Delta Operations for Salmonids and Sturgeon (DOSS) Group
Conference call: 01/27/2015 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.

DWR: Farida Islam, Rhiannon Mulligan, Aaron Miller, Bryant Giorgi, Kevin Reece, Mike Ford, Jim Gleim
Reclamation: Peggy Manza, Josh Israel
NMFS: Barb Byrne, Jeff Stuart, Meiling Roddam
USFWS: Roger Guinee
CDFW: Duane Linander, Bob Fujimura
SWRCB: Matt Holland
EPA: Erin Foresman

Agenda Items
1. Agenda review and introductions
2. Brief update re: drought planning timeline
3. Fish Monitoring
4. Current Operations
5. Smelt Working Group
6. RPA Implementation review
7. DOSS Advice

Agenda Item 2.

Brief update re: drought planning timeline

On Friday, 1/23/15, Reclamation and DWR submitted a Temporary Urgency Change Petition (TUCP) to the SWRCB. As described in the cover letter[1], "Reclamation and DWR are currently preparing a Biological Review of these proposed changes for Endangered Species Act (ESA) consultation purposes with the National Marine Fisheries Service and U.S. Fish and Wildlife Service. When the ESA consultations are completed and determinations are made, DWR will seek a Consistency Determination from the California Department of Fish and Wildlife. The final consultation information will be submitted to the State Water Resource Control Board once it is completed."

[1] Cover letter and TUCP available at:
http://www.waterboards.ca.gov/waterrights/water_issues/programs/drought/docs/tucp/tucp_%20012315.pdf

Agenda Item 3.

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	Chipps Is. Midwater Trawl[A]	Prisoners Pt/ Jersey Pt.	Sacramento Trawl[A]	Mossdale Kodiak Trawl[A]	GCID RST[B]	Knights Landing RST[C]	Tisdale RST[D]	Beach Seines[A]
Sample Date	1/18- 1/24	1/18- 1/24	1/18- 1/24	1/18- 1/24	1/20- 1/26	1/19-1/26	1/18-1/26	1/18- 1/24
Total Catch	**22**	**1**	**1**	**0**	**733**	**11 (35mm-54mm)**	**33 (31mm-115mm)**	**73**
FR Chinook					316	9	20	39
WR Chinook					15		4	
SR Chinook					1	2	6	44
LFR Chinook					1			
Ad-Clipped Chinook								
Delta Smelt		1 (56mm)						
Splittail	3							
Longfin Smelt	19 (61mm-117mm)							
Steelhead (ad-clip)			1		67		4	
Steelhead (wild)								
Green Sturgeon								
W. Temp. (avg. °F)					50	52	50	
Flows (avg. cfs)					898	5,977	6,498	
Turbidity (avg. NTU)					7.3	14	18	

[A] Data were provided to DOSS after the call. Partial beach seine data (for the Sacramento seines) was available during the call.

[B] On 1/20/15 RST cone door was missing on [field crew] arrival; Cone was raised for repairs and lowered at 1:00 pm on 1/20.

[C] Sampling period was from 1/19 at 9:15 am to 1/26 at 9:15 am.

[D] Sampling period was from 1/18 at 8:45 am to 1/26 at 3:30 pm.

Update from Livingston Stone National Fish Hatchery:
Approximately 180,000- 200,000 hatchery-produced juvenile winter-run Chinook salmon will be released next week due to density-related rearing concerns in the hatchery. Approximately 400,000 juvenile winter-run Chinook salmon will remain in the hatchery with a release date still TBD.

Fish Salvage[2]:
Fujimura (DFW) provided the following summaries of salvage and loss at the SWP and CVP fish collection facilities. The two salvage figures were generated from data on CDFW's salvage monitoring web-page: http://www.dfg.ca.gov/delta/apps/salvage/SalvageExportCalendar.aspx.

DOSS Weekly Salvage Update
Reporting Period: January 19-26, 2015
Prepared by Bob Fujimura on January 26, 2015 1730
Preliminary Results -Subject to Revision

Criteria	19-Jan	20-Jan	21-Jan	22-Jan	23-Jan	24-Jan	25-Jan	Trend	
Loss Densities									
Wild older juvenile CS	0	0	1.19	0	0	0	0	↘	0.17
Wild steelhead	0	0	0	0	0	0	0	→	0.00
Exports									
SWP daily export	6,525	6,525	8,038	9,199	7,565	7,738	7,543	↘	7,590
CVP daily export	1,739	1,739	1,739	1,734	1,732	1,733	1,734	→	1,736
SWP reduced counts	0%	0%	0%	0%	0%	0%	0%	↗	0%
CVP reduced counts	17%	17%	33%	25%	50%	25%	0%	↘	24%

Loss Density = fish lost/TAF; water export = AF; Trend = compared to previous week; wild = adipose fin present
Loss = estimated number of fish lost at the CVP and SWP Delta export facilities based on estimated salvage (see below)
Reduced counts = percentage of time that routine salvage sample time were less than 30 min per 2 hours of salvage and export operations

Chinook Salmon Weekly/Season Salvage and Loss
Combined salvage and loss for both CVP and SWP fish facilities
Race determined by size at date of capture; hatchery = adipose fin missing;

	Weekly Total			Season Total	
Category	Salvage	Loss	Trend	Salvage	Loss
Wild					
Winter Run	12	12	↘	48	83
Spring Run	0	0	→	0	0
Late Fall Run	0	0	→	6	26
Fall Run	0	0	→	0	0
Unclassified	0	0	→	24	NC
Total	**12**	**12**		**78**	**110**
Hatchery					
Winter Run	0	0	→	52	170
Spring Run	0	0	→	0	0
Late Fall Run	0	0	→	136	340
Fall Run	0	0	→	41	180
Unclassified	0	0	→	12	NC
Total	**0**	**0**		**241**	**691**

Trend = weekly loss per race; Salvage = estimated number of fish collected by the CVP and SWP fish protective facilities per unit of time
NC = can not be calculated

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	0	0	→	4	17
Hatchery	8	35	↗	8	35
Total	**8**	**35**		**12**	**52**

State Water Project loss = salvage x 4.33; Central Valley Project loss = salvage x 0.68

Figure 1. DOSS weekly salvage update for the reporting period 01/19/14-01/26/15.

