

# **Annual Report of Activities**

**October 1, 2011 to September 30, 2012**



**Stanislaus Operations Group (SOG)**

October 2012

# Acronyms and Abbreviations

3DADM	Three-Day-Average Daily Maximum temperature
7DADM	Seven-Day-Average Daily Maximum temperature
BiOp	Biological Opinion
CVP	Central Valley Project
CVPIA	Central Valley Project Improvement Act
CDEC	California Data Exchange Center
CDFG	California Department of Fish & Game
CWT	Coded Wire Tag
DWR	California Department of Water Resources
ESA	Endangered Species Act
GDW	Stanislaus River at Goodwin Dam (CDEC gauge)
KF	Knights Ferry
NMFS	National Marine Fisheries Service
OBB	Stanislaus River at Orange Blossom Bridge (CDEC gauge)
OID	Oakdale Irrigation District
Reclamation	U.S. Bureau of Reclamation
RPA	Reasonable and Prudent Alternative
RPN	Stanislaus River at Ripon (CDEC gauge for dissolved oxygen)
SOG	Stanislaus Operations Group
SRMFFN	Stanislaus River Minimum Flows for Fishery Needs
SSJID	South San Joaquin Irrigation District
SWP	State Water Project
SWRCB	State Water Resources Control Board
USFWS	U.S. Fish & Wildlife Service
VAMP	Vernalis Adaptive Management Program
WOMT	Water Operations Management Team

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# Chapter 1 – Background

## 1.1 Background

The Stanislaus River is a significant resource of considerable interest to fishery management agencies, the public, and the Bureau of Reclamation (Reclamation). The U.S. Fish and Wildlife Service (USFWS), NOAA’s National Marine Fisheries Service (NMFS), California Department of Fish and Game (CDFG), and State Water Resource Control Board (SWRCB), are agencies with trust responsibilities for fishery and water resources in the Stanislaus River. Reclamation is responsible for operating the East Side Division, which includes New Melones Dam and Powerplant. Tri-Dam Project, a partnership between the Oakdale Irrigation District and the South San Joaquin Irrigation District, owns and operates Donnells and Beardsley Dams and Reservoirs upstream of New Melones Reservoir and Tulloch Dam and Reservoir downstream of New Melones Reservoir. Oakdale Irrigation District and South San Joaquin Irrigation District own Goodwin Dam and Reservoir located downstream of Tulloch Dam. The East Side Division is operated to provide flood control, irrigation, power generation, general recreation, water quality, and fish and wildlife enhancement<sup>1</sup>.

On June 4, 2009, NMFS issued its Biological Opinion and Conference Opinion on the Long-Term Operations of the Central Valley Project (CVP) and State Water Project (NMFS BiOp)<sup>2</sup>. On April 7, 2011, NMFS issued adjustments<sup>3</sup> to the RPA of the NMFS BiOp (2011 NMFS RPA Adjustments). All references in this document to page numbers refer to the page numbers in the 2011 NMFS RPA adjustments, unless noted otherwise; all references to the NMFS BiOp should be considered to include the 2011 NMFS RPA Adjustments. The NMFS BiOp included the requirement that Reclamation create the Stanislaus Operations Group (SOG). The SOG is a technical team that provides advice to NMFS and to the Water Operations Management Team (WOMT) on issues related to fisheries and water resources on the Stanislaus River, per the decision-making procedures outlined on pages 8-9 of the 2011 NMFS RPA Adjustments.

The purpose of the SOG is “to gather and analyze information, and make recommendations, regarding adjustments to water operations within the range of flexibility prescribed in the implementation procedures”<sup>4</sup> for the Stanislaus River and for the operation of the East Side Division as a unit of the overall CVP which is consistent with all relevant laws, regulations, and standards including the NMFS BiOp. Reclamation maintains its authority and responsibility for operations of the East Side Division complex. The SOG has no authority to make operational

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<sup>1</sup> PL 78–534 and PL 87-874

<sup>2</sup> The NMFS BiOp is available online at: <http://swr.nmfs.noaa.gov/ocap.htm>

<sup>3</sup> The 2011 NMFS RPA adjustments are available online at: [http://swr.nmfs.noaa.gov/ocap/040711\\_OCAP\\_opinion\\_2011\\_amendments.pdf](http://swr.nmfs.noaa.gov/ocap/040711_OCAP_opinion_2011_amendments.pdf)

<sup>4</sup> 2011 NMFS RPA Adjustments at p. 7.

decisions, but rather provides advice to NMFS and WOMET. NMFS will consider advice from SOG when making a final determination as to whether or not a proposed operational action is consistent with the NMFS BiOp and ESA obligations.

## **1.2 Membership**

The SOG consists of representatives from Reclamation, USFWS, NMFS, CDFG, DWR, and the SWRCB. Other agencies may be added to the SOG provided existing agencies approve of the change in SOG membership. SOG member agencies and the lead contacts are:

### **Bureau of Reclamation (Reclamation)**

Tom Morstein-Marx - Stanislaus Operator

Patti Clinton – SOG group coordinator

### **U. S. Fish and Wildlife Service (USFWS)**

J.D. Wikert

### **National Marine Fisheries Service (NMFS)**

Barb Byrne

### **California Department of Fish and Game (CDFG)**

Tim Heyne

### **California Department of Water Resources (DWR)**

Andy Chu

Dan Yamanaka

### **State Water Resources Control Board (SWRCB)**

Kari Kyler

Chris Carr

## Chapter 2 – Response to the Independent Review Panel

NMFS, USFWS, and Reclamation (collectively the Federal Agencies) received the 2011 Independent Review Panel (IRP) report<sup>5</sup>. In general, the IRP appreciated the unique challenges faced by all of the agencies attempting to balance existing commitments and mandated co-equal goals of 1) providing a reliable water supply for California and 2) protecting, restoring and enhancing the Delta ecosystem from which water resources are derived for a multitude of human uses.

NMFS did not have specific and detailed responses to the comments, as they were working on the joint stipulation pursuant to the Consolidated Salmonid Cases, and addressing issues remanded to NMFS in the Federal Court’s memorandum decision and final judgment. FWS provided responses to the IRP’s comments on RPA actions<sup>6</sup>. The Federal Agencies expect the technical teams to report out on the implementation of the 2011 recommendations during the 2012 annual review workshop.

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<sup>5</sup> The IRP report is available online at:

[http://deltacouncil.ca.gov/sites/default/files/documents/files/IRP\\_OCAP\\_RPA\\_2011\\_Final\\_Report\\_v2.pdf](http://deltacouncil.ca.gov/sites/default/files/documents/files/IRP_OCAP_RPA_2011_Final_Report_v2.pdf)

<sup>6</sup> The detailed FWS responses are available online at: <http://deltacouncil.ca.gov/sites/default/files/documents/files/2012-06-20%20Joint%20Fed%20Resp%20to%20DSP%20for%20IRP.pdf>

# Chapter 3 – Summary of Actions and SOG Discussions

The following agenda items were discussed at monthly SOG meetings from October 2011 through September 2012.

## 3.1 Monthly Discussion Topics

- Fish monitoring
- Restoration
- Water operations and water quality (flows measured at Goodwin Dam, temperatures at OBB and KF)
- Stanislaus RPA Actions (2011 NMFS RPA Adjustments at pages 46-55); key actions summarized below:

### **Temperature management -- RPA Action III.1.2 (2011 NMFS RPA Adjustments at p. 47)**

This RPA action calls for Reclamation to manage the cold water supply within New Melones Reservoir and make cold water releases from New Melones Reservoir to provide suitable temperatures for Central Valley (CV) steelhead (*Oncorhynchus mykiss*) rearing, spawning, egg incubation, smoltification, and adult migration in the Stanislaus River downstream of Goodwin Dam.

### **Flow management -- RPA Action III.1.3 (2011 NMFS RPA Adjustments at p. 49)**

This RPA action calls for Reclamation to operate releases from the East Side Division reservoirs according to the yeartype-specific minimum flow schedules in Appendix 2-E of the NMFS BiOp.

### **Gravel augmentation -- RPA Action III.2.1 (2011 NMFS RPA Adjustments at p. 53)**

This RPA action calls for Reclamation to minimize effects of water operations on the Stanislaus River through improving spawning habitat for steelhead trout. On June 30, 2010, Reclamation submitted to NMFS a plan<sup>7</sup> which outlines projects that aim to achieve placement of 50,000 cubic yards of gravel in the Stanislaus River by 2014. This plan includes project descriptions for projects scheduled or likely to occur (e.g., Honolulu Bar, Goodwin Canyon, Lover's Leap) as well as implementation schedules and monitoring efforts to improve spawning habitat. Project descriptions for *potential* projects that may help to meet the gravel augmentation requirements under this action, but are in various stages of development, are also described (e.g., Knights Ferry, Two Mile Bar, Horseshoe Recreation Area, and Valley Oak Restoration Area).

