

**Delta Operations for Salmonids and Sturgeon (DOSS) Group**  
**Conference call: 12/15/15 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 work with other technical teams. DOSS notes and advice can be found at: [http://www.westcoast.fisheries.noaa.gov/central\\_valley/water\\_operations/doss.html](http://www.westcoast.fisheries.noaa.gov/central_valley/water_operations/doss.html).

**DWR:** Rhiannon Mulligan, Kevin Reece, Aaron Miller, Mike Ford

**Reclamation:** Peggy Manza

**NMFS:** Jeff Stuart, Meiling Roddam

**CDFW:** Bob Fujimura, Duane Linander, Ken Kundargi

**USFWS:** Craig Anderson, Leigh Bartoo

**Agenda Items**

1. Agenda review and introductions
2. RPA Implementation review
3. Current Operations
4. Fish Monitoring
5. DCC Flex request
6. Spring-run surrogate release schedule (surrogates are late-fall run Chinook from Coleman NFH)
7. Real time acoustic receivers for winter-run Chinook hatchery fish
8. Smelt Working Group
9. DOSS Advice
10. Next DOSS meeting

**Agenda Item 2.**

***RPA Implementation Review***

**Delta RPA Actions that may affect operations during December:**

**Action IV.1.2<sup>1</sup> (DCC gate operations):**

- DCC gates were closed at 9:00 am on 12/15/15 in accordance with the termination of the DCC flexibility request<sup>2</sup> by Reclamation. DCC gates were open 12/4 to 12/14 to alleviate elevated salinity conditions in the Delta interior.

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<sup>1</sup> For details, see pages 62-66 in Enclosure 2 of the 2011 Amendments to the 2009 RPA document at: [http://www.westcoast.fisheries.noaa.gov/publications/Central\\_Valley/Water%20Operations/Operations,%20Criteria%20and%20Plan/040711\\_ocap\\_opinion\\_2011\\_amendments.pdf](http://www.westcoast.fisheries.noaa.gov/publications/Central_Valley/Water%20Operations/Operations,%20Criteria%20and%20Plan/040711_ocap_opinion_2011_amendments.pdf)

<sup>2</sup> Reclamation's flexibility request can be found at: [http://www.westcoast.fisheries.noaa.gov/publications/Central\\_Valley/Water%20Operations/bureau\\_of\\_reclamation\\_s\\_request\\_for\\_dcc\\_gate\\_opening\\_-\\_december\\_2\\_2015.pdf](http://www.westcoast.fisheries.noaa.gov/publications/Central_Valley/Water%20Operations/bureau_of_reclamation_s_request_for_dcc_gate_opening_-_december_2_2015.pdf). NMFS' concurrence can be found at: [http://www.westcoast.fisheries.noaa.gov/publications/Central\\_Valley/Water%20Operations/nmfs\\_response\\_to BOR\\_request\\_for\\_dcc\\_gate\\_opening\\_-\\_december\\_4\\_2015.pdf](http://www.westcoast.fisheries.noaa.gov/publications/Central_Valley/Water%20Operations/nmfs_response_to BOR_request_for_dcc_gate_opening_-_december_4_2015.pdf)

**Action IV.3<sup>3</sup> (Reduce likelihood of entrainment or salvage at the export facilities, including alert that indicates that export operations may be need be altered)**

- Third alert has not been triggered.
- Since the action went into effect on 11/1/15, no salvage-based triggers that would require export reduction have been exceeded.

**Agenda Item 3.**

**Current Operations (12/15/2015)**

SWP		CVP	
<b>Exports (cfs)</b>			
Clifton Court Forebay	200	Jones Pumping Plant	400**
<b>Reservoir Releases (cfs)</b>			
Feather - Oroville	1,200*	American - Nimbus	500
		Sacramento - Keswick	4,250
		Stanislaus - Goodwin	200
		Trinity - Lewiston	300
<b>Reservoir Storage (in TAF)</b>			
San Luis (SWP)	279	San Luis (CVP)	79
Oroville	924	Shasta	1,356
New Melones	275	Folsom	143
<b>Delta Operations</b>			
DCC	Closed	Sacramento River at Freeport (cfs)	10,994
Outflow Index (cfs)	12,435	San Joaquin River at Vernalis (cfs)	651
E:I	~6% (3-day avg.)	X2	>81 km

\*Decreased from 2,000 cfs due to increase in Sacramento River flow from precipitation events last week.

\*\*Will be increased to 800 cfs on 12/17/15.

Seasonal salinity management and concerns about chloride standards are currently controlling exports.

