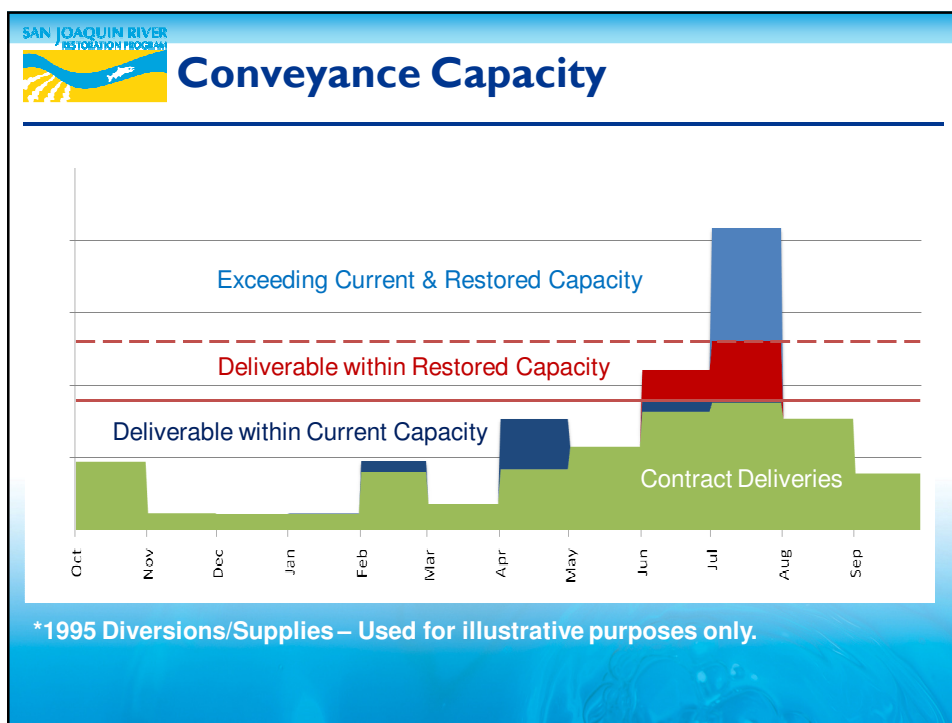
Friant Dam Spills

Screen #1: Basin Wetness

Screen #2: Conveyance Capacity

Screen #3: Delivery Capacity

Benefit



SAN JOAQUIN RIVER RESTORATION PROGRAM

Results

	Scenario 1	Scenario 2	Scenario 3
Average Annual Increase (acre-feet)	6,000	6,000	9,000
Maximum Annual Increase (acre-feet)	56,000	65,000	113,000
Delivery of RWA credits	3-8%	3-8 %	5-12%

SAN JOAQUIN RIVER RESTORATION PROGRAM

FKC & MC Designs

- Section 10201 of P.L. 111-111 authorizes the Secretary to conduct a feasibility study on the:

“Restoration of the capacity of the Friant-Kern Canal and Madera Canal to such capacity as previously designed and constructed by the Bureau of Reclamation.”

SAN JOAQUIN RIVER RESTORATION PROGRAM

FKC – Maximum Capacity

Friant-Kern Canal			HEC-RAS Current Maximum Capacity (cfs)	Designed Maximum Capacity (cfs) *
From	To	Mileposts		
Friant Dam	Kings River Check	0 to 28.52	5,300	5,300
Kings River Check	Kaweah River Check	28.52 to 71.29	4,600-3,800	5,000
Kaweah River Check	Tule River Check	71.37 to 95.67	4,300-3,600	4,500
Tule River Check	White River Check	95.80 to 112.90	3,600 – 2,900	4,000
White River Check	Poso Creek Check	112.96 to 130.05	3,000-2,300	3,500
Poso Creek Check	Kern River Check	130.12 to 151.60	2,200-1,900	2,500

* Based on Reclamation's original design drawings, dated Dec. 1937 to Mar. 1950.

SAN JOAQUIN RIVER RESTORATION PROGRAM

MC - Maximum Capacity

Madera Canal			HEC-RAS - Current Simulated Maximum Canal Capacity (cfs)	1985 Maximum Capacity (cfs) *
From	To	Mileposts		
Friant Dam	Turnout and Check	0.0 to 6.1	1,130	1,275
Turnout and Check	Concrete Drop Structure	6.1 to 19.31	1,000	1,075
Concrete Drop Structure	Dry Creek Siphon	21.4 to 24.1	1,000	1,000
Dry Creek Siphon	End of Canal	24.1 to 35.69	550	750

* Based on maximum capacity from 1985 work statement.