During 2011, approximately 3,333 cubic yards (CVPIA 2011) of gravel were placed in Goodwin Canyon (Table 1). It is estimated that 2,000 cubic yards will be placed in Goodwin Canyon in 2012 (John Hannon, personal communication). For 2012, approximately 12,500 cubic yards of

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<sup>7</sup> The plan for gravel augmentation is available on the SOG webpage: <http://swr.nmfs.noaa.gov/ocap/sog.htm>  
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material was processed for Honolulu Bar gravel augmentation (Jason Guignard, personal communication).

**Table 1** Summary of recent Gravel Augmentation in the Stanislaus River

<b>Year</b>	<b>Amount (cubic yards)</b>	<b>Site</b>
<b>2011</b>	3,333	Goodwin Canyon
<b>*2012</b>	2,000	Goodwin Canyon
<b>2012</b>	12,500	Honolulu Bar
<b>Total</b>	17,833	
<b>*To be placed in Goodwin Canyon; additional 1,333 cubic yards, if funding becomes available</b>		

**Conduct Floodplain Restoration and Inundation Flows -- RPA Action III.2.2 (2011 NMFS RPA Adjustments at p. 54)**

This RPA action calls for Reclamation to seek advice from SOG to develop an operational strategy to achieve floodplain inundation flows that inundate CV steelhead juvenile rearing habitat on a one- to three-year return schedule, and to submit a proposed plan of operations to achieve this flow regime by June 2011. During 2010, SOG discussed several ongoing or proposed floodplain restoration projects (e.g. Honolulu Bar, Lovers Leap, and Two Mile Bar) which provide several ecological benefits such as: providing refuge from predators, producing additional food resources, improving vegetative contaminant removal, and promoting natural riparian recolonization of woody species which can reduce water temperatures, attenuate flood flows, increase groundwater recharge, and clean instream gravels through deposition of fine sediments on the floodplain. These projects can also provide local gravel for meeting the requirements of Action III.2.1, minimizing the need to import gravel from other watersheds and reducing transportation costs. Projects which restore floodplain and side-channel habitats can increase the acres of seasonally inundated habitats necessary for rearing salmonids without requiring changes to the existing hydrograph. As summarized in Section 3.4, a draft plan was submitted in 2011.

**Evaluate Fish Passage at New Melones, Tulloch, and Goodwin Dams -- RPA Action III.2.4 (2011 NMFS RPA Adjustments at p. 55)**

SOG expects that Action III.2.4, which calls for an evaluation of fish passage at New Melones, Tulloch, and Goodwin Dams, will be addressed by the Interagency Fish Passage Steering Committee.

## **3.2 Other Discussion Topics**

The following list of SOG discussion topics highlights some additional substantive issues reviewed by SOG over the past year. Minor or logistical discussion items are documented in the notes, but not listed here. Appendix A contains the list of monthly notes.

- Status of storage and flood control flows – Management during the month of October to evacuate water for the November 1 USACE Flood Control Requirement
- Annual Review Report
- Winter Instability Flows
- Reshaping February Flows
- OBB Temperature Gage Issue
- River 2D/Scale-up Report

## **3.3 Floodplain Plan Update**

Per RPA Action III.2.2, Reclamation sought advice from SOG to develop an operational strategy to achieve floodplain inundation flows that inundate CV steelhead juvenile rearing habitat on a one- to three-year return schedule. As reported in the 2011 SOG Annual Report, the draft operational strategy was submitted to NMFS on August 31, 2011. In addition to proposing tools for assessing floodplain flows and floodplain restoration projects, the draft operational strategy proposed modification to the Appendix 2-E flows for 2012. NMFS commented that the Appendix 2E flows for 2012 should not be modified while the tools for assessing the flows are still under evaluation. The River 2D/Scale-up Report was not issued until August and some additional evaluation remains to be completed before the tools in that report can be used in support of a flow schedule for inundation of floodplain rearing habitat.

## **3.4 Summary of RPA III.1.3 Appendix 2E Minimum Flow Discussions**

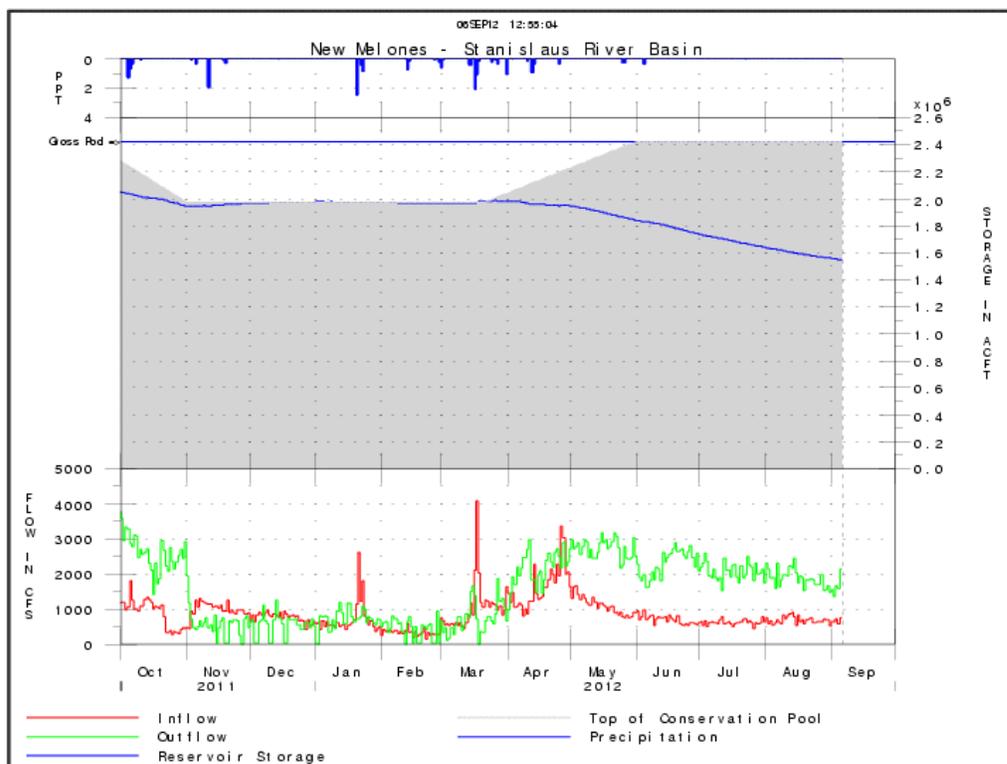
The implementation of the minimum flows in RPA Action III.1.3 was guided by the Appendix 2E flow schedule and hydrologic conditions. In contrast to 2010 and 2011, SOG did not modify the timing and shape of the winter pulse periods in January and February of 2012 since releases for reservoir management satisfied the minimum flows of these pulses. Specific details of flows implemented during water year 2012 are provided in Chapter 4.

# Chapter 4 – Water Operations Summary

This chapter briefly describes Stanislaus River operations for water year 2012, pertaining to RPA Actions III.1.2 and III.1.3. These actions are presented in reverse order for clarity.

## 4.1 Action III.1.3 – Operate the East Side Division Dams to Meet the Minimum Flow, as Measured at Goodwin Dam, Characterized in Figure 11-1, and as Specified in Appendix 2-E<sup>8</sup>

Figure 1 summarizes New Melones Reservoir operations from October 2011 through early September 2012.



**Figure 1** Summary of New Melones Reservoir Operations during the 2012 water year.

The 2012 water year classifications for determining Appendix 2-E minimum flows, based on the New Melones Index, were as follows in Table 2 (the New Melones Index is based on forecasted inflows and storage volume). A final determination of the water year classification calculation method and implementation is currently under review. In the interim, the New Melones Water

<sup>8</sup> Appendix 2-E of the NMFS BiOp is available online (pages 54-59) at: [http://swr.nmfs.noaa.gov/ocap/Appendix\\_2-RPA\\_supporting\\_documents\\_compiled.pdf](http://swr.nmfs.noaa.gov/ocap/Appendix_2-RPA_supporting_documents_compiled.pdf)  
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Supply Parameter was calculated by using the Interim Plan of Operations (IPO) framework (SOG meeting notes from February 17, 2010).