Miller (DWR) reported the EC (proxy for salinity) concern levels and current levels at select locations (based on the DCC gate flex request) as the following:

Location	Concern Level Mean daily in milliSiemens/cm	Current Level (12/15) Mean daily in milliSiemens/cm
Jersey Point	1.8	1.75
Bethel Island	~ 1	1.42
Holland Tract	0.8	1.5
Bacon Island	0.7	0.93

<sup>3</sup> For details, see pages 79-80 in Enclosure 2 of the 2011 Amendments to the 2009 RPA document at: [http://www.westcoast.fisheries.noaa.gov/publications/Central\\_Valley/Water%20Operations/Operations.%20Criteria%20and%20Plan/040711\\_ocap\\_opinion\\_2011\\_amendments.pdf](http://www.westcoast.fisheries.noaa.gov/publications/Central_Valley/Water%20Operations/Operations.%20Criteria%20and%20Plan/040711_ocap_opinion_2011_amendments.pdf)

**Agenda Item 4.**

**Fish Monitoring:** The following table presents fish monitoring data. Unless otherwise noted, reported sizes are fork length. See also:

<http://www.water.ca.gov/swp/operationscontrol/calfed/calfedmonitoring.cfm>.

Location	Chippis Is. Midwater Trawl	Jersey Pt./ Prisoners Pt. Trawls	Sacramento Trawl	Beach Seines	Knights Landing RST <sup>B</sup>	Tisdale RST <sup>C</sup>	GCID RST	Mossdale Kodiak Trawl
Sample Date	12/6-12/12	12/6-12/12	12/6-12/12	12/6-12/12	12/6-12/14	12/7-12/14	12/8-12/14	12/6-12/12
Total Catch	1	2	0	0	7	28	732	0
FR Chinook						11	116	
WR Chinook						5	114	
SR Chinook						5	10	
LFR Chinook	1					1	68	
Ad-Clipped Chinook					7	6	420	
Steelhead (wild)							1	
Steelhead (ad-clip)								
Green Sturgeon							3 (310mm, 325mm, 325mm)	
Delta Smelt		2 <sup>A</sup>						
Splittail								
Longfin Smelt								
Flows (avg. cfs)					5,736	6,021	1,064	
W. Temp. (avg. °F)					52	51	54	
Turbidity (avg. NTU)					8	14	44	

<sup>A</sup> Caught in Jersey Pt. trawls on 12/7 and 12/10.

<sup>B</sup> Sampling period was from 12/6 at 12:30 pm to 12/14 at 10:15 pm. From 12/10 at 10:30 am to 12/14 at 10:15 am both RSTs were modified to 50% catch due to issues with debris.

<sup>C</sup> Sampling period was from 12/7 at 8:00 am to 12/14 at 8:30 am.

Stuart (NMFS) reported that on 12/14/15, one winter-run sized Chinook was caught in the Beach Seine at Verona.

Israel (Reclamation) reports a recent UCD study found laboratory juveniles grew an average of 150mm in 6 weeks under cultured conditions with optimum feed rations. Thus, a 300+mm fish grown under cultured conditions could be 3 months old, which would suggest these fish may have been spawned during 2015. This suggest there is support that these fish were young-of-year green sturgeon based on growth rates seen under cultured conditions. Stuart (NMFS) cautions that growth in the wild may be considerably slower based on water temperature, food availability, and environmental conditions.

**Fish Salvage<sup>4</sup>:** No species of management concern have been salvaged during WY 2016.

**DOSS Estimates of Fish Distribution**

DOSS estimates of the current distribution of listed Chinook and steelhead, as a percentage of the population, are based on recent monitoring data and historical migration timing patterns. DOSS estimates that while there was some downstream movement triggered by the last week’s storm events, the bulk of young-of-year winter-run Chinook are still upstream of the Delta (~90%). Young-of-year spring-run Chinook are assumed to be still upriver in their natal rearing areas; some spring-run Chinook fry have likely not yet emerged from their redds. As monitoring information is received, listed species distribution will be updated and included in the following table.

Location	Yet to Enter Delta (Upstream of Knights Landing)	In the Delta	Exited the Delta (Past Chippis Island)
<i>Young-of-year (YOY) winter-run Chinook salmon</i>	>90% (Last week: >95%)	<10% (Last week: <5%)	0% (same last week)

**Agenda Item 5.**

**DCC Flex Request**

DCC gates were closed at 9:00 am on 12/15/15, at the conclusion of the requested period of DCC gate operational flexibility. No future request are considered at this time according to Reclamation and DWR.