SAN JOAQUIN RIVER RESTORATION PROGRAM

Results


	FKC	MC
Deficient Mileage	119	18

- Normalized “n-values”
- Applies current Reclamation standards


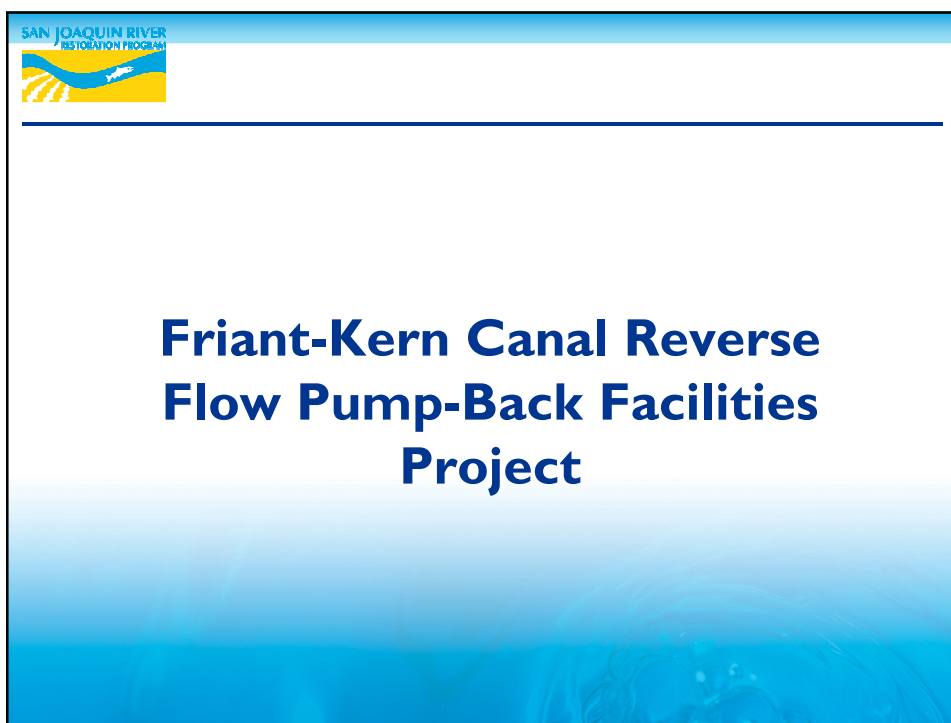
SAN JOAQUIN RIVER RESTORATION PROGRAM

Next Steps

- Working w/Authorities to reformulate Feasibility Study
- Developed “Optimization” Model
 - Water Benefit
 - Construction Cost
 - Value of Water (\$100 to \$200)