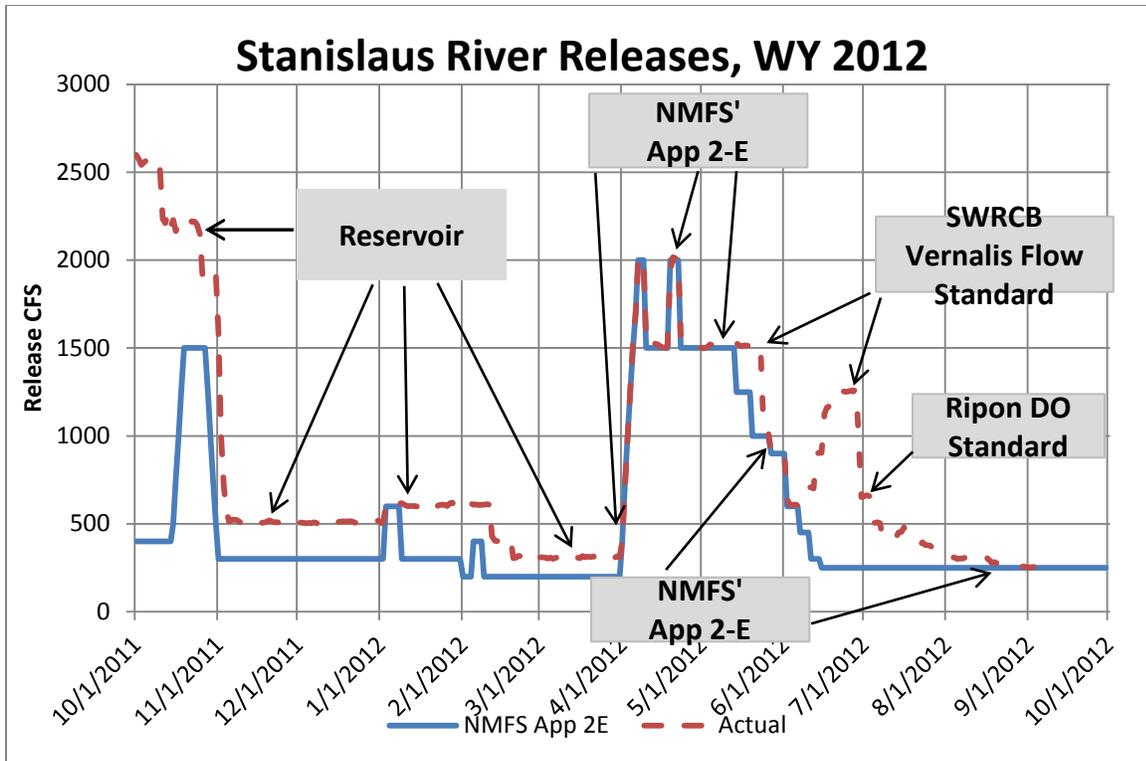
**Table 2** Appendix 2-E Water Year Classification by Month

<b>Month</b>	<b>Water Year Classification</b>
October	Wet
November	Wet
December	Wet
January	Wet
February	Below Normal
March	Below Normal
April	Below Normal
May	Below Normal
June	Below Normal
July	Below Normal
August	Below Normal
September	Below Normal

**Stanislaus River Operations:**

During October, river releases were elevated to facilitate drawdown of New Melones to its flood control limits by early November. From November through the end of March, releases were primarily driven by reservoir inflow, keeping reservoir storage tracking along the permitted top of conservation storage. From April through early June, releases were governed by NOAA Appendix 2-E releases; except for a period from mid to late May when the SWRCB Vernalis flow standard required higher releases. For most of June, releases were also driven by the SWRCB Vernalis flow standard. In July, operations were governed by the Ripon Dissolved Oxygen standard. This continued to be the controlling standard until Aug 21, when NOAA Appendix 2-E releases once again became the controlling requirement. These controlling factors are summarized in Table 3.

Goodwin Reservoir releases to the Stanislaus River are shown in Figure 2. The primary reasons for releases are also identified on the figure. Table 3 contains a summary of release changes from Goodwin Reservoir indicating the purpose of the operational change. Reclamation has made provisions to notify the public of potential safety or high flow considerations such as recreational precautions, inundation, and seepage as appropriate.



**Figure 2** Summary of Stanislaus River Release at Goodwin Dam. Boxes identify the controlling requirements

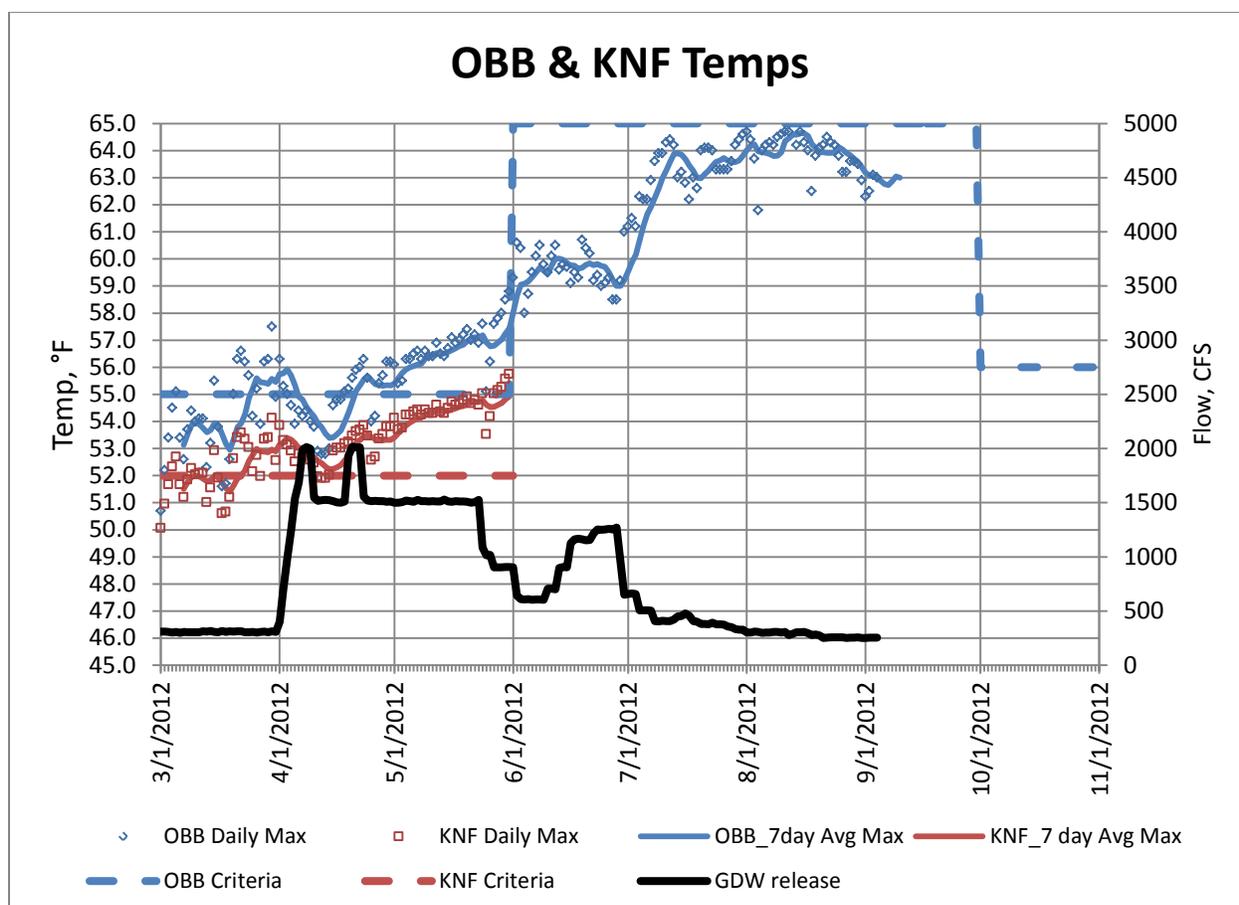
**Table 3** Release Changes at Goodwin Dam

Start Date	End Date	Release	Comment
10/11/2011	10/24/2011	Decrease	Reservoir Management/Flow fluctuation for fishery purposes.
10/25/2011	10/25/2011	Decrease	Reservoir Management
11/1/2011	11/2/2011	Decrease	Reservoir Management
11/4/2011	11/4/2011	Decrease	Reservoir Management
1/3/2012	1/3/2012	Increase	Reservoir Management
2/12/2012	2/12/2012	Decrease	Reservoir Management
2/20/2012	2/20/2012	Decrease	Reservoir Management
4/1/2012	4/23/2012	Increase	NOAA App 2E Flows
5/14/2012	5/23/2012	Maintain	SWRCB Vernalis Flow Requirement
5/24/2012	5/27/2012	Decrease	NOAA App 2E Flows
6/2/2012	6/2/2012	Decrease	NOAA App 2E Flows
6/10/2012	6/10/2012	Increase	SWRCB Vernalis Flow Requirement
6/13/2012	6/13/2012	Increase	SWRCB Vernalis Flow Requirement
6/16/2012	6/16/2012	Increase	SWRCB Vernalis Flow Requirement
6/22/2012	6/22/2012	Increase	SWRCB Vernalis Flow Requirement
6/29/2012	6/29/2012	Decrease	Ripon DO Requirement
7/4/2012	7/4/2012	Decrease	Ripon DO Requirement

7/8/2012	7/8/2012	Decrease	Ripon DO Requirement
7/20/2012	7/20/2012	Decrease	Ripon DO Requirement
7/27/2012	7/27/2012	Decrease	Ripon DO Requirement
7/29/2012	7/29/2012	Decrease	Ripon DO Requirement
8/1/2012	8/1/2012	Decrease	Ripon DO Requirement
8/12/2012	8/12/2012	Decrease	Ripon DO Requirement
8/13/2012	8/13/2012	Increase	Ripon DO Requirement
8/17/2012	8/17/2012	Decrease	Ripon DO Requirement
8/21/2012	8/21/2012	Decrease	NOAA App 2E Flows

## 4.2 Action III.1.2 Provide Cold Water Releases to Maintain Suitable Steelhead Temperatures

Figure 3 is a summary of temperature operations from October 2011 through September 2012. Temperature exceedances were reported to NMFS and the SOG.