**Agenda Item 6.**

**Spring-run surrogate release schedule (surrogates are late-fall run Chinook from Coleman NFH).** Fish are 100% ad-clipped and have unique coded-wire tag codes associated with each release group:

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<sup>4</sup>Salvage data reported in this section represent the total estimated and expanded salvage based on the number of fish observed at the fish collection facility. For example, if one steelhead is observed in the typical ½-hour sampling period within a 2-hour operation period, the single steelhead is expanded to a salvage of four.

- **Production release:** released on Wednesday, 12/9/15.
- **1st surrogate release:** released on Friday, 12/11/15, in the afternoon.

DOSS discussed and decided that the release timing for the 2<sup>nd</sup> and 3<sup>rd</sup> surrogate groups should remain the same as last year, which was as follows:

- **2nd surrogate release:** Late December, ideally preceding (by ~3-7 days) a precipitation event and at least a week after the previous surrogate release.
- **3rd surrogate release:** Mid-January, ideally preceding (by ~3-7 days) a precipitation event and at least a week after the previous surrogate release.

DOSS will monitor the weather forecasts and CNFH releases and may refine this guidance as the season progresses.

**Agenda Item 7.**

**Real time acoustic tag receiver locations for winter-run Chinook hatchery fish**

Last year the real-time acoustic tag receiver locations were at Tisdale, I-80/50 Bridge in Sacramento, Hood, and in Middle River at Railroad Cut. This year, Arnold Amman (SWFSC) suggested moving the acoustic receiver in Middle River to the mouth of Georgiana Slough to get information on fish arriving at the confluence with the San Joaquin River. DOSS briefly discussed this suggestion and agreed with it. Stuart (NMFS) will send Amman an email to let him know that DOSS agrees.

**Agenda Item 8.**

**Smelt Working Group**

The SWG met on Monday, 12/14/15 and did not have recommendations.

