Delta Operations for Salmonids and Sturgeon (DOSS) Group
Conference call: 4/24/12 at 9:00 a.m.

Objective: Provide advice to the Water Operations Management Team (WOMT) and National Marine Fisheries Service (NMFS) on measures to reduce adverse effects from Delta operations of the Central Valley Project and the State Water Project on salmonids and green sturgeon. DOSS will coordinate the work of other technical teams. DOSS notes and advice can be found at: http://www.swr.noaa.gov/ocap/doss.htm

DWR: Mike Ford, Andy Chu, Angela Llaban, Tracy Pettit, James Gleim, Kevin Reece,
FWS: Leigh Bartoo, Pat Brandes, Craig Anderson
NMFS: Barbara Rocco, Barb Byrne, Garwin Yip, Jeff Stuart, Bruce Oppenheim
Reclamation: Russ Yaworsky, Josh Israel, Ron Milligan
DFG: Bob Fujimura, Jason Roberts, Dean Marsten, Robert Vincik, Andy Gordus, Scott Cantrell, Tim Heyne
EPA, SWRCB, USGS: not present

Agenda

1. Fish monitoring
2. Current operations
3. Implementation of OMR per stipulation
    a. Tag detection update, including logistical issues in implementing any predator filter.
    b. Review of OMR treatment ordering (and possible D-1641 variance), including (i) update from WOMT and other discussion last week, (ii) review of expected VNS flows.
    c. Check in on temperatures in the Delta
4. Wrap-up; confirmation of DOSS advice to NMFS and WOMT as well as basic rationale for advice.

Action Item [1/3/12]: Review the DOSS section of the annual review report and provide responses regarding implementation of recommendations. **Carry.** 4/24/12: No update.

Fish Monitoring: The following table presents fish monitoring data. Unless otherwise noted, reported sizes are fork length. No data were received before the conference call from Speegle (FWS). See: http://www.water.ca.gov/swp/operationscontrol/calfed/calfedmonitoring.cfm.

Location	Chipps Is. Midwater Trawl	Sacramento Trawls	Mossdale Kodiak Trawl	Beach Seines	Knights Landing RST	Tisdale Weir RST
Sample Date	4/17, 20	4/16, 18, 20	4/16-4/21	4/16–4/20	4/16–4/23	4/16–4/21 & 4/23
Total Catch	**195**	**91**	**604**	**156**	**214**	**229**
FR	39	55	597	120	196	222
WR	1					
SR	97	20		16	15	6
LFR				1	2	
Ad-Clipped Chinook	51 (1 had acoustic tag)	12		10		
DS	6 (5 had no expression; 1 w/eggs)	1		6		
Splittail				3		
Longfin			1 (35 mm)			
SH (ad-clip)	1	2	2 (acoustic tagged and clipped)		1	
SH (wild)		1	4			1
W. Temp. (avg. °F)	59.7	58.1		59.4	63.0	57.7
Flows (avg. cfs)					11,940	11,100
Turbidity (avg. NTU)	26.1	50.5		30.5	28.2	17.7
WR/LFR Avg. CPUE					0.006	
FR/SR Avg. CPUE					0.673	0.88

Key: FR = Fall run; LFR = Late-fall run; SR = Spring run; WR = Winter run; SH = Steelhead; DS = Delta smelt; LFS = Longfin smelt; CPUE = catch per unit of effort,

Mossdale: Steelhead captured with suture marks are re-released. DFG staff are also "tagging" wild steelhead with acoustic tags and releasing.

It was noted that there are more juvenile steelhead and salmon coming from the San Joaquin River now than this at time last year. Temperatures in the San Joaquin River have risen this week into the 70–80°F range, which is a concern for steelhead.

Fish Salvage Data (4/16–22): Reports are also posted at ftp://ftp.delta.dfg.ca.gov/salvage: and you can locate the table under folder "DOSS salvage tables" (you can also try http://www.dfg.ca.gov/delta/apps/salvage/Default.aspx) and click on "salvage FTP site".

The following table reported by DFG shows weekly and water-year totals for salvage and loss densities of Chinook and steelhead.