**Figure 3** Summary of temperature and flow at Orange Blossom Bridge and Knights Ferry

### **Summary of Water Year 2012 NMFS BiOp RPA Action III.1.2 Exceptions**

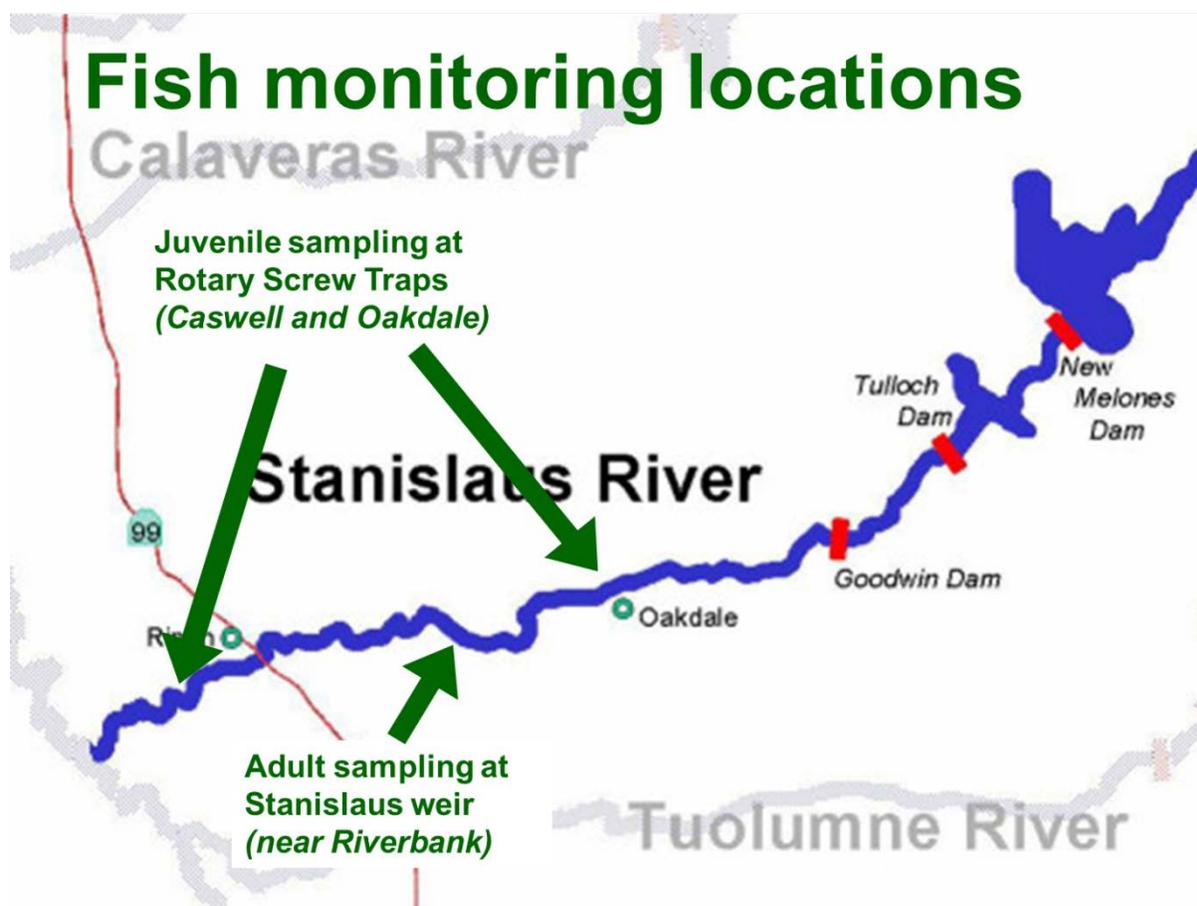
RPA Action III.1.2 describes suitable temperatures for CV steelhead life-stages on the Stanislaus River. The temperature criteria, measured at both Orange Blossom Bridge and Knights Ferry are based on a seven-day average daily maximum temperature (7DADM). Stanislaus River temperatures are influenced by the upstream reservoir systems at Goodwin Dam, Tulloch Dam, and New Melones Dam (additional reservoir systems further upstream are assumed to have minimal effect on water temperature due to the large size of New Melones Reservoir). Temperature control devices or other physical structures are not available to manage for temperature blending at these facilities. The outlet controls at both New Melones Dam and Tulloch Dam typically draw the coolest water available in those reservoirs. In the series of reservoirs (New Melones, Tulloch, and Goodwin) downstream temperature can be influenced with increased flows from Goodwin Dam. However, there are operational limitations to utilizing additional water due to conflicts with Reclamation's obligations served by New Melones Reservoir storage. The NMFS RPA provides an exception procedure if additional releases to achieve temperature targets conflict with Reclamation's nondiscretionary requirements.

The temperature exception requires Reclamation to notify NMFS if the temperature requirement is expected to be exceeded based on a three-day average daily maximum. Reclamation is also required to provide an evaluation of the conditions and identify conflicts.

The temperature exceptions in WY 2012 were noted and discussed within SOG. In spite of unusually good reservoir storage, a mild spring, and high releases of 1,500 to 2,000 cfs, the Knights Ferry temperature criterion was exceeded from late March through May; the Orange Blossom temperature criterion was exceeded from late March through early April, and again late April through May (Figure 3).

## Chapter 5 – Summary of Selected Stanislaus Fish Monitoring Data

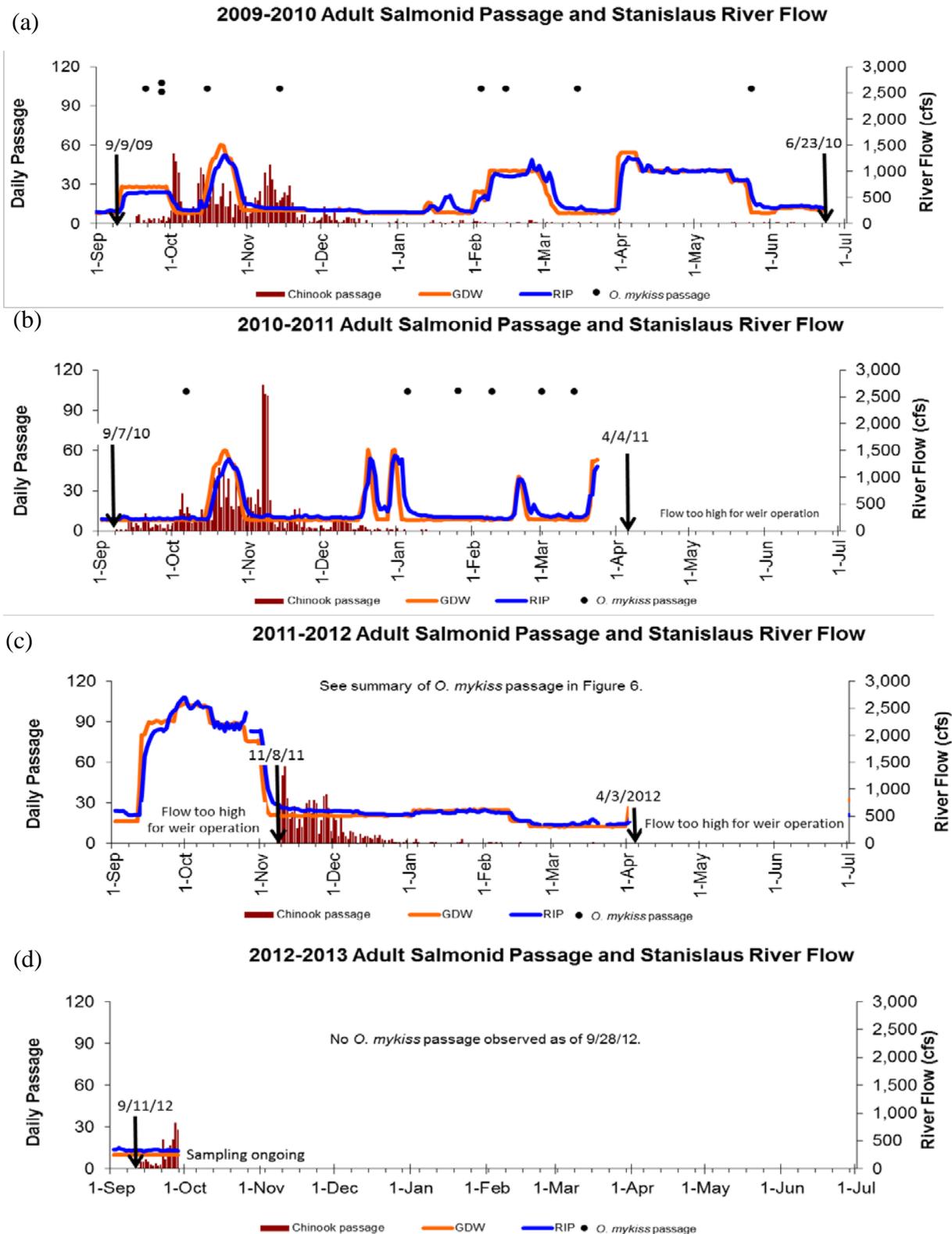
Monitoring data from a counting weir, and rotary screw traps on the Stanislaus River are summarized below for both fall-run Chinook salmon and (when available) *O. mykiss*. The location of monitoring sites is shown in Figure 4. Some current studies on the Stanislaus may provide additional information for evaluation in the future: one study is analyzing otolith microchemistry from fall-run Chinook salmon to learn about the outmigration pattern of returning spawners, another is studying the migration behavior of acoustically tagged juvenile steelhead.