**Agenda Item 9.**

**DOSS Advice to WOMT and NMFS:** None.

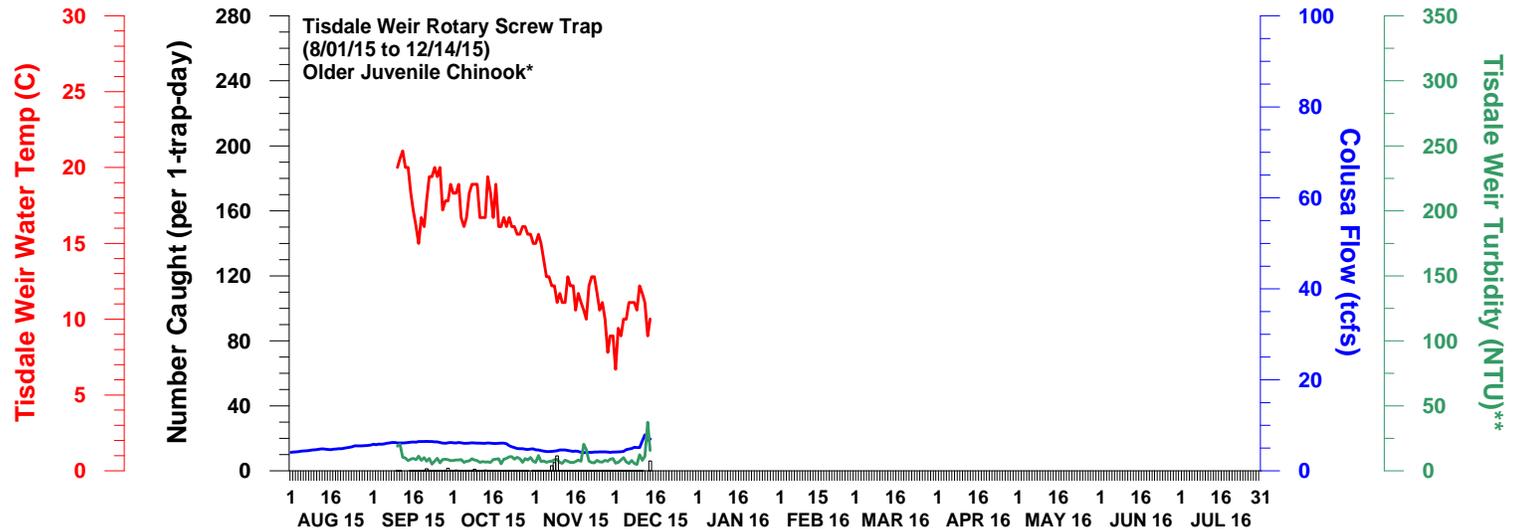