[2]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.

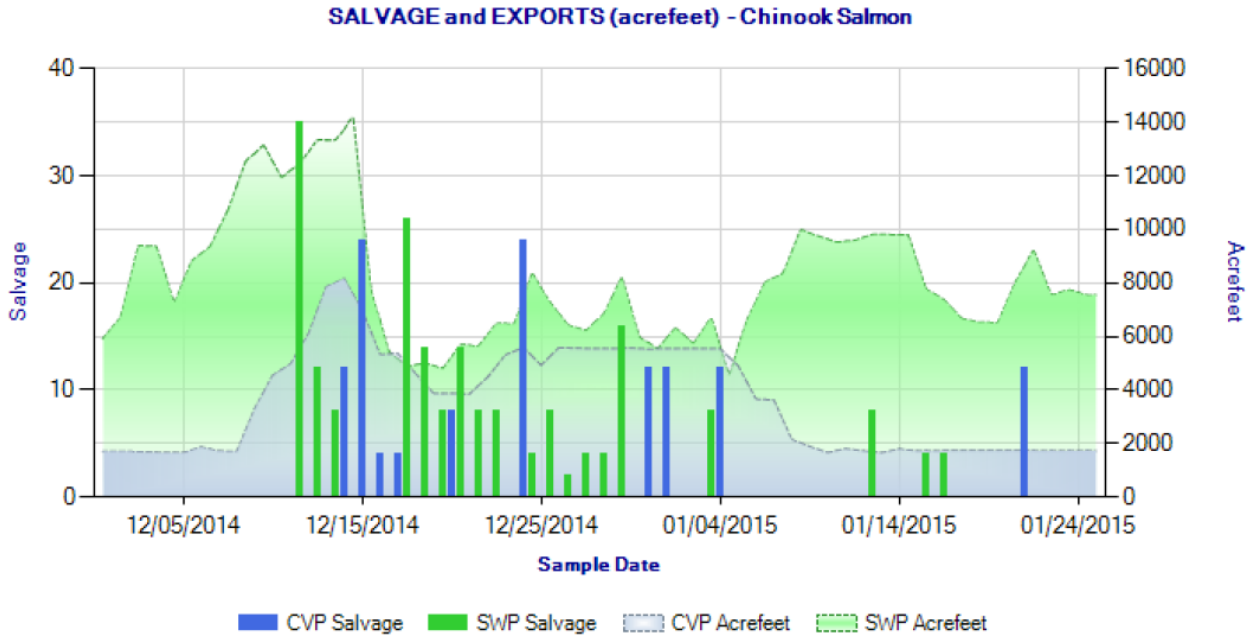


Figure 2. Daily salvage of Chinook salmon (all races) and water exports from the state and federal fish salvage facilities during 12/01/14 through 01/25/15.

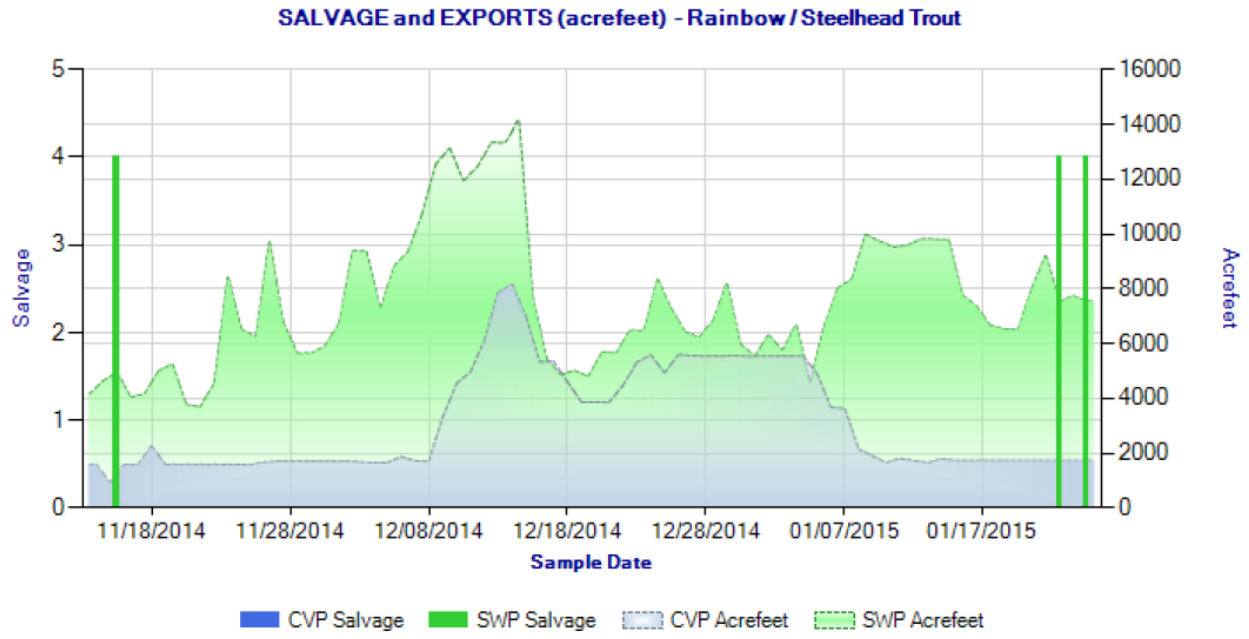


Figure 3. Daily salvage of steelhead and water exports from the state and federal fish salvage facilities during 12/01/14 through 01/25/15.

Islam (DWR) provided the following summary of coded-wire-tag recoveries at the SWP and CVP fish collection facilities.