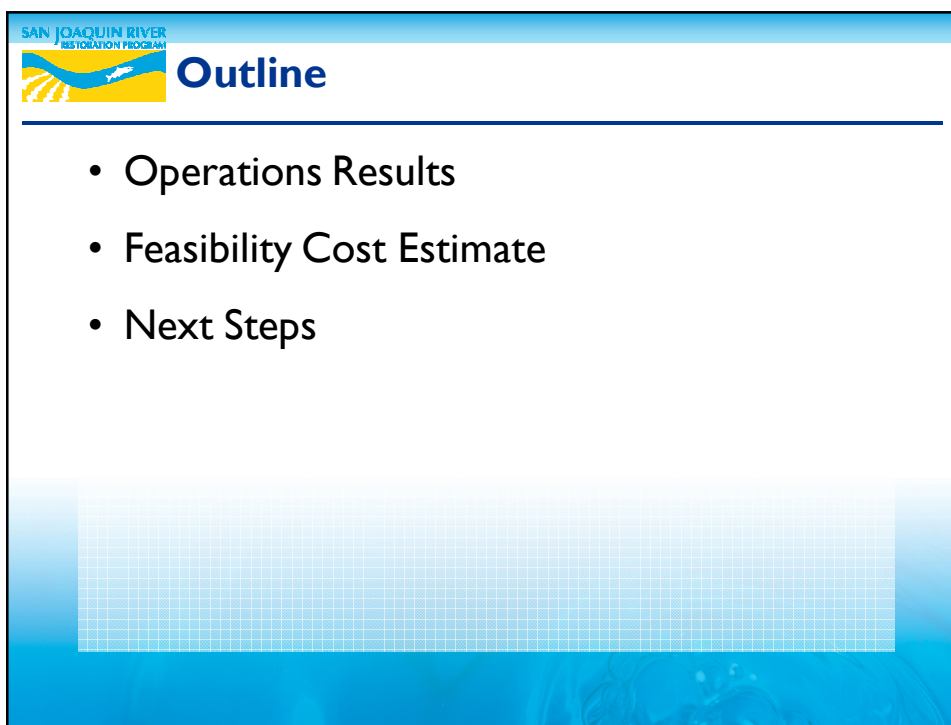


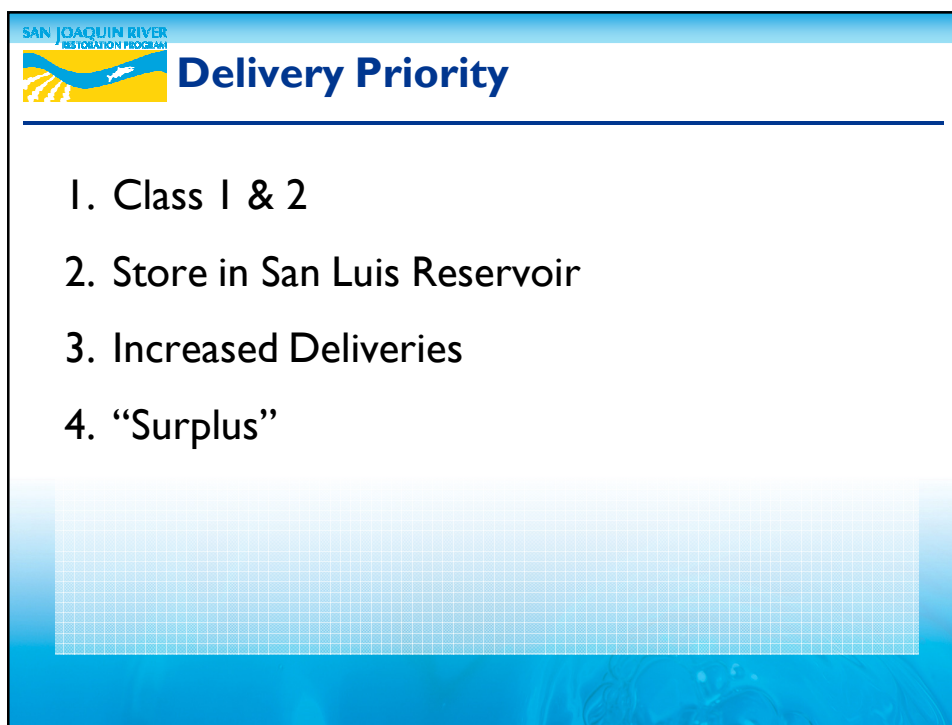
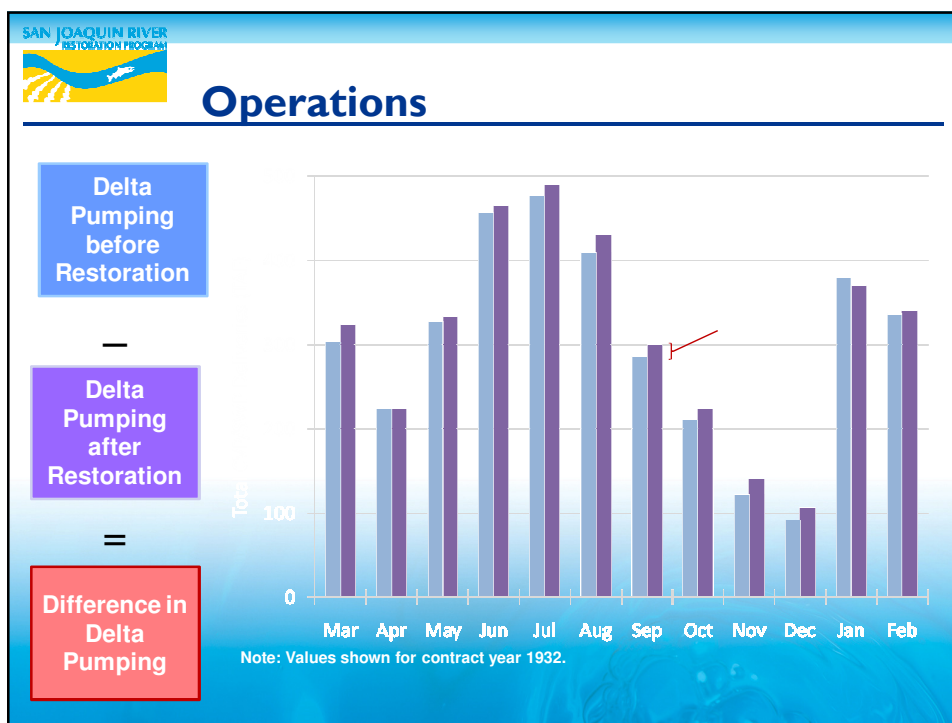
Friant-Kern Canal Reverse Flow Pump-Back Facilities Project



Outline

- Operations Results
- Feasibility Cost Estimate
- Next Steps





SAN JOAQUIN RIVER RESTORATION PROGRAM

Delivery Priority

- Deliveries are made in this order:
 1. CA to Arvin Edison Water Storage District (AEWSD)
 2. CVC to AEWSD
 3. CVC to SWID
 4. CVC to South San Joaquin Municipal Utility District (SSJMUD)
 5. CVC to SSJMUD and Delano-Earlimart ID (DEID)

SAN JOAQUIN RIVER RESTORATION PROGRAM

	Existing (cfs)	Legislated (cfs)
CVC to FKC (Kern check)	500	500
Shafter-Wasco (1st pump-back)	80	500
Poso Creek (2nd pump-back)	50	500
Reservoir Check (3rd pump-back)	0	300