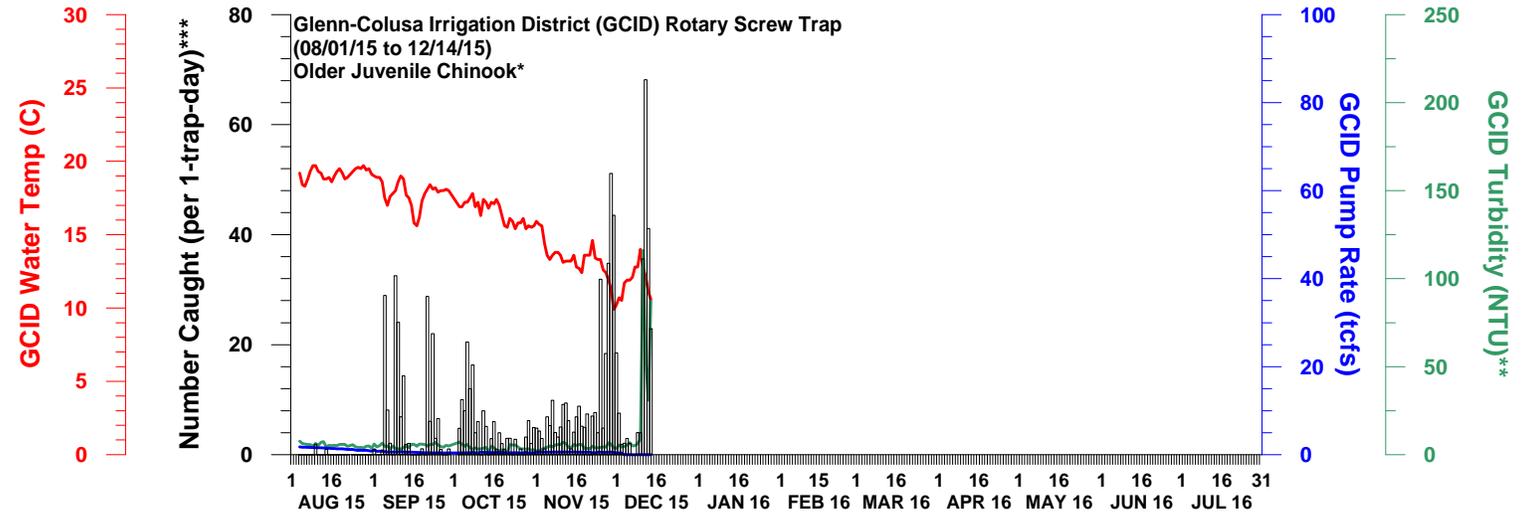
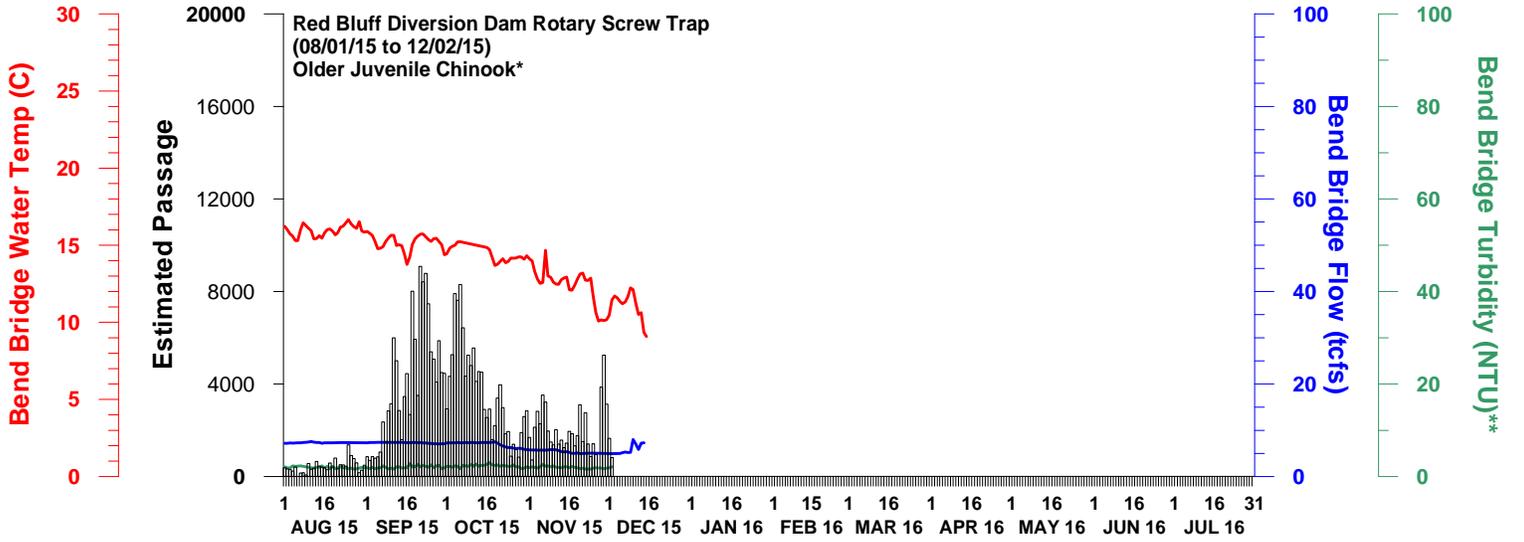
**Agenda Item 10.**