CONFIRMED HATCHERY (ADIPOSE-FIN CLIPPED) CHINOOK SALMON LOSS AT THE SWP & CVP DELTA FISH FACILITIES, 2014/2015

Release Date	CWT Race	Hatchery	Release Site	Release Type	Confirmed Loss	Number Released[1]	Total Entering Delta	% Loss of Number Released[2]	% Loss of Total Entering Delta[3]	First Concern Level	Second Concern Level	Date of First Loss[4]	Date of Last Loss[4]
12/1/2014	LF	Coleman NFH	Battle Creek	Production	574.59	853,100	n/a	0.067	n/a	n/a	n/a	12/12/2014	1/16/2015
12/4/2014	LF	Coleman NFH	Battle Creek	Spring Surrogate	34.98	77,000	n/a	0.045	n/a	0.5%	1.0%	12/25/2014	12/29/2014
12/18/2014	LF	Coleman NFH	Battle Creek	Spring Surrogate	45.42	78,000	n/a	0.058	n/a	0.5%	1.0%	1/1/2015	1/17/2015

UNCONFIRMED HATCHERY (ADIPOSE-FIN CLIPPED) CHINOOK SALMON LOSS AT THE SWP & CVP DELTA FISH FACILITIES, 2014/2015

Facility	Unknown CWT Loss[5]	Unread CWT Loss[6]	Unknown Hatchery Loss[7]	Acoustic Tag Loss[8]	Number of Unassigned CWTs[9]
SWP	0.00	0.00	0.00	0.00	0
CVP	26.62	0.00	0.00	0.00	0
TOTAL	26.62	0.00	0.00	0.00	0

SWP and CVP adipose-fin clipped Chinook lost from 10/1/2014 through 1/25/2015.
[1]Number released with the adipose-fin clipped and a coded-wire tag (CWT).
[2]% Loss of Number Released = (Confirmed Loss/Number Released)*100.
[3]% Loss of Total Entering Delta= (Confirmed Loss/Total Entering Delta)*100.
[4]Date of first and last loss accounts for all CWT loss even those from special studies where salvage and loss=0.
[5]Adipose-fin clipped Chinook was observed during fish count, but tag code could not be determined (e.g., damaged tag, lost tag, no tag, or Chinook released).
[6]Adipose-fin clipped Chinook was collected during fish count and has not been processed yet.
[7]CWT has been read, but hatchery release information not yet available.
[8]Adipose-fin clipped Chinook released due to presence of sutures.
[9]CWT cannot currently be assigned to a salvage record with certainty since the CWT was lost and then found. CWT may be assigned to a salvage record if new information is available.
[10]Chinook outside of the length-at-date criteria (Delta model) are not reported.
-- Information not yet available.

DWR-DES Revised 1/26/2015
Preliminary data from DFW, DWR, FWS, and Reclamation; subject to revision.

DOSS Estimates of Fish Distribution

DOSS estimates of the current distribution of listed Chinook, as a percentage of the population, are based on recent monitoring data and historical migration timing patterns. At least some monitoring data were available to assess delta entry or presence in the Delta, although no Chipps Island trawl data (relevant for assessing Delta exit) were available during the call. With that acknowledged, DOSS agreed that dry conditions over the past week did not likely stimulate much migration into or out of the Delta.

Location	Yet to Enter Delta (Upstream of Knights Landing)	In the Delta	Exited the Delta (Past Chipps Island)
Young-of-year (YOY) winter-run Chinook salmon	< 5% (last week: same)	> 95% (last week: same)	< 5% (last week: same)
YOY spring-run Chinook salmon	50% - 75% (last week: same)	25% - 50% (last week: same)	< 5% (last week: same)
*Yearling spring-run Chinook salmon**	< 5% (last week: same)	80% - 90% (last week: same)	< 15% (last week: same)
Coleman Nat'l Fish Hatchery Steelhead	85% - 95% (last week: 90% - 95%)	5% - 15% (last week: 5% - 10%	0% (last week: same)

* No yearling spring-run Chinook salmon have been caught in 2014 monitoring. In general, very few yearling spring-run Chinook salmon are observed because of their relatively large size and strong swimming (and associated gear avoidance) abilities.

Agenda Item 4.

Current Operations (01/27/2014)

SWP		CVP	
Exports (cfs)			
Clifton Court Forebay	3,600	Jones Pumping Plant	900
Reservoir Releases (cfs)			
Feather - Oroville	950	American - Nimbus	900
		Sacramento - Keswick	3,250
		Stanislaus - Goodwin	225*
		Trinity – Lewiston	300
Reservoir Storage (in TAF)			
San Luis (SWP)	220	San Luis (CVP)	344
Oroville	1,433	Shasta	1,988
New Melones		Folsom	448
Delta Operations			
DCC	Closed	Sacramento River at Freeport (cfs)	~9,000
Outflow Index (cfs)	~5,000	San Joaquin River at Vernalis (cfs)	~770**

E:I	43% (14-day Avg.); 45% (3-day Avg.)	X2	>81 km

*Increased from 200 cfs to 225 cfs on 1/27/15 due to salinity concerns at Vernalis.
**USGS estimation of flow at Vernalis due to some problems with the gauge

The 7-day Delta outflow is currently controlling exports.

The daily OMR index for 1/27 is -3,800 cfs. The 5-day OMR index up to 1/23 is -4,140 cfs, and the 5-day OMR based on the USGS gauges up to 1/23 is -3,590 cfs.

DWR reported that because the January Eight River Index will be less than 1 million acre-feet, the D-1641 export limit for February will be 45% of Delta inflow (rather than 35%).

Agenda Item 5.

Smelt Working Group (SWG)

The SWG met on 1/26/15 and used the Delta Smelt decision matrix to evaluate risk of entrainment for Delta Smelt.

- OMR range of -1,250 to -2,000 cfs has a low risk of entrainment,
- OMR range of -2,000 to -3,500 cfs has a low risk of entrainment, and
- OMR range of -3,500 to -5,000 cfs has a medium risk of entrainment.

The medium risk of entrainment under current conditions is due to continued catches of Delta Smelt at Jersey Point.

Agenda Item 6.

RPA Implementation Review

Delta RPA Actions affecting operations during December/January:

Action IV.1.2 (DCC gate operations):

- Default DCC gate closure started Monday, December 1.

Action IV.2.3 (OMR Management)

- No triggers have been exceeded; an OMR limit of -5,000 cfs is in effect.

Agenda Item 7.