DOSS Weekly Salvage Update
Reporting Period: April 16-22, 2012
Prepared by Bob Fujimura on April 23, 2012
Preliminary Results -Subject to Revision

Criteria	16-Apr	17-Apr	18-Apr	19-Apr	20-Apr	21-Apr	22-Apr	Trend
Loss Densities								
Wild winter-run CS	0.0	0.0	0.6	0.0	3.1	0.0	0.0	↗↘
Wild steelhead	2.3	3.0	3.2	1.7	2.9	1.3	0.0	
SWP daily export	4,368	3,811	4,661	4,369	3,578	3,205	2,238	→
CVP daily export	3,166	2,070	1,611	1,613	2,331	3,235	2,103	↗

exceeds 1st stage trig

Loss Density = fish lost/TAF; water export = AF; Trend = compared to previous week; wild = adipose fin present

Chinook Salmon Weekly/Season Salvage and Loss
Combined salvage and loss for both CVP and SWP fish facilities

		Weekly Total			Season Total	
Category		Salvage	Loss	Trend	Salvage	Loss
Wild						
	Winter Run	8	22	↗	829	2,021
	Spring Run	280	810	↗	821	1,818
	Late Fall Run	0	0	→	19	14
	Fall Run	20	15	↗	28	48
	Total	308	847		1,697	3,901
Hatchery						
	Winter Run	12	40	↗	456	1,192
	Spring Run	0	0	→	4	17
	Late Fall Run	0	0	→	25	20
	Fall Run	0	0	→	0	0
	Total	12	40		485	1,229

exceeds "warning level"

Race determined by size at date of capture; hatchery = adipose fin missing;

Steelhead Weekly/Season Salvage and Loss
Combined salvage and loss for both CVP and SWP fish facilities

	Weekly Total			Season Total	
Category	Salvage	Loss	Trend	Salvage	Loss
Wild	26	91	↘	315	1,072
Hatchery	43	102	↘	567	1,050
Total	69	193		882	2,122

No green or white sturgeon were observed at either facility.

Complied by Bob Fujimura on April 23, 2012

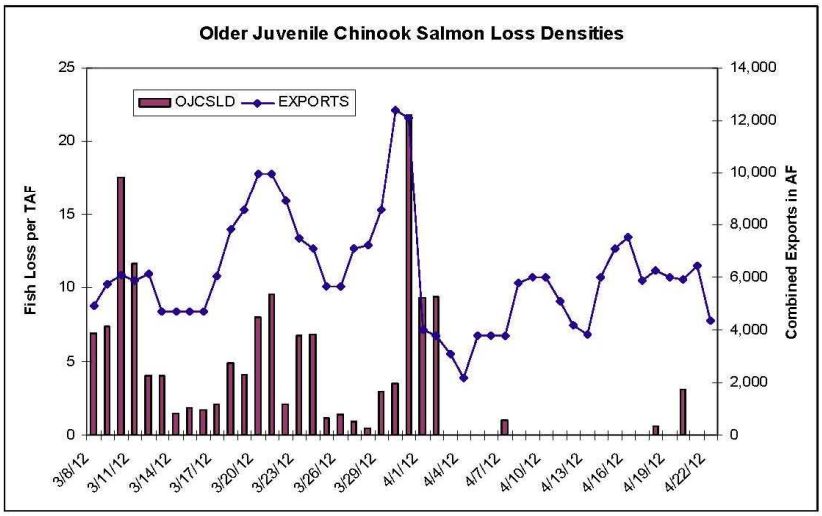


Figure 1. Older juvenile Chinook salmon loss densities and exports for the combined CVP and SWP facilities from March 8 through April 22, 2012. Information from DFG daily salmon and smelts summary tables (G. Aasen; 4/23/12). Prepared by Bob Fujimura on April 23, 2012.

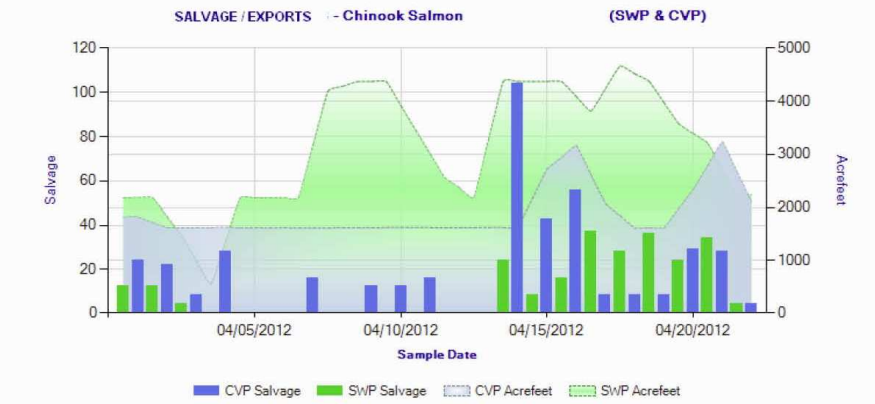


Figure 2. Daily salvage of Chinook salmon (all races) and water exports from the state and federal fish salvage facilities during April 1 through April 22, 2012. Graph obtained from the DFG salvage monitoring web-page: http://www.dfg.ca.gov/delta/apps/salvage/SalvageExportCalendar.aspx.