Key:
 CVC = Cross Valley Canal
 cfs = cubic feet per second
 FKC = Friant-Kern Canal

Pump-Back Results

	w/ Existing Facilities (TAF)	w/ Legislated Facilities (TAF)	Difference (TAF)
Annual Average Water Available	58.4		-
Friant Dam Supply Offset	36.0	42.0	6.0
<i>Class 1</i>	11.5	14.1	2.6
<i>Class 2</i>	24.5	27.9	3.4
Increased Deliveries	11.6	10.2	-1.4
Surplus Water	10.7	6.2	-4.5

Note:
Period of Record: March 1922 – February 2002.

Reverse Pump Project

- Section 10201 of P.L. 111-11 authorizes the Secretary to conduct a feasibility study on the:

“Reverse flow pump-back facilities on the Friant-Kern Canal, with reverse-flow capacity of approximately 500 cubic feet per second at the Poso and Shafter Check Structures and approximately 300 cubic feet per second at the Woollomes Check Structure.

SAN JOAQUIN RIVER RESTORATION PROGRAM

Reverse Pump Project

- Section 10203 of P.L. 111-11 states:

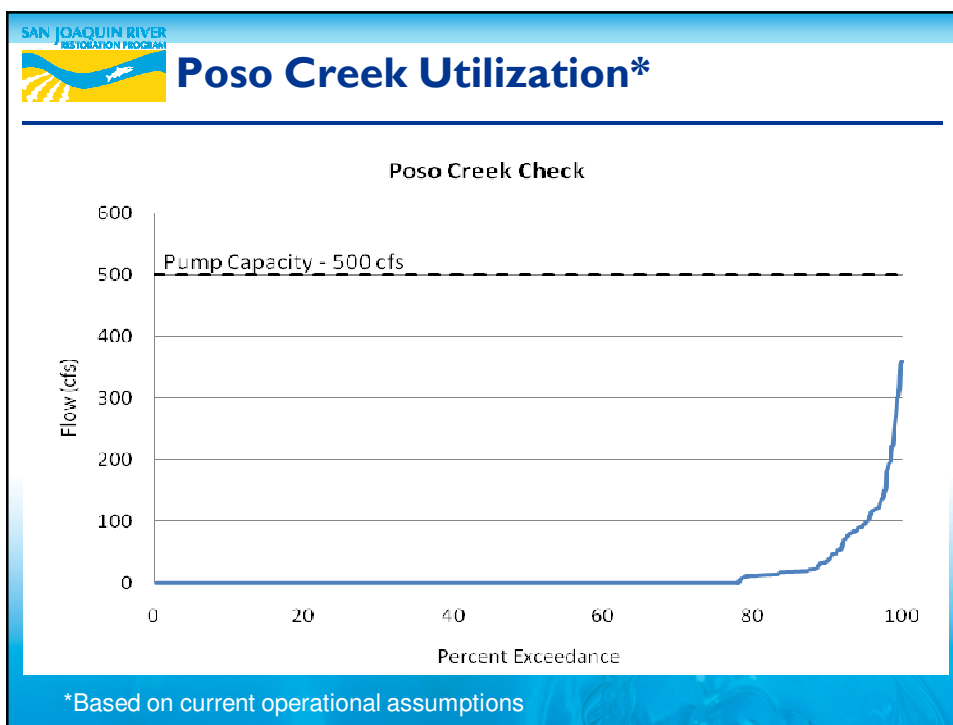
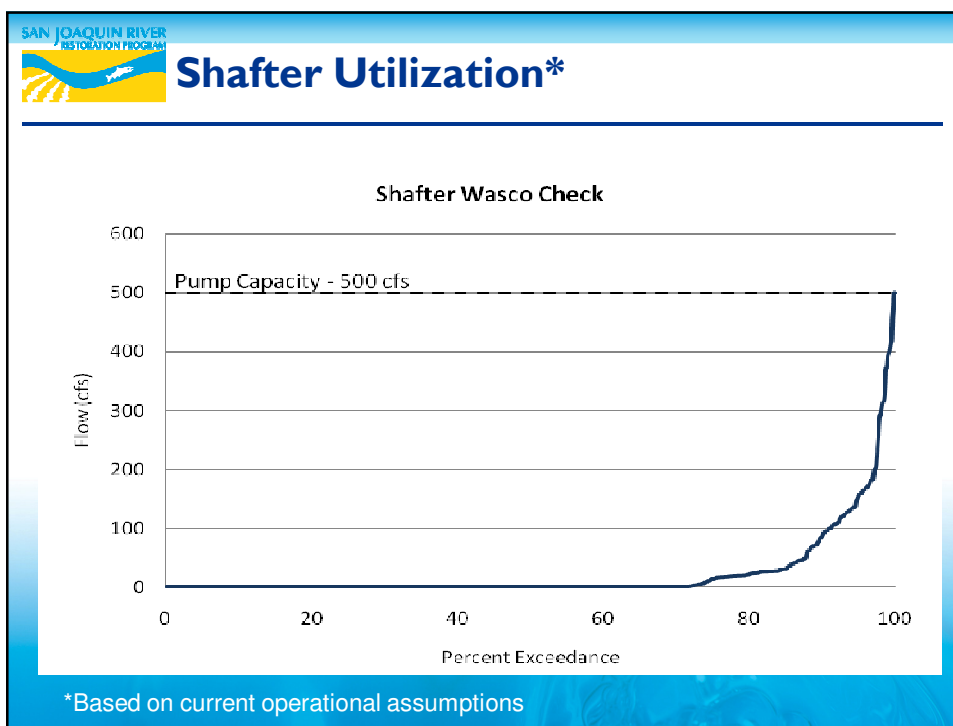
“... in an amount not to exceed \$17,000,000, provided that the Secretary first determines that such expenditure will not conflict with or delay his implementation of actions required by part I of this subtitle.”