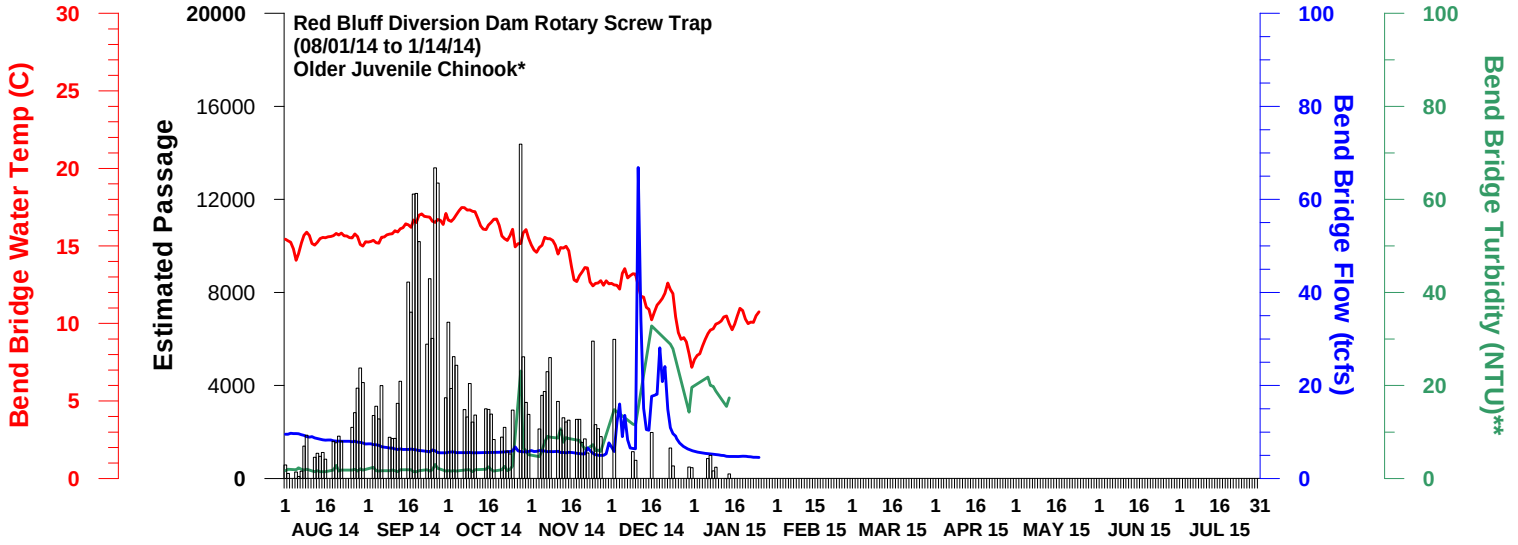
DOSS Advice

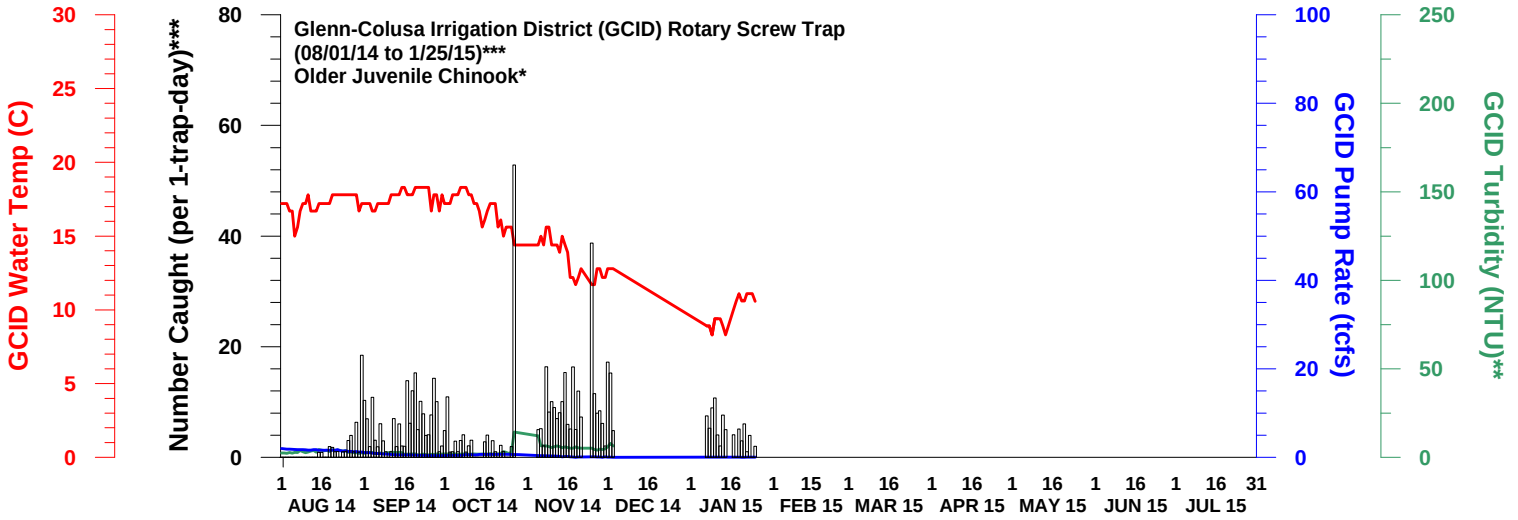
DOSS Advice to WOMT and NMFS: None.