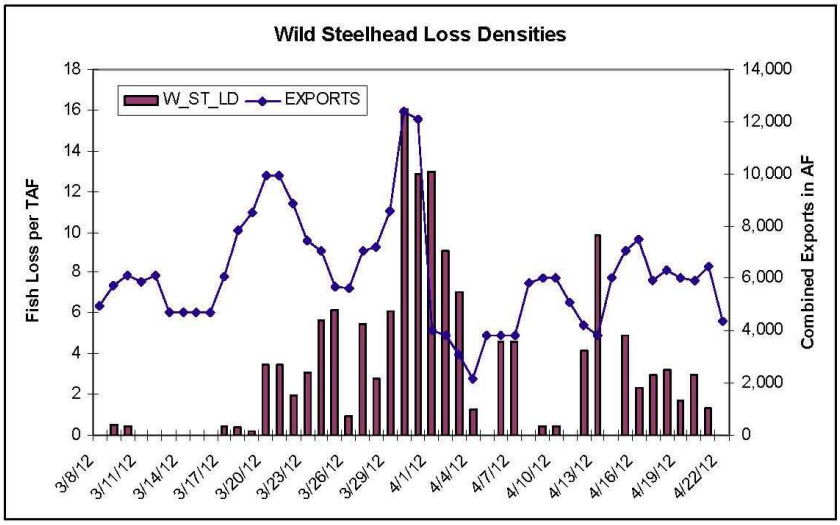


Figure 3. Wild steelhead loss densities and exports for the combined CVP and SWP facilities from March 8 through April 22, 2012. Information from DFG daily steelhead and smelts summary tables (G. Aasen; 4/23/12). Prepared by Bob Fujimura on April 23, 2012.

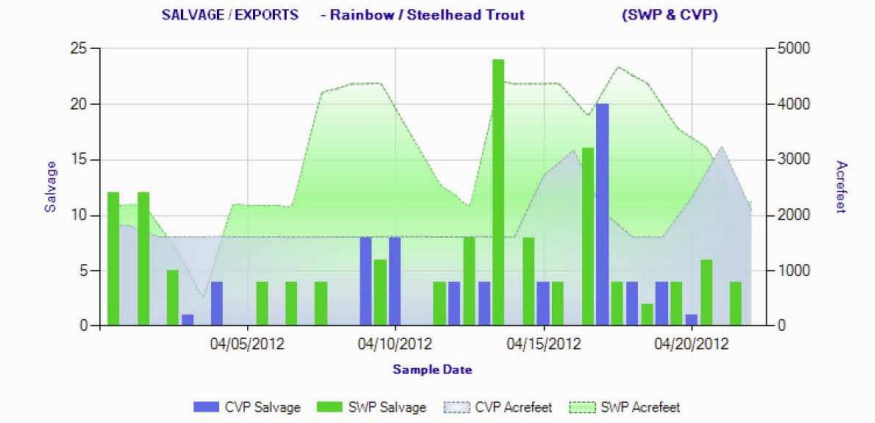


Figure 4. Daily salvage of steelhead and water exports from the state and federal fish salvage facilities during April 1 through April 22, 2012. Graph obtained from the DFG salvage monitoring web-page: http://www.dfg.ca.gov/delta/apps/salvage/SalvageExportCalendar.aspx