**Figure 4** Location of fish monitoring efforts on the Stanislaus River.

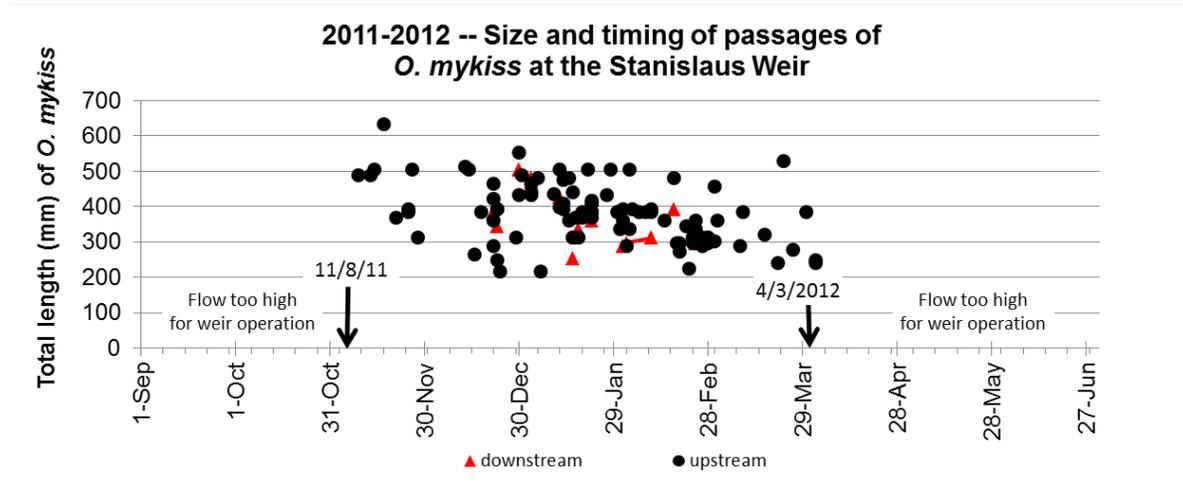
### **Adult Monitoring at the Stanislaus Weir (between Oakdale and Ripon)**

Figure 5 plots the flow at Ripon and below Goodwin Dam and the net upstream passage of adult Chinook salmon and *O. mykiss* observed at the Stanislaus River Weir (a portable resistance board weir) from the fall of 2009 to the present. During 2009-2010 (Figure 5a), a net upstream passage of one *O. mykiss* was observed at the weir on 9/18, 9/19, 10/14, 11/12, 2/3, 2/13, 3/15, and 5/23; a net upstream passage of two *O. mykiss* was observed on 9/25, for a cumulative net upstream passage of 10. During the 2010-2011 water year (Figure 5b), a net upstream passage of one *O. mykiss* was observed at the weir on 11/6, 1/5, 1/26, 2/9, 3/1, and 3/14 for a cumulative net upstream passage of six. Interestingly, sampling during 2011-2012 recorded 100 *O. mykiss* passing upstream at the weir and 14 *O. mykiss* passing downstream for a net upstream passage of 86 individuals (Figure 5c). No *O. mykiss* have yet been observed passing the weir in the fall of 2012 (Figure 5d).



**Figure 5** Salmonid passage at the Stanislaus weir and Stanislaus river flow for (a) 2009-2010, (b) 2010-2011, (c) 2011-2012, and (d) fall 2012. Flows permitting, the weir is installed in early September and continues sampling through early summer. Arrows and dates indicate the start and end dates of sampling. *Data courtesy of FishBio.*

The average total length of *O. mykiss* passing upstream (n=100) was 376 mm (s=84.2 mm); comparable to the average total length of 368 mm (s=78.4 mm) for *O. mykiss* passing downstream (n=14; Figure X). Lengths and passage timing for *O. mykiss* are summarized in Figure 6.



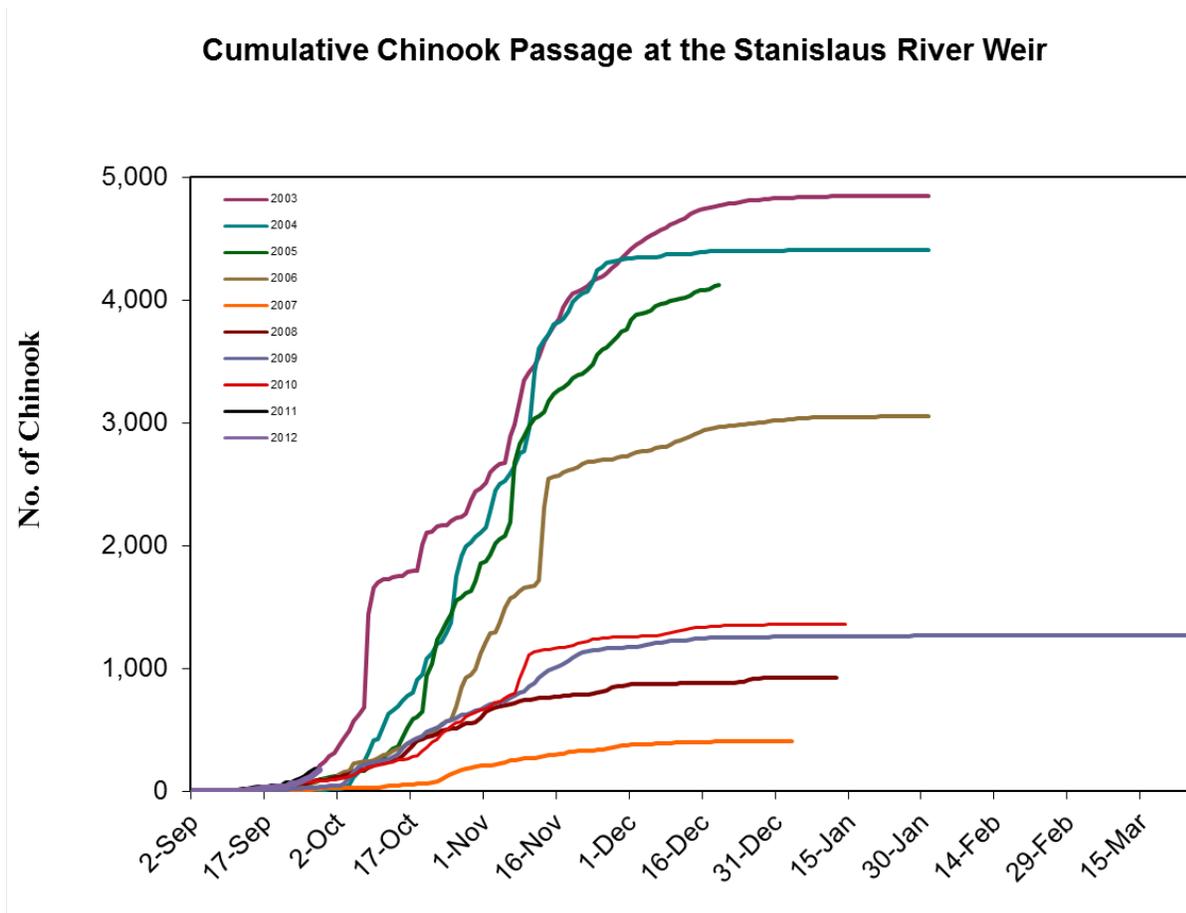
**Figure 6** Total length and timing of *O. mykiss* passing the Stanislaus weir in 2011-2012. Arrows and dates indicate the start and end dates of sampling. *Data courtesy of FishBio.*

Table 4 reports the number of adult Chinook salmon that have been observed at the Stanislaus weir from 2003 to 2011. These data, provided by FishBio, are available on a weekly basis and can help to indicate both the abundance, and relative timing, of migrating Chinook in the Stanislaus basin among years. The cutoff date of April 4<sup>th</sup> was chosen because sampling lasted at least that long in all years. Note that, because the start of sampling differs from year to year, net passage through the weir may not represent a full count of returning adults. The Stanislaus weir began operation for the 2012 fall migration season on 9/11/2012.