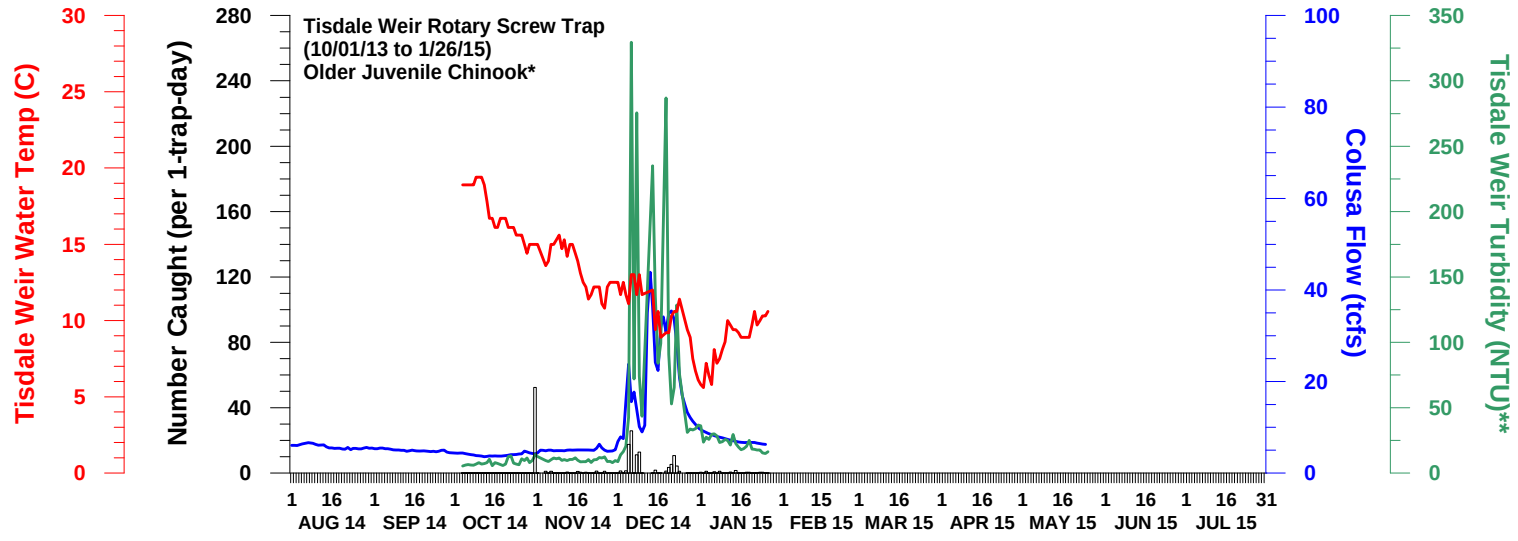
Next Meeting: The next DOSS conference call will be on 02/03/15 at 9am.

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. For additional graphs, please visit the DWR website at:
http://www.water.ca.gov/swp/operationscontrol/calfed/calfedmonitoring.cfm.

NUMBER OF UNMARKED OLDER JUVENILE CHINOOK MEASURED IN THE SACRAMENTO RIVER







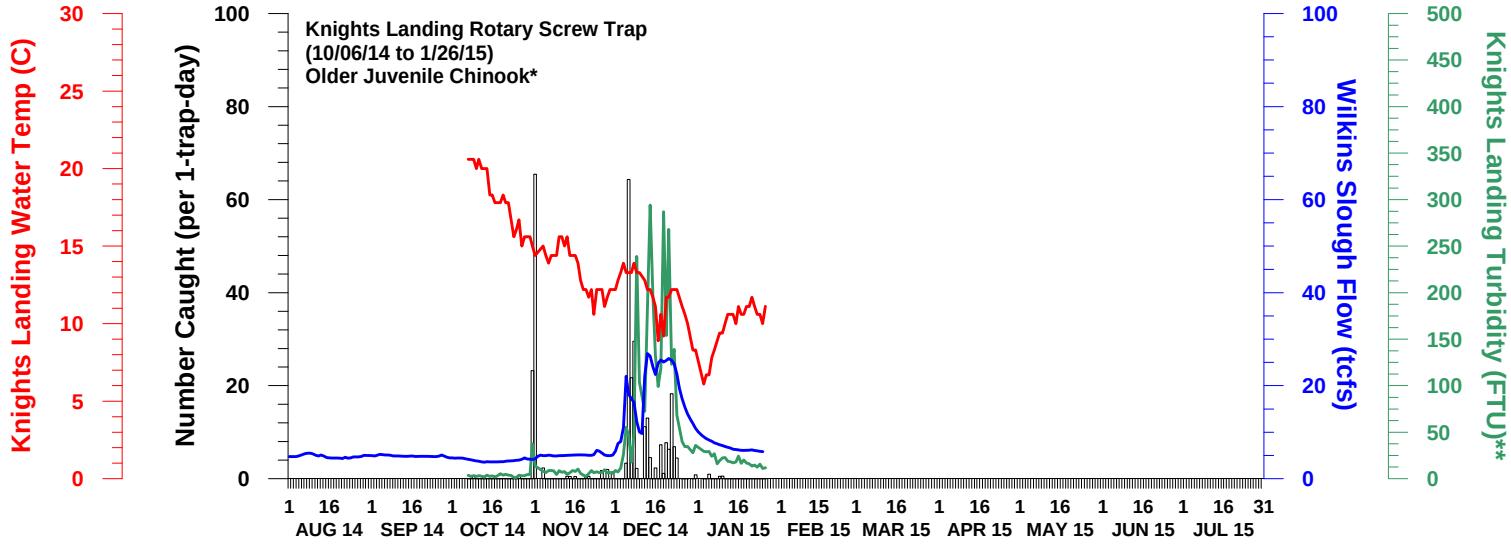
DWR-DES 26 JANUARY 2015
Preliminary data from DFW, FWS, GCID, and CDEC; subject to revision.