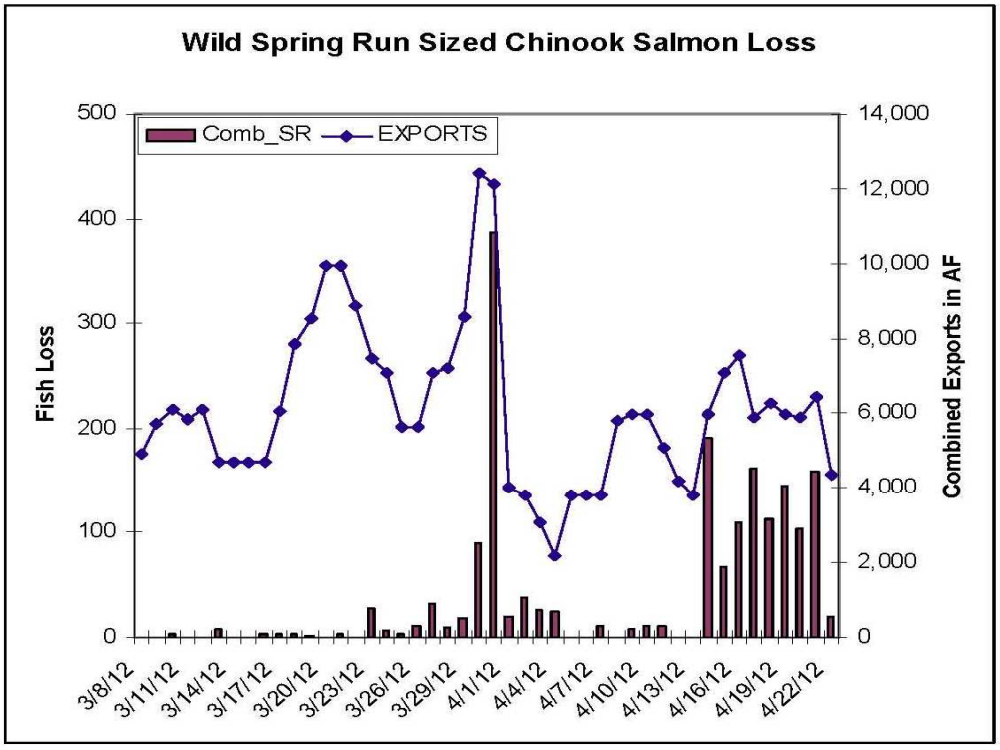


Figure 5. Daily losses of wild spring-run sized Chinook salmon and exports for the combined CVP and SWP facilities from March 8 through April 22, 2012. Information from DFG daily salmon and smelts summary tables (G. Aasen; 4/23/12). Prepared by Bob Fujimura on April 23, 2012.

Coded Wire Tagged (CWT) Salvage and Loss as of 4/23/12 (see table below):

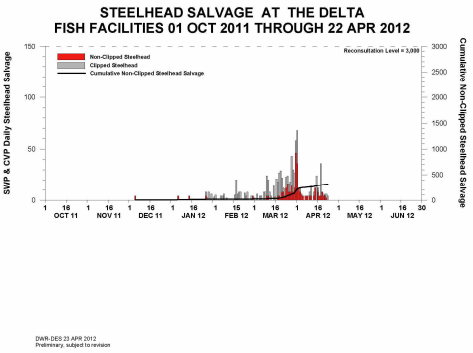
Coleman Hatchery Late-Fall Run and Livingston Stone Winter-Run Chinook Loss at the Delta Fish Facilities, 2011/2012

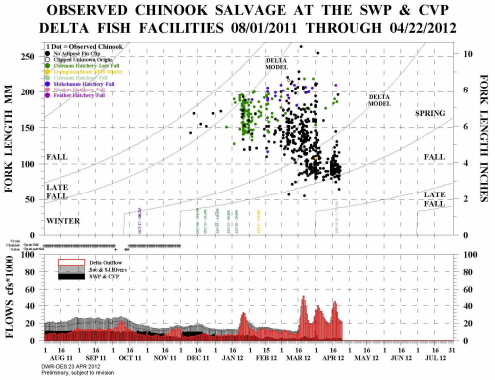
Release Date	CWT Race	Release Site	Release Type	Confirmed Loss	Number Released	Total Entering Delta	% Loss[1]	First Concern Level	Second Concern Level	Date of First Loss	Date of Last Loss
12/16/2011	LF	Battle Creek	Production	134.66	394,700	n/a	0.034	n/a	n/a	1/11/2012	3/31/2012
12/23/2011	LF	Battle Creek	Spring Surrogate	2.92	62,400	n/a	0.005	0.5%	1.0%	1/18/2012	1/31/2012
1/3/2012	LF	Battle Creek	Production	635.12	448,600	n/a	0.142	n/a	n/a	1/19/2012	4/19/2012
1/13/2012	LF	Battle Creek	Spring Surrogate	52.17	80,800	n/a	0.065	0.5%	1.0%	1/31/2012	2/18/2012
1/20/2012	LF	Battle Creek	Spring Surrogate[2]	101.04	20,000	n/a	0.505	n/a	n/a	1/30/2012	3/29/2012
2/9/2012	W	Redding	Production	16.96	194,000	96,525	0.018	0.5%	1.0%	3/31/2012	3/31/2012

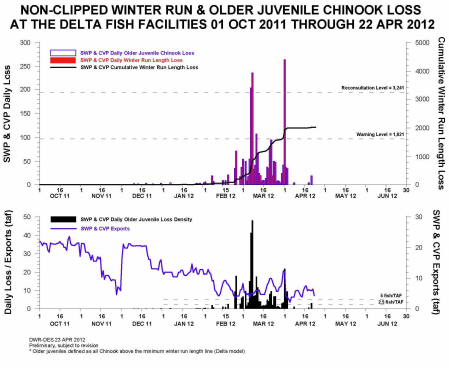
For Chinook lost 10/1/2011 through 4/22/2012
SWP coded-wire tags read 10/1/2011 through 4/22/2012
CVP coded-wire tags read 10/1/2011 through 4/22/2012
[1]LF % Loss = (Confirmed Loss/Number Released)*100; W % Loss = (Confirmed Loss/Total Entering Delta)*100
[2]Because of the equipment malfunction that stranded a large proportion of the release in the gravel, this 3rd surrogate release is tracked for monitoring and information only and not for compliance with Action IV.2.3.