**Next Meeting:** The next DOSS conference call will be on 12/22/15 at 9am.

The following graphs were provided by DWR for Chinook salmon and steelhead observed at monitoring locations in the Sacramento and San Joaquin rivers and Delta. Also available at:

<http://www.water.ca.gov/swp/operationscontrol/calfed/calfedmonitoring.cfm>

# NUMBER OF UNMARKED OLDER JUVENILE CHINOOK MEASURED IN THE SACRAMENTO RIVER

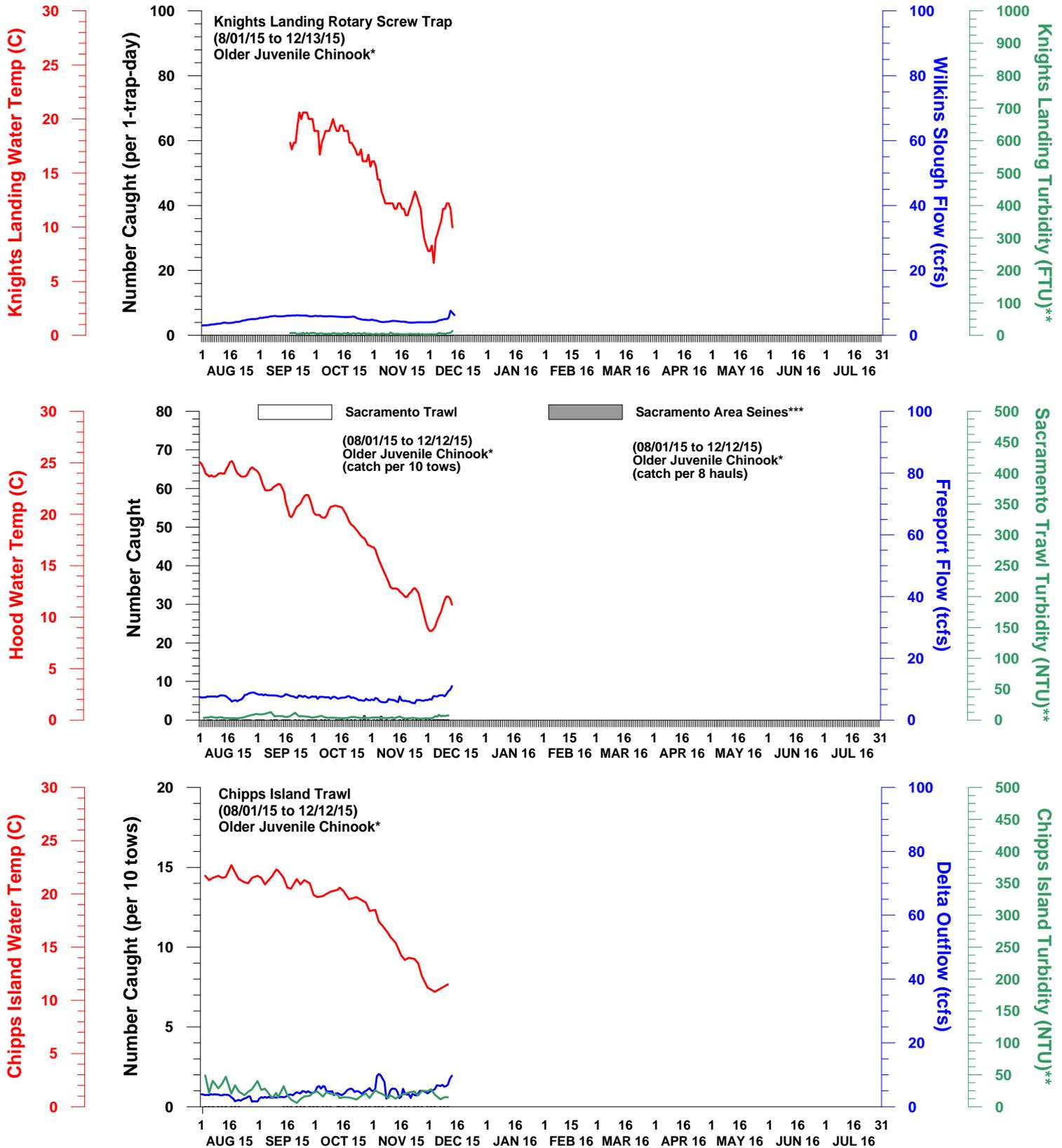


DWR-DES 15 December 2015  
Preliminary data from DFW, FWS, GCID, and CDEC; subject to revision.