**Table 4.** Net Upstream Passage of Chinook salmon at the Stanislaus Weir. *Data courtesy of FishBio.*

Year	Net Passage by April 4th	Rank by abundance
2011-2012	818	8
2010-2011	1382	5
2009-201-	1294	6
2008-2009	923	7
2007-2008	408	9
2006-2007	3056	4
2005-2006	4121	3
2004-2005	4408	2
2003-2004	4848	1

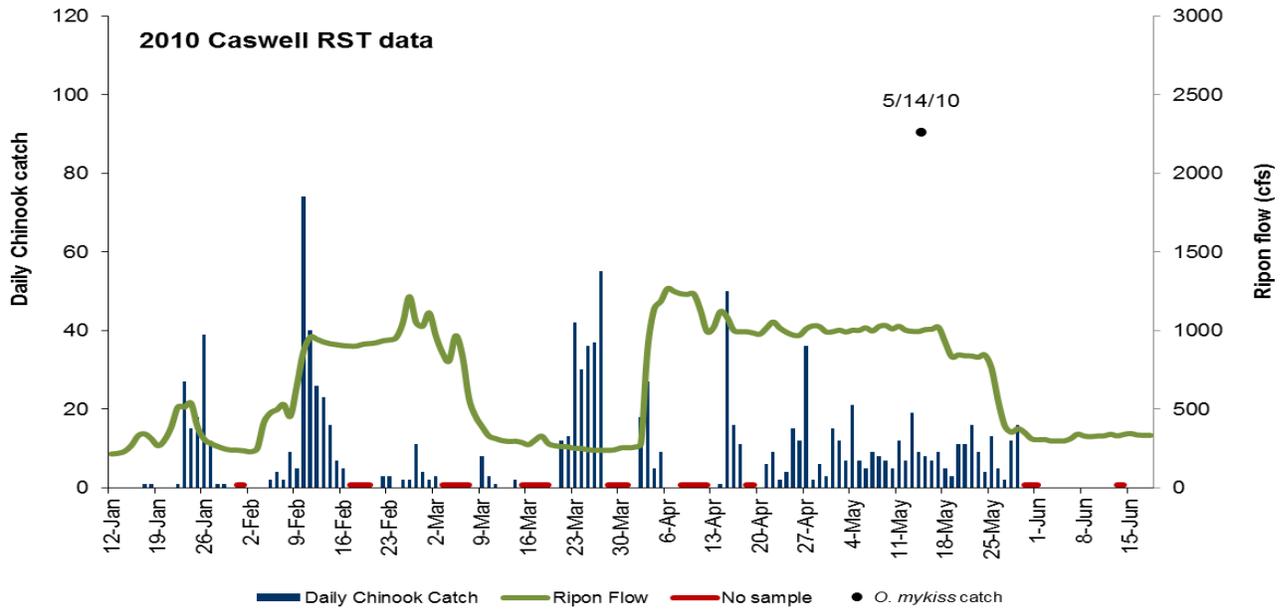
Figure 7 compares the Chinook salmon passage at the Stanislaus River Weir from 2003 to 2012.



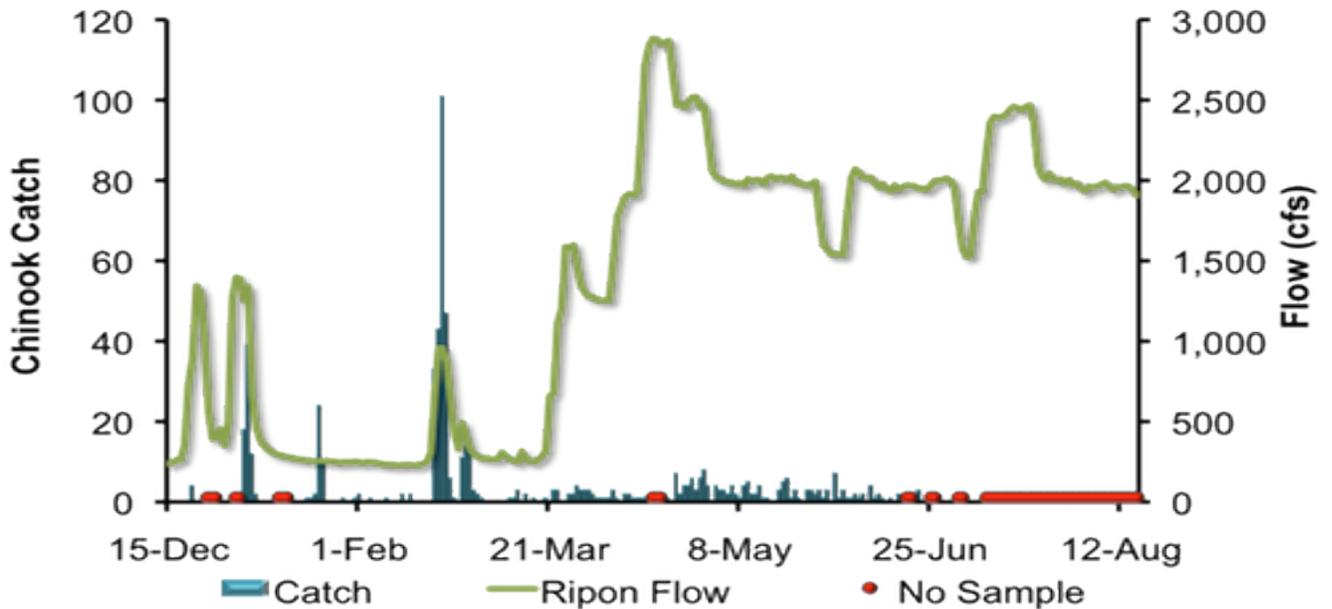
**Figure 7** Cumulative Chinook Passage at the Stanislaus River weir, by year. *Figure courtesy of FishBio.*