DWR-DES Revised 4/23/2012
Preliminary, subject to revision

Below are the salvage and loss graphs for Chinook and steelhead from Llaban (DWR) as of 4/23/12. For additional salvage and loss graphs, please visit the DWR website at: http://www.water.ca.gov/swp/operationscontrol/calfed/calfedmonitoring.cfm.







Operations (4/24/12)

SWP		CVP	
Exports (cfs)			
Clifton Court Forebay	700	Jones Pumping Plant	800
Reservoir Releases (cfs)			
Feather - Oroville	1,350	American - Nimbus	5,000
		Sacramento - Keswick	6,000
		Stanislaus - Goodwin	1,500
Reservoir Storage (in TAF, % of capacity)			
San Luis (SWP)	964	San Luis (CVP)	757 (78)
Oroville	3,239	Shasta	4,360
New Melones		Folsom	891
Delta Operations			
DCC	Closed as of 12/1/11 (will operate for 6 hrs on Wed. for maintenance)	Sacramento River at Freeport (cfs)	19,095
Outflow Index (cfs)	20,200	San Joaquin River (cfs) at Vernalis	2,739
Total Delta Inflow (cfs)	23,682	OMR (daily) (cfs)	

Water Temperature (°F)		OMR 5 day (cfs)	-2,673
X2 (km)	67	OMR 14 day (cfs)	-2,477
E/I (%)	6.4		

DCC: Reclamation reported that there will be some fish monitoring when the DCC gates are open coordinated by Ryan Reeves (DWR), project manager for Georgiana Slough bio-acoustic fish fence project.

Review of Railroad Cut Trigger for 4/15-4/30 (Stipulation):
Per Byrne's report to DOSS, the trigger of 9 sentinel steelhead was exceeded on Thursday, 4/19/12, and reported out on Friday, 4/20/12; therefore, the combined exports decreased to the 1,500-cfs health-and-safety limit beginning Sunday (4/22/12). As of Monday's (4/23) daily receiver report, 37 tags out of 166 tagged steelhead released (22%) were detected at the Railroad Cut receivers. Unfortunately, the predator "filter" used to report north-to-south movement was not working as expected; there were logistical issues in implementing the filter; therefore, we do not know whether any of the 37 tagged steelhead that passed the Railroad Cut receivers were in the stomach of a predator. Byrne discussed this with Kevin Clark (DWR principal investigator) after the Delta Conditions Team (DCT) call Monday to examine the possibility of using additional staff to help implement that filter. One issue is that there are multiple receivers placed close together at the Middle River receiver array. To get good coverage, there is a bit of acoustic overlap between the receivers; therefore, a tag is detected by multiple receivers at the same time so there is very little time differentiation between receivers. In combination with "clock drift" of a few seconds, it is difficult to use the time of detection to differentiate between southward and northward movement. There is less of that issue at the Old River site, but more fish are coming through Middle River. We may be able to implement the simplistic predator filter in May when the additional dual array of cabled receivers is installed and operational in Middle River. The two dual arrays are expected to be acoustically isolated from one another.

It is too soon to tell whether the change in exports for this experimental period has minimized the tagged steelhead from arriving at the export facilities; that sort of analysis will not happen until data from all receivers are downloeaded and analyzed after the end of May. If 37 tagged fish pass Railroad Cut, that means that there are still 129 north of that area and we do not know the fate of those fish. This is what we are trying to determine in this study; that is, how do steelhead react to changes in conditions. The databases are enormous and analyzing the data will take several months; it is unusual to receive data on a daily basis. Israel has tracked one receiver at the Tracy Fish Facility and reported that there were 23 tags that were from the 6-year acoustic study and 8 from the stipulation sentinel releases that have been heard at these recievers . The tags from the stipulation releases began showing up on 4/20 (1) and then more on 4/22. Israel (Reclamation) and Clark are meeting to analyze the tag information. We are trying to interpret all of the data; however, before 4/15/12, no dataset existed and we are now building this one from scratch.

As far as fish protection at an OMR of -1,250 cfs, if we assume that there are wild steelhead still moving out of the San Joaquin and Calaveras rivers, we are still protecting them. Beginning May 1, we will alter the conditions and possibly later, we will be able to relate exports to hydrodynamic conditions that affect steelhead.

The question was raised about whether the fish facilities were also monitoring the tags. The CVP has a receiver and there is a cabled receiver at SWP but those data have not been analyzed. The fish facilities that observe any sutured fish in the salvage counts will re-release them; however, neither Reclamation nor DFG has received any reports that the facilities have seen any of these fish come through.