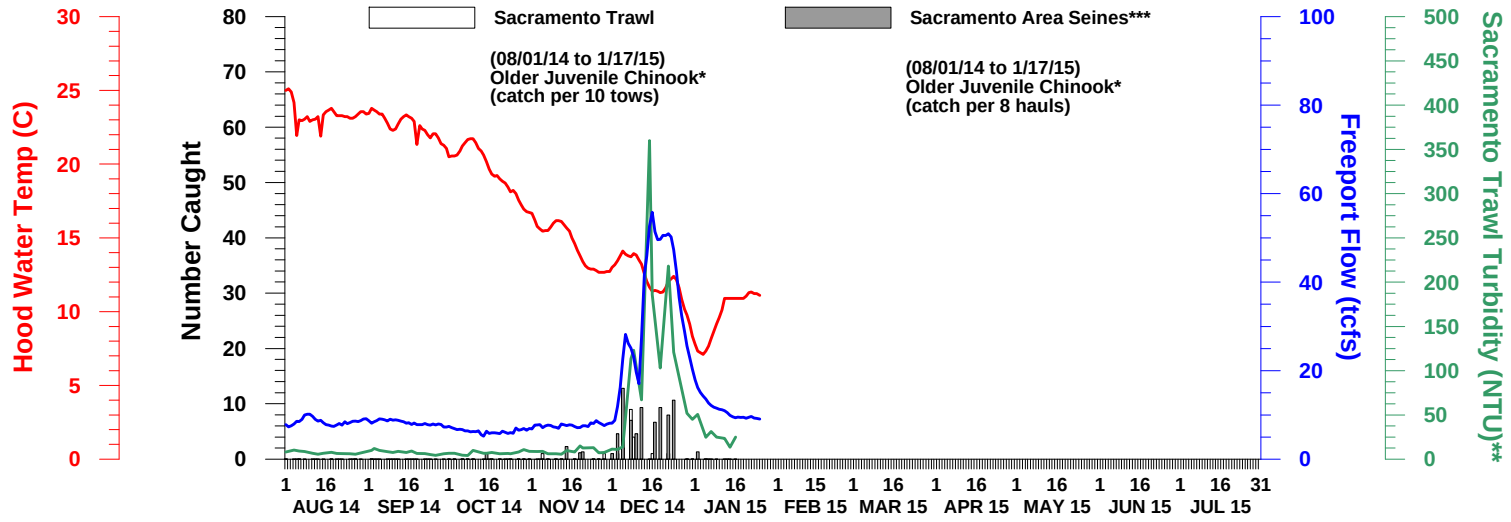
*Older juvenile Chinook defined as all Chinook greater than or equal to the minimum winter run length-at-date criteria and less than the maximum size included in the length-at-date criteria (Frank Fisher model) for which a race is assigned on a given sampling date.

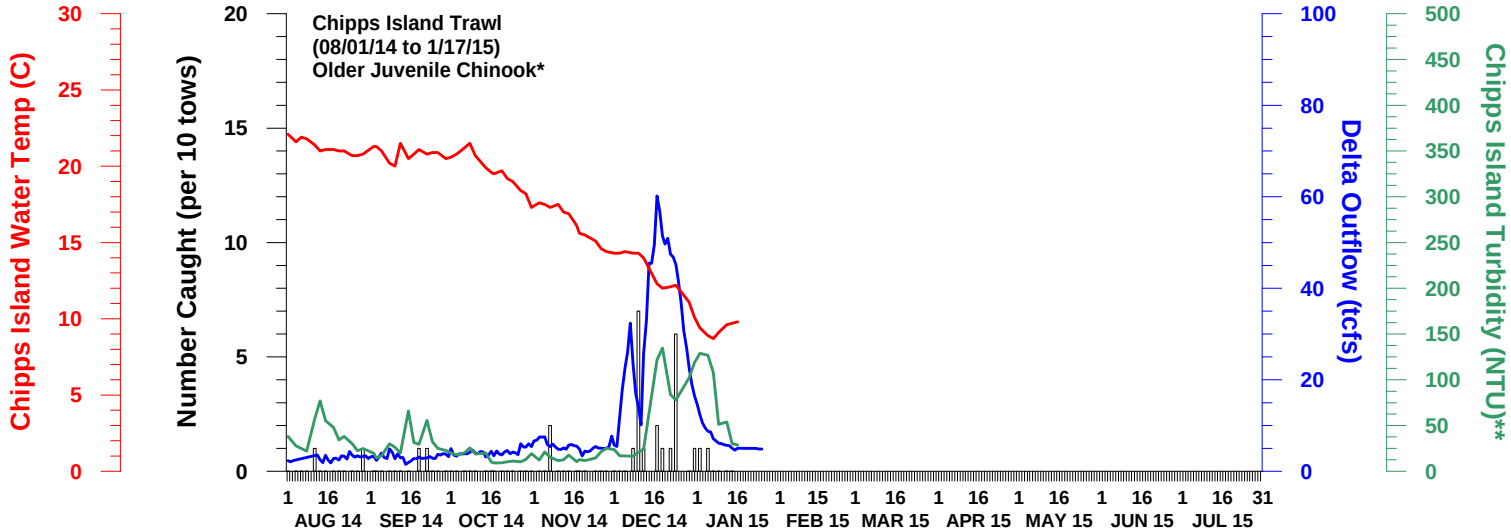
**Turbidity is a discrete measurement and is not measured continuously. Therefore, data are interpolated on days when turbidity was not measured unless data are missing for more than five days.

***Trap was pulled on 10/28/14 due to extremely turbid conditions, heavy debris, and high number of listed winter run Chinook and has resumed since 11/5/14. Trap was not in operation on 12/2/14-1/6/15 due to forecasted increase in flow and subsequent elevation change.