**Juvenile Monitoring at the Caswell Rotary Screw Traps**

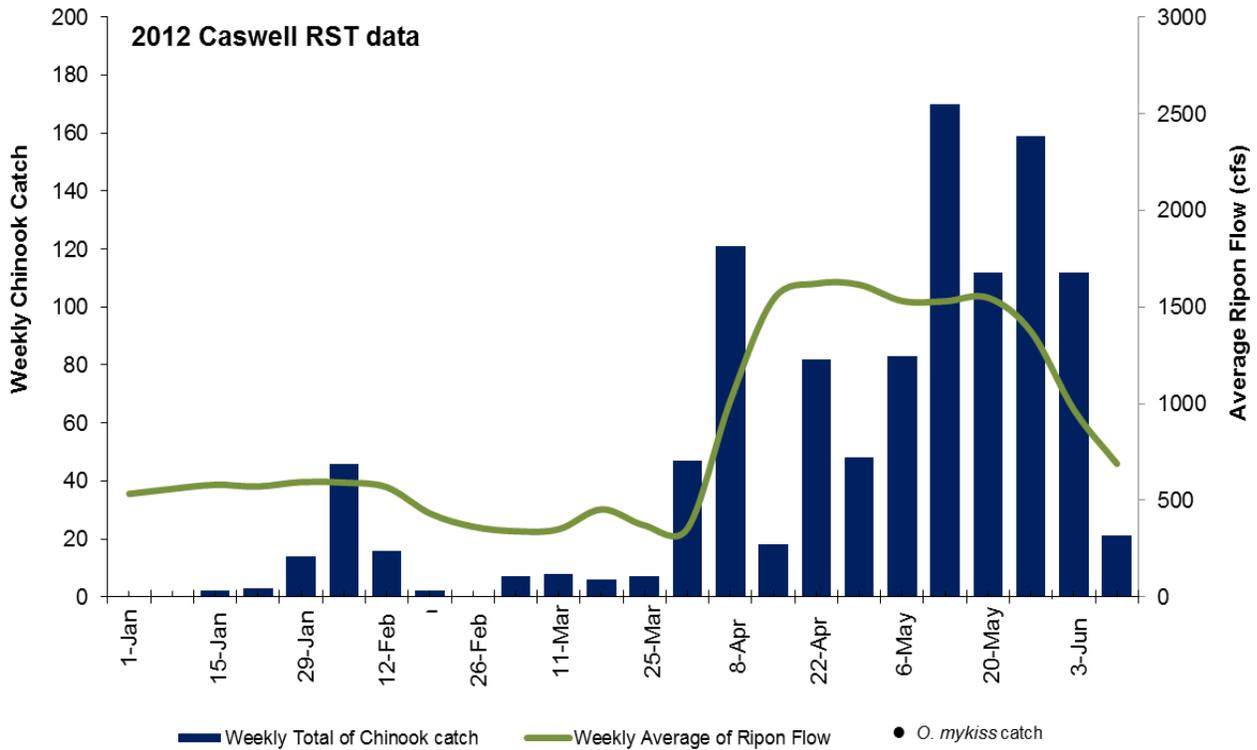
Figures 8, 9, and 10 plot the flow at Ripon, CA and daily catch of juvenile Chinook salmon for the rotary screw trap at Caswell Memorial State Park on the lower Stanislaus River during the spring outmigration seasons of 2010, 2011, and 2012, respectively. Just one *O. mykiss* was recorded at the Caswell rotary screw traps in 2010 (5/14/2010); two *O. mykiss* were recorded at Caswell in 2011 (one during the week of 3/21 and another during the week of 6/13).



**Figure 8** Summary of 2010 fish sampling at the Caswell Rotary Screw Trap. *Figure courtesy of Cramer Fish Sciences through funding by FWS.*



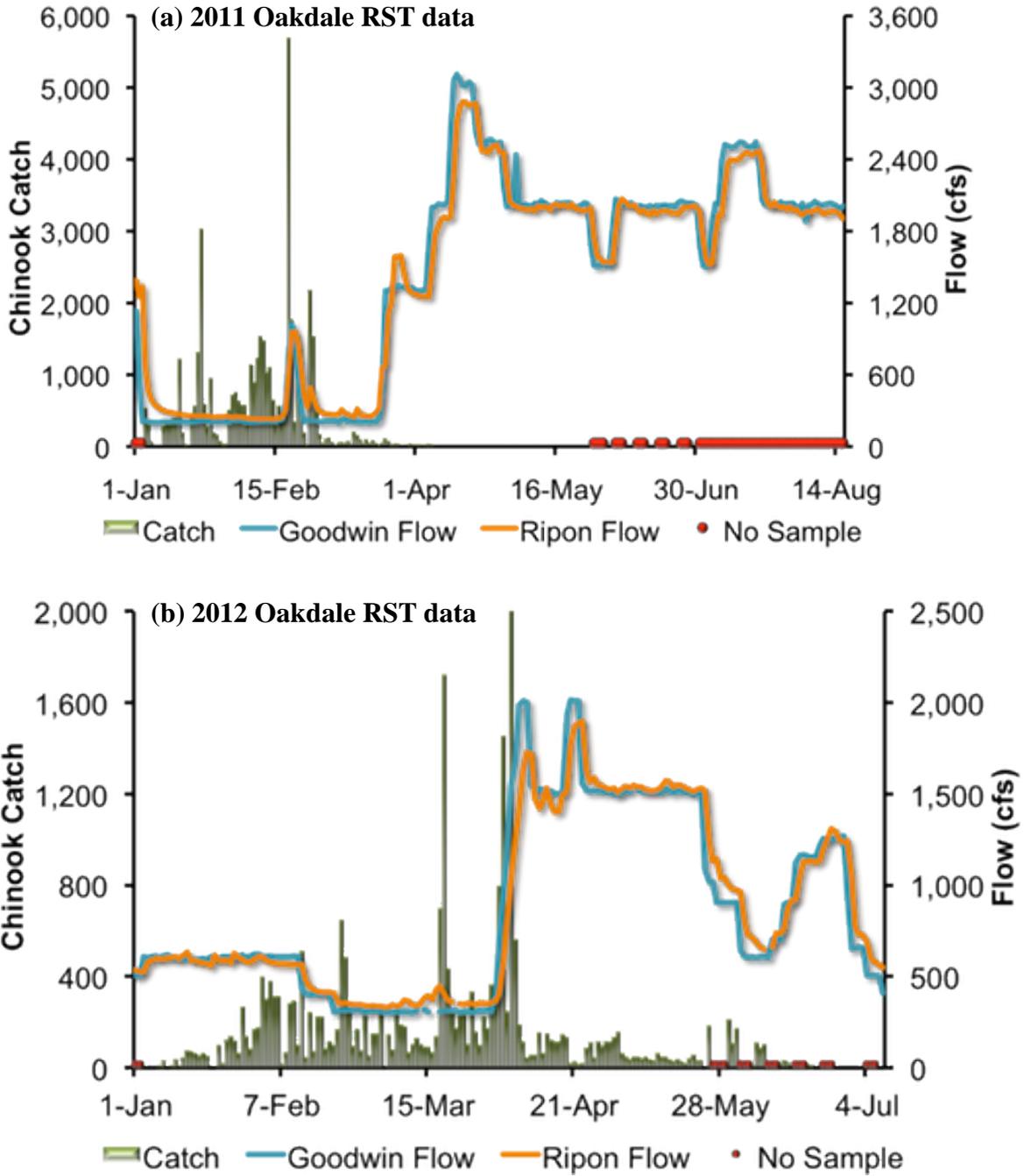
**Figure 9** Summary of 2011 fish sampling at the Caswell Rotary Screw Trap. *Figure courtesy of FishBio from the San Joaquin Basin newsletter*



**Figure 10** Summary of 2012 fish sampling at the Caswell rotary screw trap. Note that the catch represents a weekly total, in contrast to the daily catch totals plotted in Figures 8 and 9; the flow curve represents a weekly average of flow (the average of 7 consecutive daily flow measurements). *Data provided courtesy of Cramer Fish Sciences through funding by FWS.*

**Juvenile Monitoring at the Oakdale Rotary Screw Traps**

Figure 11 summarizes catch of juvenile Chinook salmon at the Oakdale rotary screw trap.



**Figure 11** Summary of Stanislaus river flow and the catch of juvenile Chinook salmon at the Oakdale rotary screw trap during the (a) 2011 and (b) 2012 outmigration seasons. *Figures courtesy of FishBio from their San Joaquin Basin newsletter.*

# References

- CVPIA. 2011. Central Valley Project Improvement Act, Public Law 102-575, Annual Report, Fiscal Year 2011
- Bureau of Reclamation. 1982. *Operating Plan for New Melones Reservoir as required by the February 2, 1982 Order of the United States Court of Appeals for the Ninth Circuit.*
- Guignard, J. 2012. Personal communication. FISHBIO. September 7, 2012.
- Hannon, J. 2012. Personal communication. Fisheries biologist, Bay-Delta office, U.S. Bureau of Reclamation. July 30, 2012.
- NMFS. 2009. *Biological Opinion and Conference Opinion on the Long-Term Operations of the Central Valley Project and State Water Project. NMFS-Southwest Region. 844 pages plus appendices.*
- NMFS. 2011. *Letter transmitting the 2009 Reasonable and Prudent Alternative with 2011 Amendments. April 7.*