\*Older juvenile Chinook defined as all Chinook greater than or equal to the minimum winter run length-at-date criteria and less than the maximum size included in the length-at-date criteria (Frank Fisher model) for which a race is assigned on a given sampling date.

-Tisdale: 12/12/2015-12/13/2015 there was a river right revolution malfunction.

# NUMBER OF UNMARKED OLDER JUVENILE CHINOOK MEASURED IN THE LOWER SACRAMENTO RIVER AND CHIPPS ISLAND



DWR-DES 15 December 2015

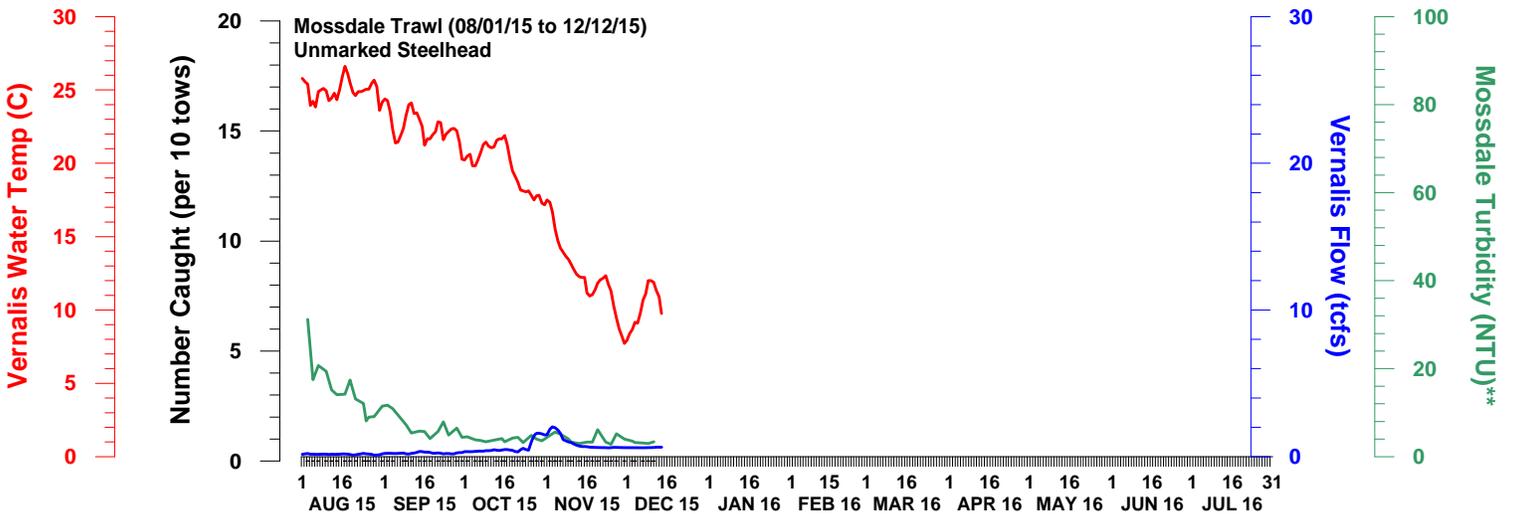
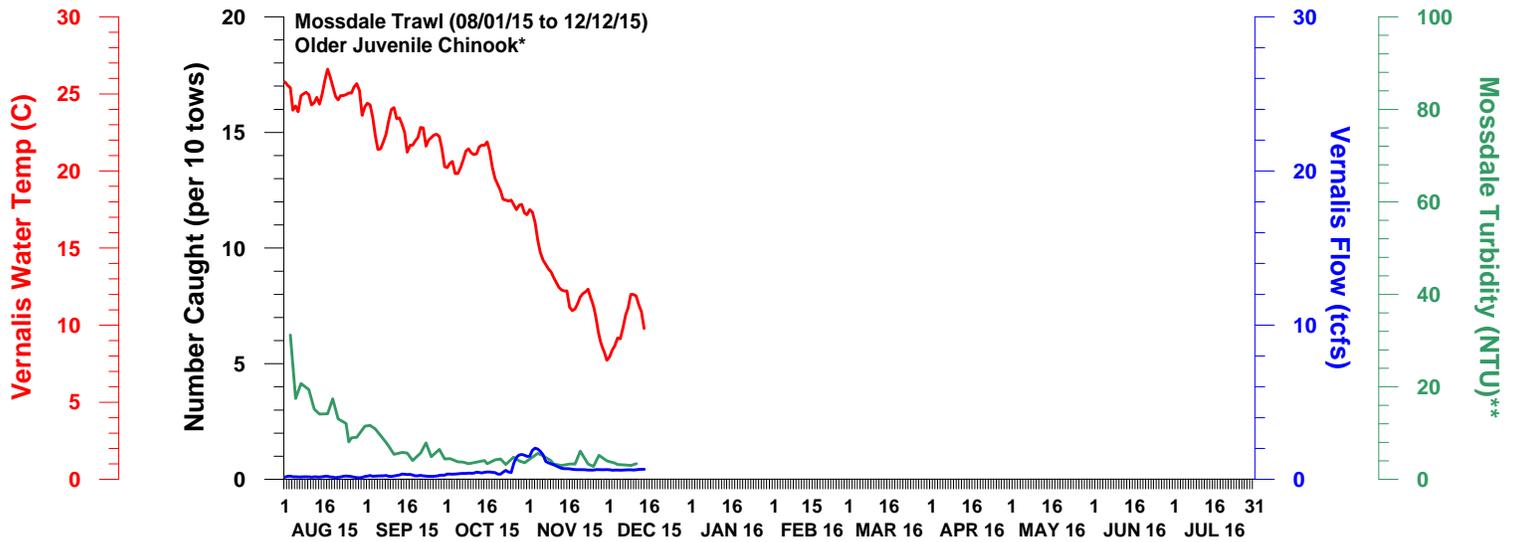
Preliminary data from DFW, FWS, and CDEC; subject to revision.