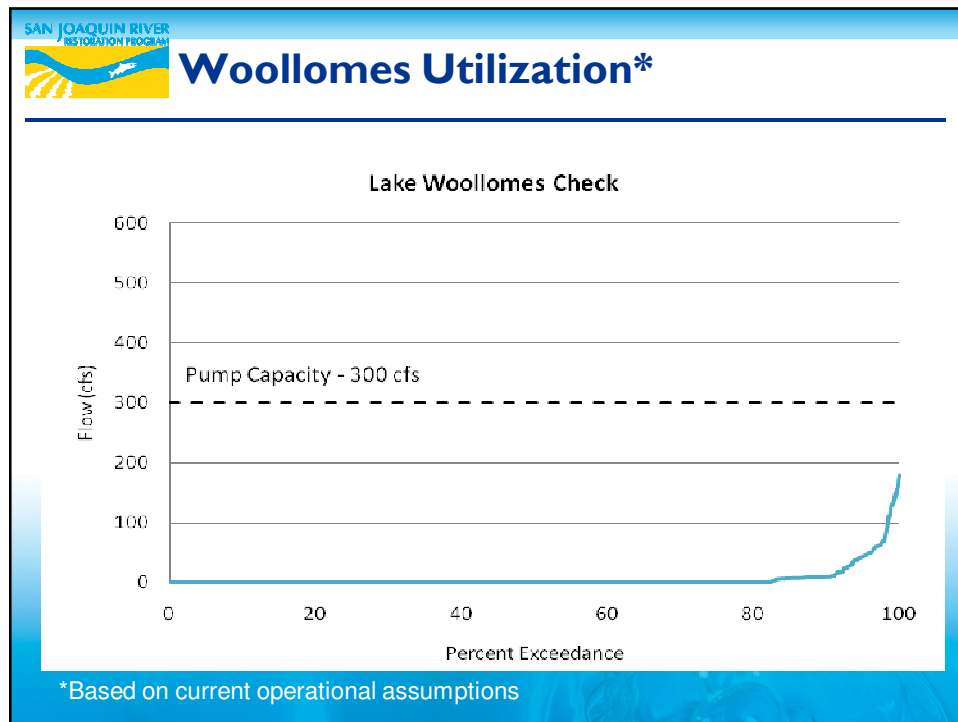
SAN JOAQUIN RIVER RESTORATION PROGRAM

Feasibility Cost Estimate

Shafter	Poso Creek	Woollomes
\$20 Million	\$18.5 million	\$13 million

- Size of Pumps
- Number of Pumps (6)
- 3 years for construction







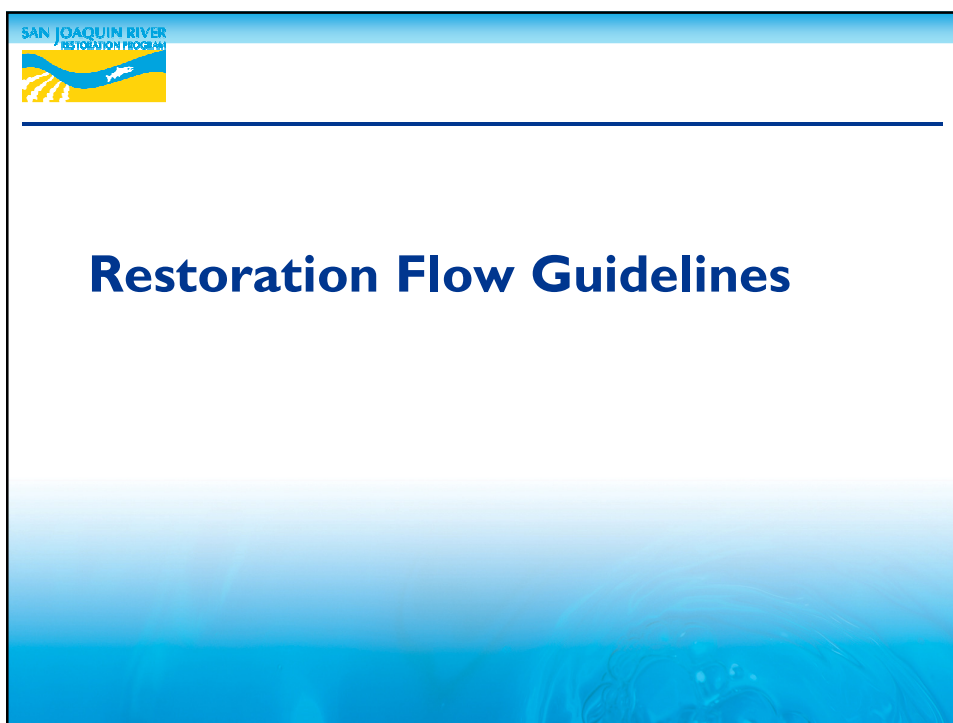
SAN JOAQUIN RIVER RESTORATION PROGRAM

Next Steps