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

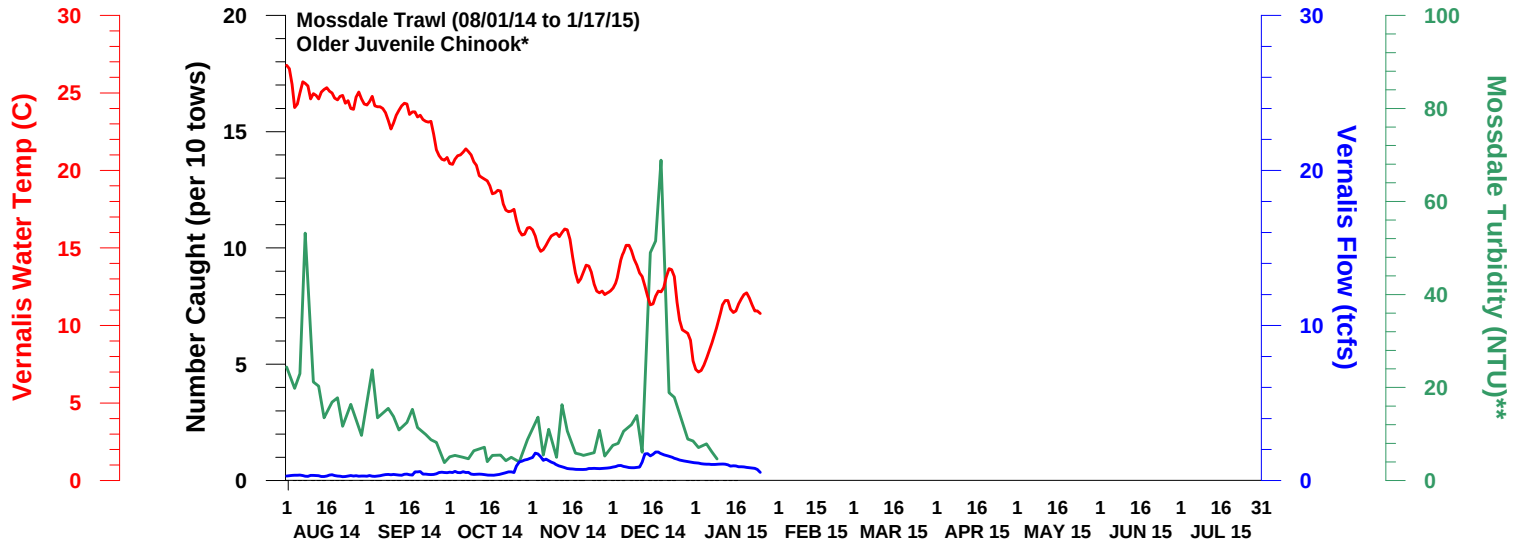


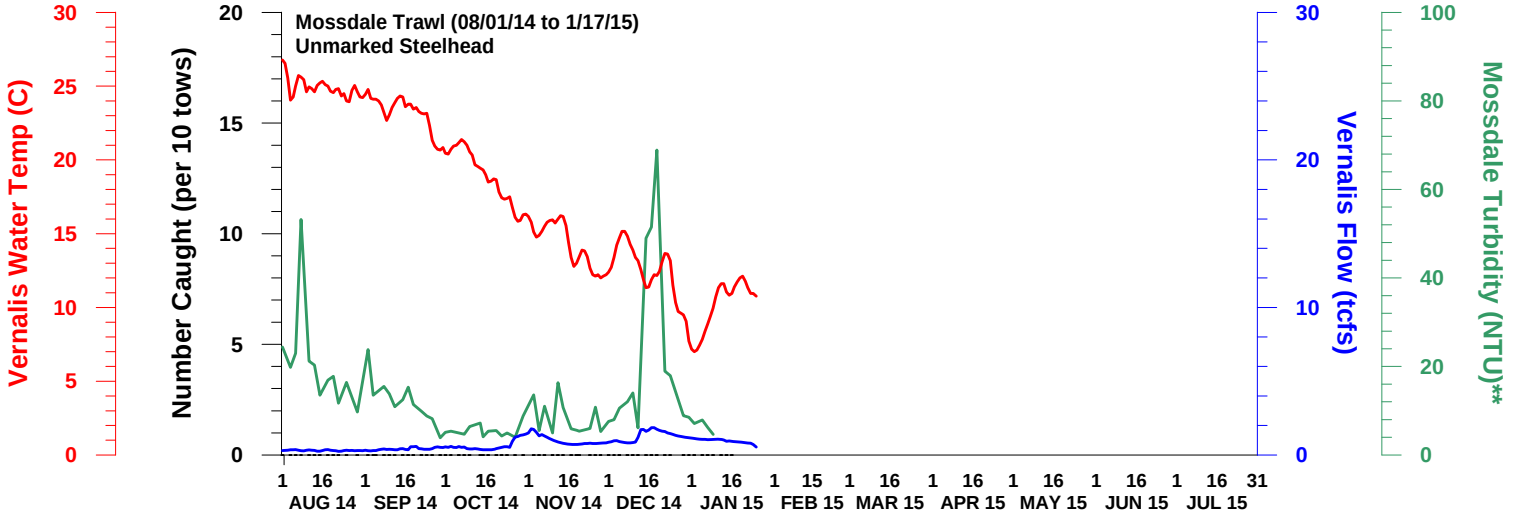




DWR-DES 26 JANUARY 2015
Preliminary data from DFW, FWS, and CDEC; subject to revision.
*Older juvenile Chinook defined as all Chinook greater than or equal to the minimum winter run length-at-date criteria and less than the maximum size included in the length-at-date criteria (Frank Fisher Model) for 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