It would be nice to have the fish data for those 100+ remaining tagged fish. There are so many receivers now that we need to set up the database and get the flow of data going. At the IEP workshop, it was pointed out that the typical survival rate at Chipps Island was in the single digit percentile on the San Joaquin side. There is still about 80% of the sentinel release group out there somewhere. Rebecca Buchanan (University of Washington) is working on collecting information like survival rates, etc., but we will not get answers quickly. Those collecting and analyzing the data can continue to figure out how to develop the program and technology so that we can get answers more quickly. Israel hopes to have information from 2012 on the 6-year study in time for the annual review in November. It normally takes 18 to 24 months to put the acoustic data together. It needs to be decided what information people want so that we can focus on analyzing that data in real time. All monitors will be downloaded at the end of the month and Israel is trying to process that data within the same season, which has never been done.

Alternative Operations Proposed:
Two proposals were considered by DOSS, one from Reclamation (Ron Milligan) and one from Tom Boardman on behalf of the Public Water Agencies (PWA) south of the Delta.

Reclamation proposed keeping combined exports at 1,500 cfs until Thursday 4/26 and then transitioning back to 1:1 exports no greater than 100% of the 3-day average flow at Vernalis per the limit in D-1641, which would mean that pumping would increase to approximately 2,300 cfs through the weekend. On Tuesday, 5/1, pumping would increase to whatever flows that are the same at Vernalis. The flow schedule for this year's 31-day pulse flow at Vernalis is still being coordinated, but the Merced River is expected to increase releases the first week of May. On Tuesday, 5/1, the projects would operate to the next experimental OMR flow coincident with the release of the next test group of sentinel fish.

In response to the DCT discussions on Monday, 4/23/12, Tom Boardman sent an e-mail to DOSS on behalf of the PWA (copy attached), relaying concerns, comments/questions, and recommendations related to current management actions that began on 4/22/12 and that were intended to protect steehead. The list of concerns and questions apply to both exports and flow-related decisions through May under the stipulation.

The PWA proposed an alternative to the current OMR flows for the remainder of April 2012. They suggested that OMR be increased from -1,250 cfs to -2,500 cfs, which would approximate the 1:1 ratio at Vernalis. They also had several questions that were fairly technical and that the researchers should probably answer.

There was concern expressed by some DOSS members that the trigger criterion of 9 sentinel steelhead had not only been exceeded, but by quite a bit, and that perhaps the OMR levels in place per the OMR Technical Memorandum (tech memo) that are meant to protect the fish were not adequate. It was suggested that there might be some inconsistency in either the design of the

experiment or that monitoring is getting more accurate. In any case, the number of tagged steelhead seen is more than expected.

It was pointed out and agreed that rather than have DOSS respond to the questions asked by the PWA, it might be more efficient if the questions asked and concerns raised be addressed by those who participated in the discussion during development of the sentinel study or the principal investigator (Clark) who is in the field implementing the experiment. Several DOSS members and/or DCT members would be available to help him if necessary. It was also noted that many of the questions/concerns from the PWA proposal were actually addressed in the study design, and other questions simply cannot be answered until all the data are analyzed. Many issues raised in the email from Boardman were merely statements and not questions; many monitoring data are available now through daily DFG reports on salvage and through weekly DOSS reports. It was noted that the e-mail had not originally been provided to DCT before yesterday's call, but that it was sent last minute to Mike Ford (lead for DCT) to pass on to DOSS.

It was noted also that in last week's DOSS discussion, members asked that when any DCT information is sent to DOSS, that it also be sent to all DCT members. Regarding this particular email proposal, if the the agencies were a party to any of these conversations, they should be apprised of these issues, questions, and concerns.

Aside from the concerns and questions raised by the PWA proposal, DOSS acknowledges that PWA is requesting that DOSS consider changing the OMR from -1,250 cfs to -2,500 cfs. This request by Boardman is based on the uncertainity in the tagged fish response to the OMR flows (e.g., whether the tagged steelhead have been eaten by a predator) and whether the most restrictive OMR level is necessary given unanticpated experimental results.

DOSS agreed that the number of fish detected at Railroad Cut is surprising; in the absence of previous data on steelhead passage past Railroad Cut the planning committee set a trigger that was believed to be reasonable. This is the first time we have had this many receivers in the water and attempted this kind of study.

Some of the main issues that DOSS members discussed were:

- whether the tech memo was correctly interpreted as to managing the "risk" to species by operating at the various OMR levels,
- whether the tech memo approach is as protective as the RPA,
- the benefit to this high trigger response in terms of evaluating fish movement,
- whether limited exports are more than necessary to be protective,
- the need to protect wild steelhead that are still coming through the Delta, and
- returning to the 1:1 inflow:export ratio.