- Working w/Authorities to reformulate Feasibility Study
 - Delivery priority
 - Pump size & configuration

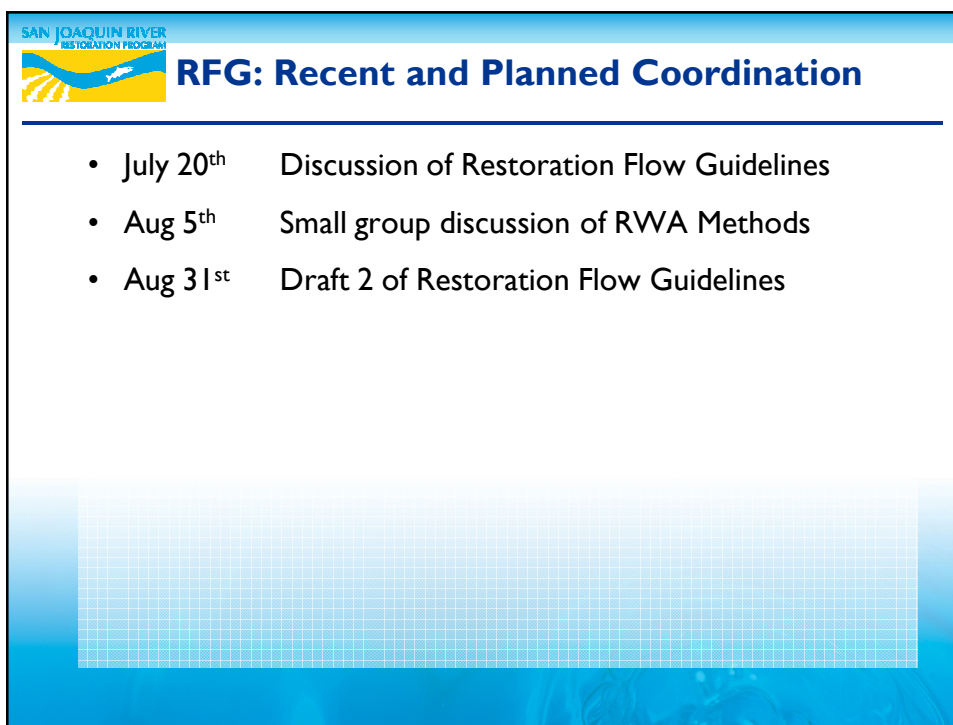



Restoration Flow Guidelines




RFG: Recent and Planned Coordination

- July 20th Discussion of Restoration Flow Guidelines
- Aug 5th Small group discussion of RWA Methods
- Aug 31st Draft 2 of Restoration Flow Guidelines