# **Appendix A – SOG Meeting Notes**

## Meeting Notes and Handouts – SOG Water Year 2011/2012

Date	Meeting Notes and Handout Descriptions	Author
09/22/11	Meeting Notes	SOG
	Agenda	Reclamation
	Sign-in Sheet	SOG
	New Melones Lake Daily Operations, run date: September 22, 2011	Reclamation
	Tulloch Reservoir Daily Operations, Run date: September 22, 2011	Reclamation
	Goodwin Reservoir Daily Operations, Run date: September 22, 2011	Reclamation
	New Melones – Stanislaus River Basin, Run date: September 22, 2011	Reclamation
	Stanislaus River Preliminary September 50% Exceedence Outlook	Reclamation
	Tulloch Reservoir Temperature Profile: September 7, 2011	Reclamation
	San Joaquin Precipitation: September 18, 2011	Reclamation
	California Snow Water content, July 7 2011	Reclamation
	Current Reservoir Conditions: September 21, 2011	Reclamation
10/19/11	Meeting Notes	SOG
	Sign-in Sheet	Reclamation
	Agenda	Reclamation
	New Melones Lake Daily Operations – October 18, 2011	Reclamation
	Tulloch Reservoir Daily Operations – October 18, 2011	Reclamation
	Goodwin Reservoir Daily Operations – October 18, 2011	Reclamation
	New Melones – Stanislaus River Basin Storage October 18, 2011	Reclamation
	Goodwin Dam (GDW) Discharge– October 17, 2011	Reclamation
	Orange Blossom Bridge Temperatures– October 18, 2011	Reclamation
	Current Reservoir Conditions – October 18, 2011	Reclamation
	San Joaquin Precipitation 5-Station Index – September 30, 2011	Reclamation
	Stanislaus River – Orange Blossom Stage Forecast – October 18, 2011	Reclamation
11/16/11	Meeting Notes	SOG
	Agenda	Reclamation
	New Melones Lake Daily Operations – November 16, 2011	Reclamation
	Tulloch Reservoir Daily Operations – November 16, 2011	Reclamation
	Goodwin Reservoir Daily Operations – November 16, 2011	Reclamation
	New Melones – Stanislaus River Basin Storage USACE - November 16, 2011	Reclamation
	Goodwin Dam (GDW) Discharge - November 16, 2011	Reclamation
	Orange Blossom Bridge Temperatures - November 16, 2011	Reclamation
	San Joaquin Precipitation: November 9, 2011	Reclamation
	Current Reservoir Conditions, November 15, 2011	Reclamation
12/14/11	Meeting Notes	SOG
	Agenda	Reclamation

	New Melones Lake Daily Operations – December 13, 2011	Reclamation
	Tulloch Reservoir Daily Operations – December 13, 2011	Reclamation
	Goodwin Reservoir Daily Operations – December 13, 2011	Reclamation
	New Melones – Stanislaus River Basin Storage USACE - December 13, 2011	Reclamation
	Goodwin Dam (GDW) Discharge - December 13, 2011	Reclamation
	Orange Blossom Bridge Temperatures - December 13, 2011	Reclamation
	San Joaquin Precipitation: 5-Station Index, December 13, 2011	Reclamation
	Current Reservoir Conditions, December 12, 2011	Reclamation
12/28/11	Special Meeting Phone Conference Notes	SOG
1/18/12	Meeting Notes	SOG
	Agenda	Reclamation
	New Melones Lake Daily Operations – January 17, 2012	Reclamation
	Tulloch Reservoir Daily Operations – January 17, 2012	Reclamation
	Goodwin Reservoir Daily Operations – January 17, 2012	Reclamation
	New Melones – Stanislaus River Basin Storage USACE - January 17, 2012	Reclamation
	Goodwin Dam (GDW) Discharge - January 17, 2012	Reclamation
	Orange Blossom Bridge Temperatures - January 17, 2012	Reclamation
	San Joaquin Precipitation: 5-Station Index, January 17, 2012	Reclamation
	Current Reservoir Conditions, January 16, 2012	Reclamation
	Daily CVP Water Supply Report - January 17, 2012	Reclamation
2/15/12	Meeting Notes	SOG
	Agenda	Reclamation
	Sign in Sheet	SOG
	Daily CVP Water Supply Report, Run date: February 13, 2012	Reclamation
	New Melones Lake Daily Operations – February 14, 2012	Reclamation
	Tulloch Reservoir Daily Operations – February 14, 2012	Reclamation
	Goodwin Reservoir Daily Operations – February 14, 2012	Reclamation
	New Melones – Stanislaus River Basin Storage USACE - February 14, 2012	Reclamation
	Goodwin Dam (GDW) Discharge - February 14, 2012	Reclamation
	Orange Blossom Bridge Temperatures - February 14, 2012	Reclamation
	San Joaquin Precipitation: 5-Station Index February 14, 2012	Reclamation
	California Snow Water Content – (Percent of April 1 Average)	Reclamation
	Current Reservoir Conditions - February 14, 2012	Reclamation
	Caswell Memorial State Park RST Preliminary Results: December 27 2011 – February 12, 2012	Reclamation
	Potential Two Mile Bar Designs	Reclamation
3/21/12	Meeting Notes	SOG
	Agenda	Reclamation
	Sign-in Sheet	SOG
	New Melones Lake Daily Operations – March 21, 2012	Reclamation
	Tulloch Reservoir Daily Operations – March 21, 2012	Reclamation
	Goodwin Reservoir Daily Operations – March 21, 2012	Reclamation

	New Melones – Stanislaus River Basin Storage USACE - March 21, 2012	Reclamation
	Goodwin Dam (GDW) Discharge - March 21, 2012	Reclamation
	Orange Blossom Bridge and Knights Ferry Max Temps	Reclamation
	San Joaquin Precipitation: 5-Station Index - March 19, 2012	Reclamation
	California Water Content – (Percent of April 1 Average)	Reclamation
	Current Reservoir Conditions - March 20, 2012	Reclamation
	Caswell Memorial State Park Rotary Screw Traps; 4/18-5/16/11	FWS
4/17/12	Meeting Notes	SOG
	Agenda	Reclamation
	Sign-in sheet	SOG
	New Melones Lake Daily Operations – April 17, 2012	Reclamation
	Tulloch Reservoir Daily Operations – April 17, 2012	Reclamation
	Goodwin Reservoir Daily Operations – April 17, 2012	Reclamation
	New Melones – Stanislaus River Basin Storage USACE - April 17, 2012	Reclamation
	Goodwin Dam (GDW) Discharge - April 17, 2012	Reclamation
	Orange Blossom Bridge and Knights Ferry Max Temps	Reclamation
	San Joaquin Precipitation: 5-Station Index - April 11, 2012	Reclamation
	California Water Content – (Percent of April 1 Average)	Reclamation
	Current Reservoir Conditions - April 17, 2012	Reclamation
	Caswell Memorial State Park RST: 27 December 2011 – 15 April 2012	Reclamation
5/16/12	Meeting Notes	SOG
	Agenda	Reclamation
	Sign-in Sheet	SOG
	New Melones Lake Daily Operations – May 16, 2012	Reclamation
	Tulloch Reservoir Daily Operations – May 16, 2012	Reclamation
	Goodwin Reservoir Daily Operations – May 16, 2012	Reclamation
	New Melones – Stanislaus River Basin Storage USACE - May 16, 2012	Reclamation
	Goodwin Dam (GDW) Discharge - May 16, 2012	Reclamation
	Orange Blossom Bridge and Knights Ferry Max Temps	Reclamation
	San Joaquin Precipitation: 5-Station Index - May 15, 2012	Reclamation
	California Water Content (Percent of April 1 Average)	Reclamation
	Current Reservoir Conditions - May 15, 2012	Reclamation
	Caswell Memorial State Park Rotary Screw Traps; 27 December 2011 – 13 May 2012	FWS
	Total Wetted Area versus Flows Graphs for Orange Blossom Knight’s Ferry and Ripon Jacob Myers – for FWS presentation	FWS
6/13/12	Meeting Notes	SOG
	Agenda	Reclamation
	Sign-in Sheet	SOG
	New Melones Lake Daily Operations – June 13, 2012	Reclamation
	Tulloch Reservoir Daily Operations – June 13, 2012	Reclamation

	Goodwin Reservoir Daily Operations – June 13, 2012	Reclamation
	New Melones – Stanislaus River Basin Storage USACE - June 13, 2012	Reclamation
	Goodwin Dam (GDW) Discharge - June 13, 2012	Reclamation
	Orange Blossom Bridge and Knights Ferry Max Temps	Reclamation
	San Joaquin Precipitation: 5-Station Index - June 4, 2012	Reclamation
	California Water Content – June 13, 2012	Reclamation
	Current Reservoir Conditions - June 12, 2012	Reclamation
	Stan Temp Estimates – 6/1/12 through 10/1/12	Reclamation
	Preliminary Data – Steelhead and Chinook catch at the Mossdale trawl in spring 2012	FWS
8/15/12	Meeting Notes	
	Agenda	
	Sign-in Sheet	SOG
	New Melones Lake Daily Operations – August 14, 2012	Reclamation
	USACE New Melones – Stanislaus River Basin: August 14, 2012	Reclamation
	Tulloch Reservoir Daily Operations, Run date: August 14, 2012	Reclamation
	Goodwin Reservoir Daily Operations, Run date: August 14, 2012	Reclamation
	Goodwin Dam Discharge, Run date: August 14, 2012	Reclamation
	Stanislaus R at Orange Blossom Bridge – OBB: August 12, 2012	Reclamation
	San Joaquin Precipitation: July 31, 2012	Reclamation
	California Water Content: (Percent of April 1 Average)	Reclamation
	Current Reservoir Conditions: August 13, 2012	Reclamation

**NOTE: July Meeting was Cancelled due to Scheduling Conflicts**