\*Older juvenile Chinook defined as all Chinook greater than or equal to the minimum winter run length-at-date criteria and less than the maximum size included in the length-at-date criteria (Frank Fisher Model) for which a race is assigned on a given sampling date.

\*\*Turbidity is a discrete measurement and is not measured continuously. Therefore, data are interpolated on days when turbidity was not measured unless data are missing for more than five days. Knights Landing turbidity measured in FTU, which should be roughly equivalent to NTU.

\*\*\*Sacramento area seine route consists of the following seine sites: Verona, Elkhorn, Sand Cove, Discovery Park, American River, Miller Park, Sherwood Harbor, and Garcia Bend. Bars are stacked if Chinook caught from the trawl and seines are from the same day.

# NUMBER OF UNMARKED OLDER JUVENILE CHINOOK AND STEELHEAD MEASURED IN THE SAN JOAQUIN RIVER

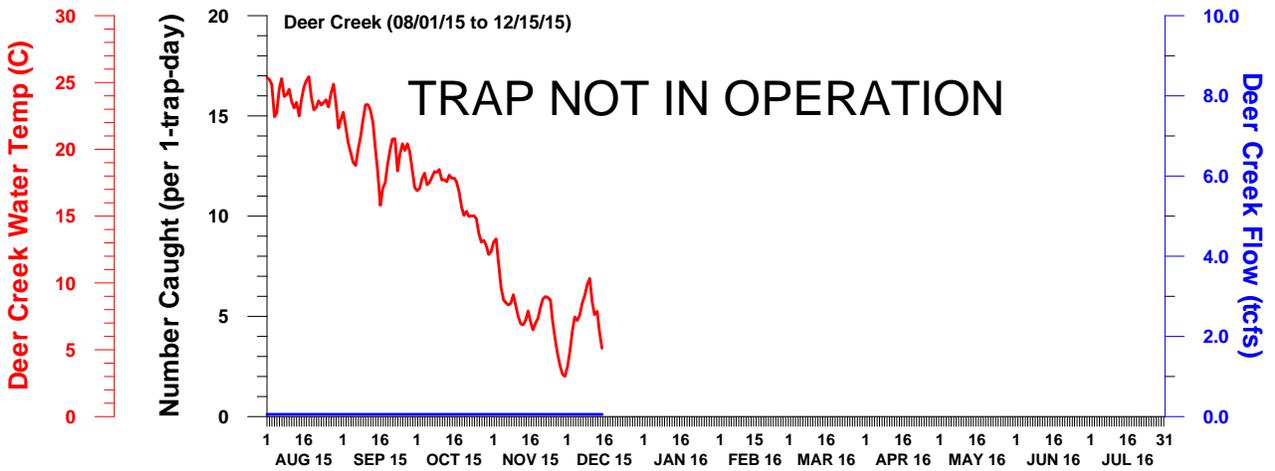
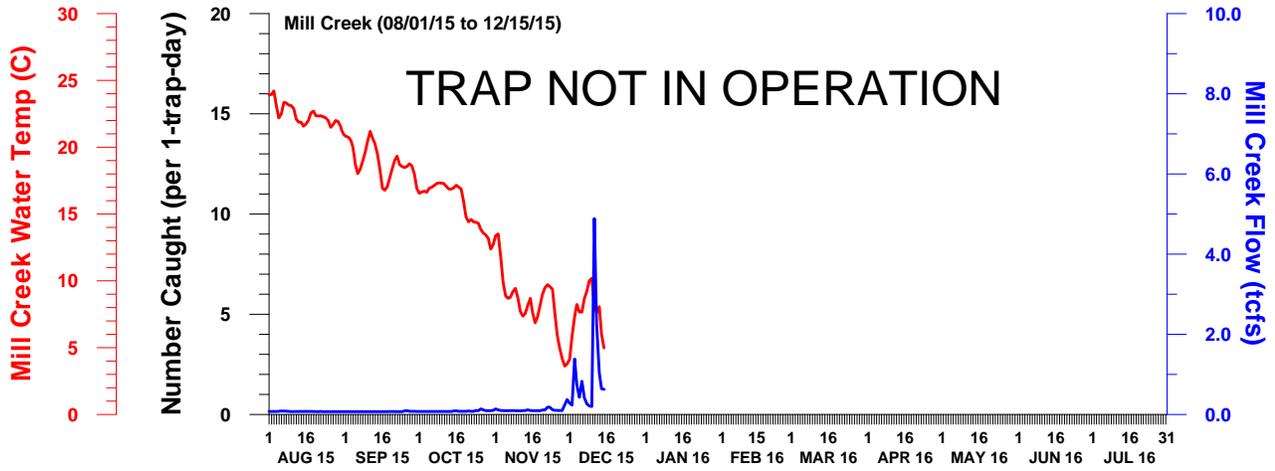


DWR-DES 15 December 2015  
Preliminary data from FWS and CDEC; subject to revision.

\*Older juvenile Chinook defined as all Chinook greater than or equal to the minimum winter run length-at-date criteria and less than the maximum size included in the length-at-date criteria (Frank Fisher model) for which a race is assigned on a given sampling date.

\*\*Turbidity is a discrete measurement and is not measured continuously. Therefore, data are interpolated on days when turbidity was not measured unless data are missing for more than five days.

# WATER TEMPERATURE AND FLOW MEASURED AT MILL AND DEER CREEK



## **Data Acquisition:**

All data are preliminary and subject to revision.

The estimated passage data for the Red Bluff Diversion Dam were obtained directly from the US Fish and Wildlife Service (FWS), Red Bluff Fish and Wildlife Office ([http://www.fws.gov/redbluff/rbdd\\_biweekly\\_final.html](http://www.fws.gov/redbluff/rbdd_biweekly_final.html)).

The catch data for Glenn-Colusa Irrigation District (GCID) were obtained directly from GCID.

The catch data for Tisdale Weir and Knights Landing were obtained directly from the California Department of Fish and Wildlife (DFW)<sup>1</sup>, North Central Region.

Sacramento River Trawl, Sacramento Area Beach Seine, and Chipps Island Trawl data were obtained directly from FWS, Stockton Fish and Wildlife Office (<http://www.fws.gov/stockton/ifmp/>).

Mossdale Trawl data were either obtained directly from FWS, Stockton Fish and Wildlife Office or from DFW (Region 4).

The hydrology data were either downloaded from the California Data Exchange Center (CDEC) (<http://cdec.water.ca.gov>) or obtained directly from the California Department of Water Resources, Operations Control Office.

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<sup>1</sup> Formerly known as the California Department of Fish and Game (DFG).