 **RWA Proposal**

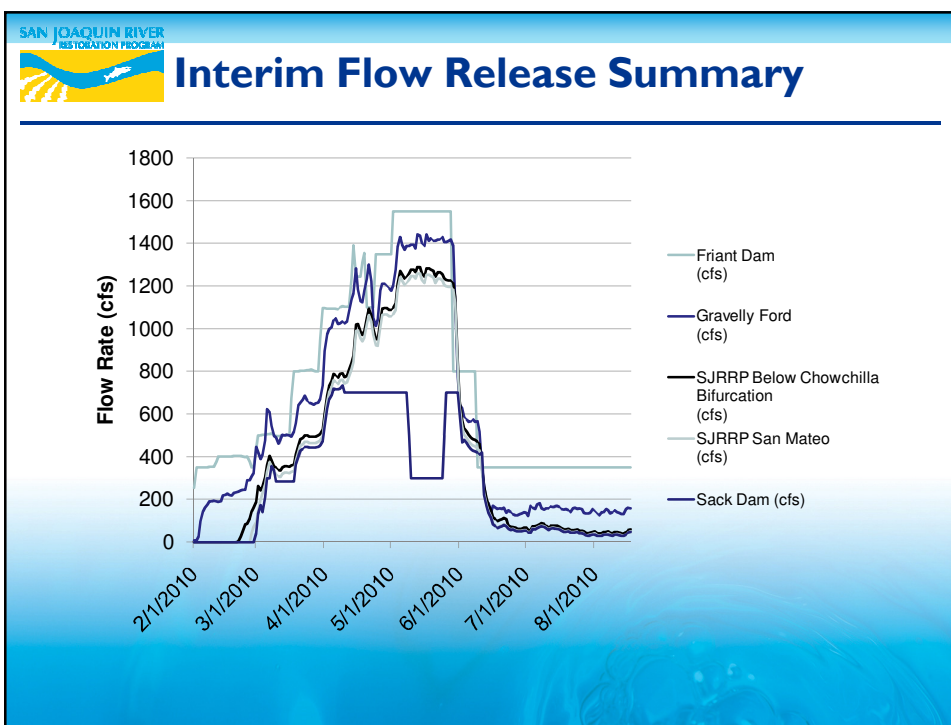
- Consistent understanding of model inputs
- Consistent understanding of model outputs
- Continuing review of treatment of storage

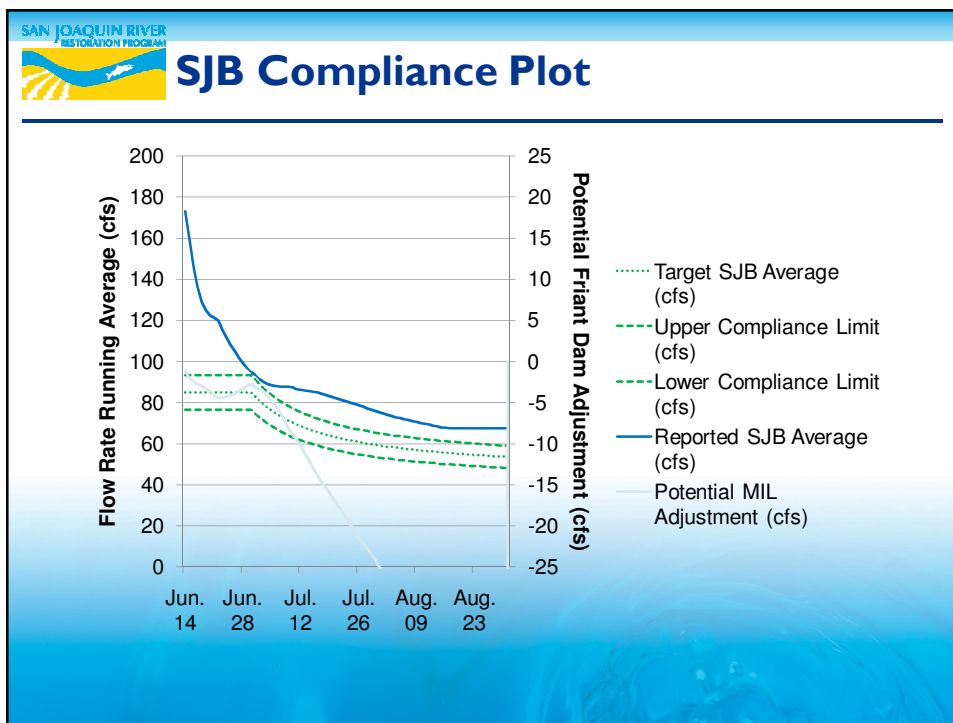
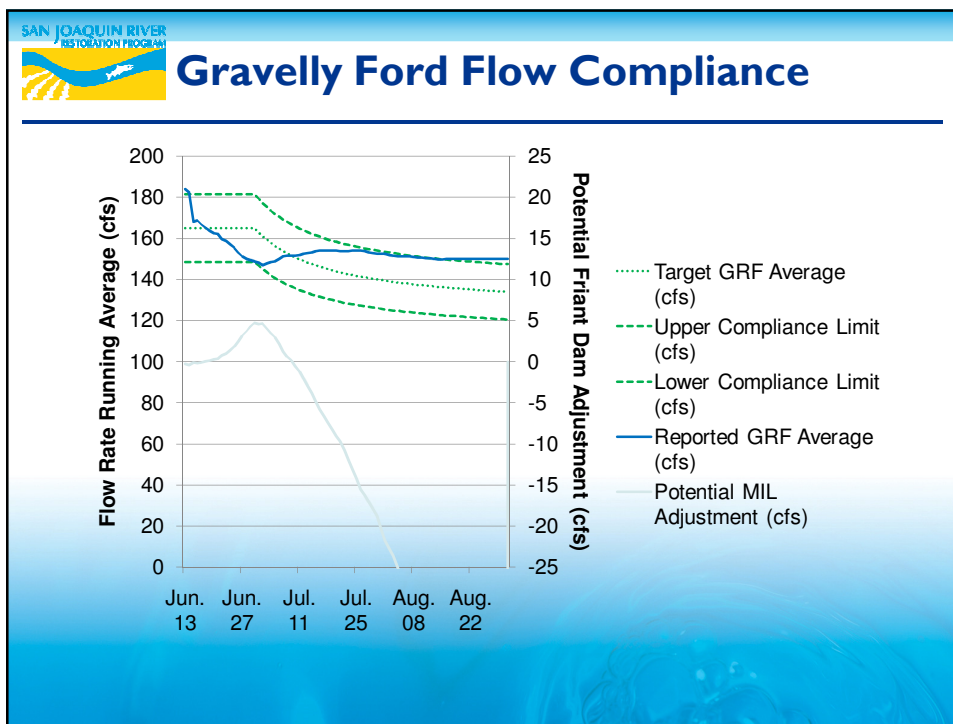
 **Gravelly Ford Flow Targets**