One suggestion during the development of the stipulation was that we implement a straight OMR flow level when the barrier was used at Head of Old River and then, at higher Vernalis flows when the barrier can not be installed, require more positive OMR flows at higher Vernalis flows. As mentioned before, one of the challenges during the development of the tech memo was in setting a trigger based on acoustically tagged steelhead without, for example, having the benefit of knowing the results of the steelhead monitoring from last year. It may be that at these low Vernalis flows, a fish response to different OMR levels cannot be detected. If we translate

an I:E ratio to a trigger based on Railroad Cut information, there are many assumptions involved. This year is actually the first time we have information from receivers in those channels and it appears that there are more fish that get entrained into those channels (or preyed on) than we thought.

There was a question whether changing the OMR target to -2,500 cfs through April 30 would make a difference in operations because OMR is currently near -2,500 cfs and the projects are pumping 1,500 cfs combined (minimum for health and safety). If the D-1641 1:1 Vernalis ratio is controlling, it might result in an OMR of -2,500 cfs. If exports are at 1,500 cfs, and the expected Vernalis flow is less than 2,500 cfs, then OMR would be more postive than -2,500 cfs. DWR pointed out that since Sunday, 4/22/12, there is a water cost to implementing minimum combined 1,500 cfs exports (relative to implementing the 1:1 I:E ratio that would be required under Action IV.2.1), so that from 4/22/12 through 4/30/12, the water supply cost is projected to be approximately 14,000 af, compared to a water supply gain of approximately 6,000 af from 4/1 through 4/21.

It should be noted that NMFS management suggested that DOSS, in considering advice to WOMT, refrain from considering costs based on water supply and whether it is feasible in terms of how long it takes to make operational changes. The DOSS advice should be based on the proposal and whether it makes sense biologically for fish protection.

The question was raised about whether sentinel fish would continue to be counted and applied to the existing trigger to maintain protection, and then manage to the next experimental OMR flow when the new sentinel fish are released on May 1. From a practical standpoint, if DOSS supports the -2,500 cfs OMR during the remainder of this period, the response time until the next fish release is not such that we can reduce OMR (make more positve) quickly. If that is the case, we should keep OMR at -1,250 cfs for the next 5 days and then switch to the next experimental OMR flow on May 1.

Continuing to hold exports at an OMR of -1,250 cfs for the remainder of the experimental period is consistent with the tech memo. Monitoring acoustically tagged fish in real-time was considered superior to using PTM results in the stipulation. In addition, some DOSS members argued that if fish are continuing to be detected at the Railroad Cut receivers, it would be hard to biologically justify an increase in exports at this time. An increase in the number of tags counted at the CVP, consistent salvage of steelhead at the SWP, and an increase of steelhead at Mossdale should be justification for keeping OMR at -1,250 cfs (or 1,500 cfs minimum combined exports, whichever is greater) and not changing protocols now. We do not know whether the 15 to 20% of fish reaching Railroad Cut was a result of OMR flows and why 80% may have gone another direction. We will eventually get all the data and see whether a similar proportion of those sentinel fish from the next release perform in a similar manner.

If the experimental OMR flows in May are switched, and the projects are operating to a more negative OMR, theoretically, we should see more fish move past Railroad Cut or see the trigger reached at a faster rate. Either way, once the trigger is met, we go to an OMR of -1,250 cfs for the remainder of the period; however, we will gain information on how fast the fish are moving and the number of fish moving through Railroad Cut.

One suggestion was to consider what OMR level would have been recommended according to the PTM method that was implemented for each of the first 2 weeks in April. The presumption from some was that the experimental flows were not protective enough. If the first experimental OMR flow was not protective enough, why would there be a more negative experimental OMR levels?

DOSS was reminded that when the experimental treatment levels were set up, it was decided that there would be fish protection goals. We started with an "intermediate" level of OMR flow and adjusted from there to reach the extremes of negative and positive at some point in the experiment. The rationale was that while the first treatments might be less protective initially, if the Railroad Cut trigger is in place, it would be tripped more quickly and, over the 2-week period, there would be an "average" level of protection. The fish behavior at the junctions is sensitive to water conditions and tidal influences. We have not yet demonstrated that OMR has not been protective and we do not want to jump to any conclusions.

The 6-year study is confirming that it is not just the sentinel steelhead release group that is being entrained at the pumps but also the steelhead from the 6-year study that were released much farther upstream on the San Joaquin River. The data from both releases seem to be generally consistent. A number of sentinel steelhead were salvaged at the fish facilities and not just detected at Railroad Cut, which was put in place as sort of an early warning. The fact that approximately 3% of the 6-year study fish (released at Durham Ferry), and approximately 5% of the sentinel steelhead release, have been observed near the trash rack at the CVP facility, indicates that even at the relatively positive OMR levels since April 1, steelhead are showing up in the south Delta. . If we are going to be adaptive at this point, we should minimize the number of steelhead being salvaged. That is, if the more negative OMR results in a number of fish salvaged, then we should use the information and provide a more positive OMR to see whether less steelhead end up at the salvage facilities.