- Reclamation will estimate adjusted releases by comparing average flow rates and dividing by the number of days remaining in the time period.
- Reclamation will increase releases from Friant Dam if:
 - 1. Average flow rates are less than 10% of target flow rates;
 - 2. Changes in Friant Dam releases would exceed 25 cfs.
- Reclamation will decrease releases from Friant Dam if:
 - 1. Mean daily releases from Friant Dam would remain greater than or equal to 350 cfs.
 - 2. Average flow rates are more than 10% above target average flow rates;
 - 3. Changes in Friant Dam releases would exceed 25 cfs.
- Reclamation will resume the planned release schedule from Friant Dam when average mean daily flow rates equal target average flow rates.

SAN JOAQUIN RIVER RESTORATION PROGRAM


Interim Flow Release Summary





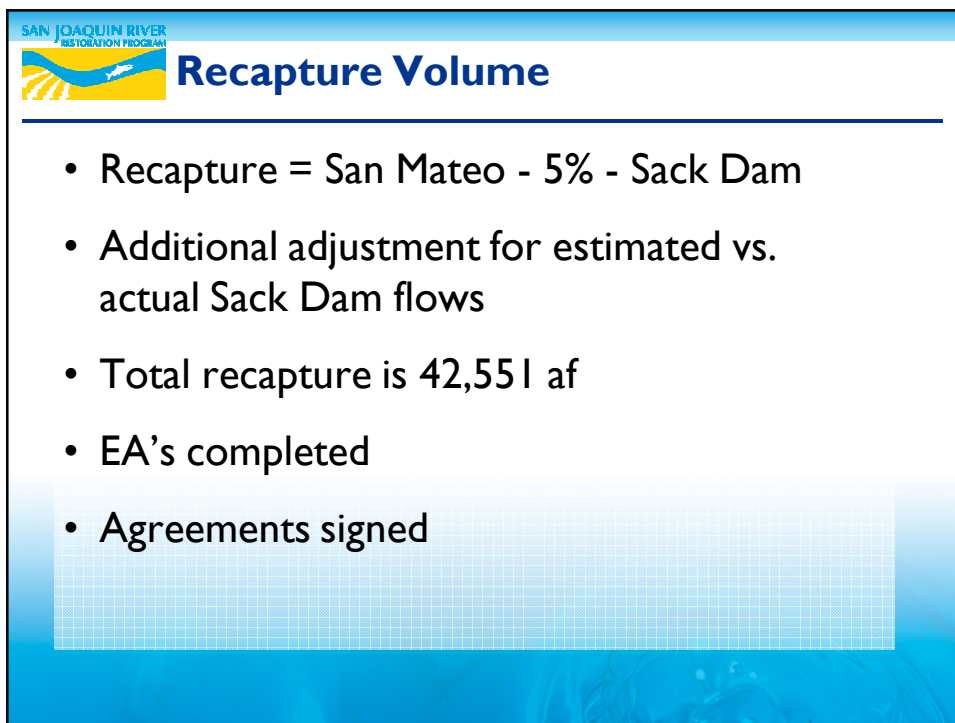



Recapture / Recirculation



Recapture Volume


- Recapture = San Mateo - 5% - Sack Dam
- Additional adjustment for estimated vs. actual Sack Dam flows
- Total recapture is 42,551 af
- EA's completed
- Agreements signed





Next Meeting

The slide features a blue gradient background with a faint image of a river and a dam at the bottom. The text "Next Meeting" is centered in a large, bold, blue font.



Agenda for Next Meeting

- Date & Time:
 - October 8, 2010
- Tentative Agenda:
 - MC/FKC Feasibility Studies
 - Restoration Flow Guidelines

The slide features a blue gradient background with a faint image of a river and a dam at the bottom. The text "Agenda for Next Meeting" is centered in a large, bold, blue font. Below the title, there is a list of items with bullet points. A white grid pattern is visible in the lower half of the slide.



Public Comment