DOSS members were reminded that the experiment was intended to try to learn about steelhead response to different OMR conditions while managing risk to the species. There is not a clear understanding of the mechanisms and processes that make steelhead behave a certain way or of risk thresholds. The current triggers may not be appropriate for future management. These data are meant to evaluate these things within an operational range. The mechanisms are being determined at this point.

Ordering of OMR targets for first half of May:
There is a chance that the May 1 release of sentinel steelhead could be the last if high water temperatures compromise the health of the sentinel steelhead for the May 15 release. Water temperatures spiked above 80°F for 3 days on the San Joaquin River at Patterson last week and 70°F at the fish facilities. Subsequent to the DOSS discussion last week during which different Vernalis scenarios were considered, it was indicated that switching the experimental OMR flows in May (i.e., -5,000 cfs to the first half; -1,250 cfs to the second half) was preferred, but that the combined exports would be limited to the D-1641 1:1 Vernalis flow:export ratio. This does not supersede any other regulatory requirement such as those for smelt.

One of the concerns about waiting until the second half of May to implement a more negative OMR treatment level is that some parties are concerned that smelt protections could restrict exports and limit the feasibility of a more negative OMR treatment level. Recent increases in

water temperature in the Delta have also raised concerns about the suitability of conditions in the second half of May. Shifting the more negative OMR treatment level to the first half of May increases the likelihood of having at least two different OMR treatment levels, regardless of what happens in the second half of May.

The increase in flows at Vernalis during the 31-day pulse-flow period will probably enable a more negative OMR to be implemented during the first half of May. Vernalis flows are expected to drop after May 15 and that is when the projects expect the risk to delta smelt entrainment will increase; therefore, a "flip flop" of experimental treatments would still work within the confines of the stipulation and other regulatory requirements.

One discussion from last week's WOMT meeting was that the switch of OMR treatment levels was conditioned on applying for a variance from the SWRCB for required Vernalis flows in D-1641, because if a variance was not received, we could not reach an OMR flow level of -5,000 cfs in any case. Rather than going to an OMR treatment level of -1,250 cfs the second half of May, we might consider smelt distribution and set the OMR treatment level at some intermediate level. It was suggested that intermediate levels make it harder on an experiment and that the difference between OMR levels should be as large as possible for better experimental information. It was also noted that the deputy-level staff came to terms with this last week. Reclamation and DWR are not planning to request a variance from D-1641 at this point. After the DOSS call last week and characterizations of advantages and disadvantages, we left it to WOMT to decide whether to request a variance.

The current trend in OMR levels for the April 15–30 time period will result in an effective OMR treatment level more positive than the target treatment level of -3,500 cfs, most likely in the -2,000 to -2,500 cfs range. Rather than implement the -1,250 cfs OMR treatment level indicated for May 1–May 15 in the tech memo, DOSS advises switching the OMR treatment levels in May so that the more negative OMR treatment level will occur first. DOSS also advises not to seek a variance of the D-1641 requirement for Vernalis flows.

Smelt Working Group: The SWG noted that salvage of larval delta smelt typically increases in May. The SWG will be watching environmental and operational conditions closely throughout the month.

DOSS advice to WOMT and NMFS:

Operations per Action IV.2.3:
The older juvenile loss density for April 20, 2012, was reported to be 3.1 fish/TAF, which exceeds the first-stage trigger of 2.5 fish/TAF under Action IV.2.3. DOSS advises that, under IV.2.3, the projects would be required to operate to an OMR level of no more negative than -3,500 for at least 5 days[1].

Operations per the stipulation—remainder of April 15–April 30:
DOSS advises that the projects continue to operate per the tech memo (*i.e.,* continue to hold

[1] At the WOMT meeting the afternoon of April 24, 2012, it was clarified that the first day of the 5-day action response was Monday, April 23, 2012, the day NMFS was notified that the loss-density trigger had been exceeded.

combined exports at 1,500 cfs through the current experimental period which ends on April 30). DOSS also advises that the questions and concerns submitted by the public water agencies be reviewed first by Clark, the lead investigator of the stipulation study.

Operations per the stipulation—for May 1–May 15, 2012:
DOSS advises that the initial OMR treatment level for the May 1–May 15 experimental period target an OMR treatment level of -5,000 cfs, or as negative an OMR level as is feasible given all other regulatory constraints, including D-1641. DOSS did not advise seeking a variance to the D-1641 1:1 Vernalis flow:export requirement.

Next Meeting: The next DOSS conference call will be May 1, 2012, at 9:00 a.m.