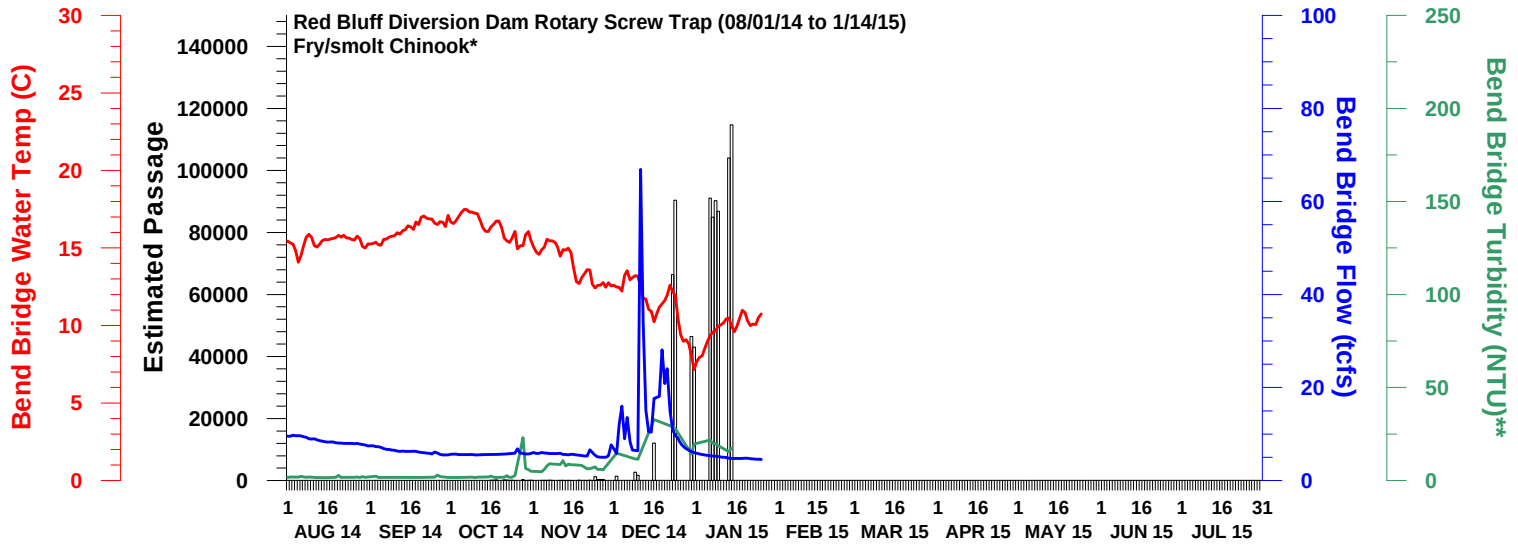


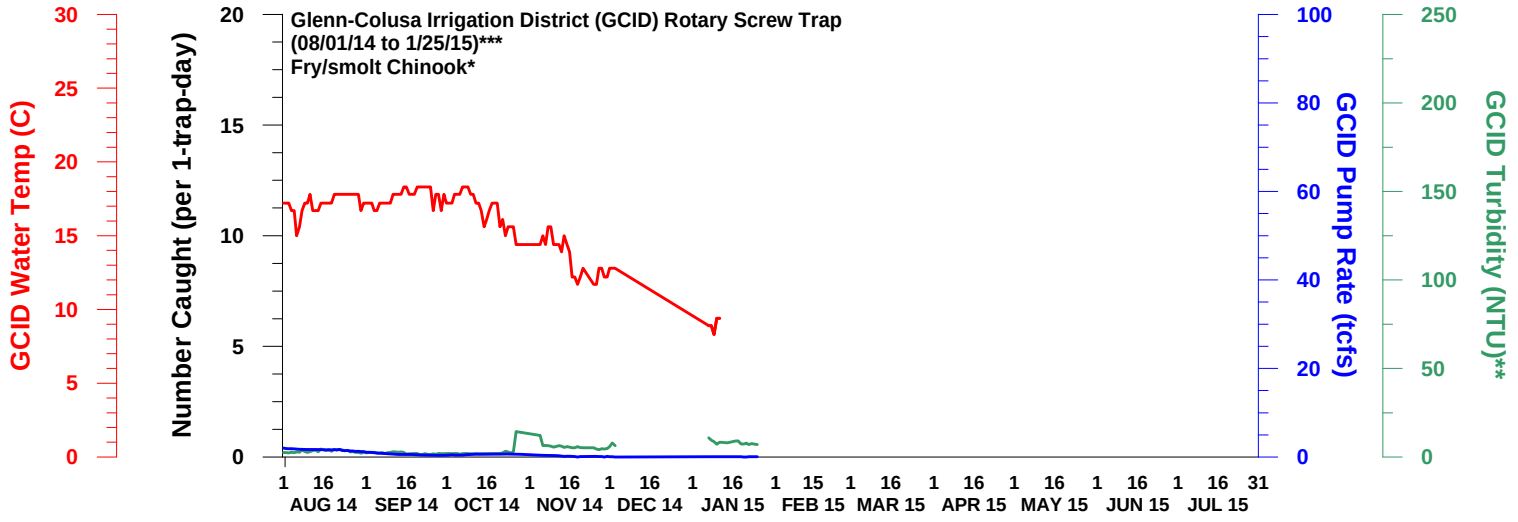


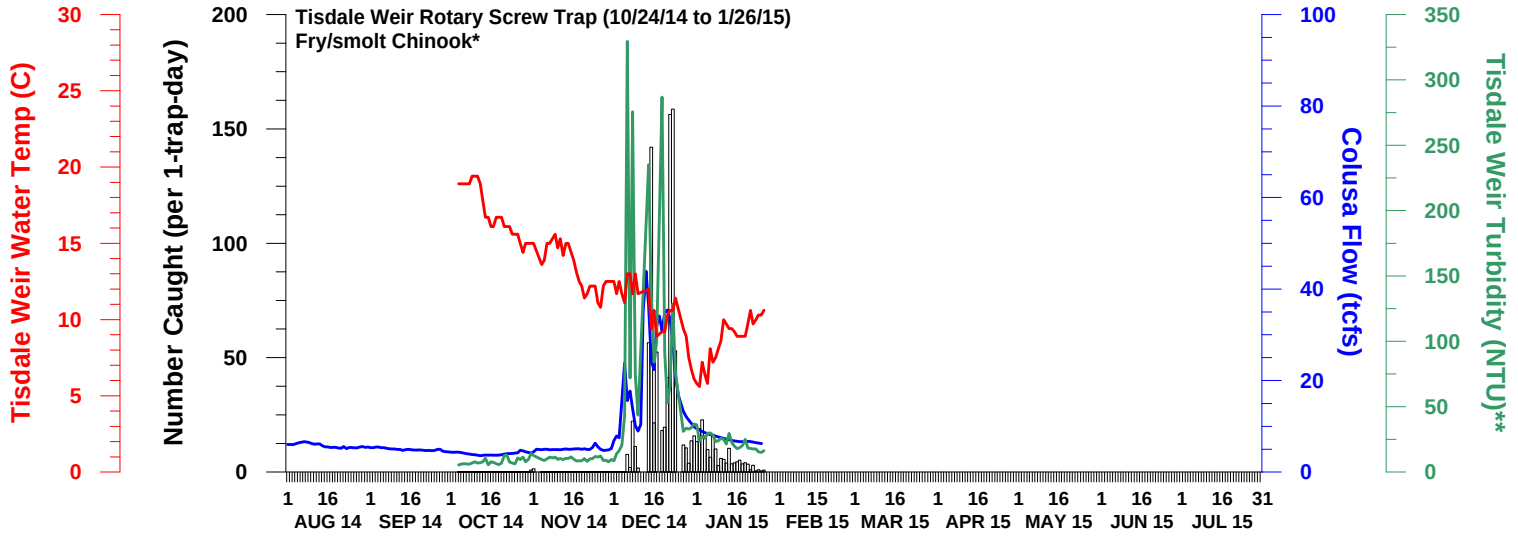
DWR-DES 26 JANUARY 2015
Preliminary data from FWS and CDEC; subject to revision.

*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.

NUMBER OF UNMARKED FRY/SMOLT CHINOOK MEASURED IN THE SACRAMENTO RIVER

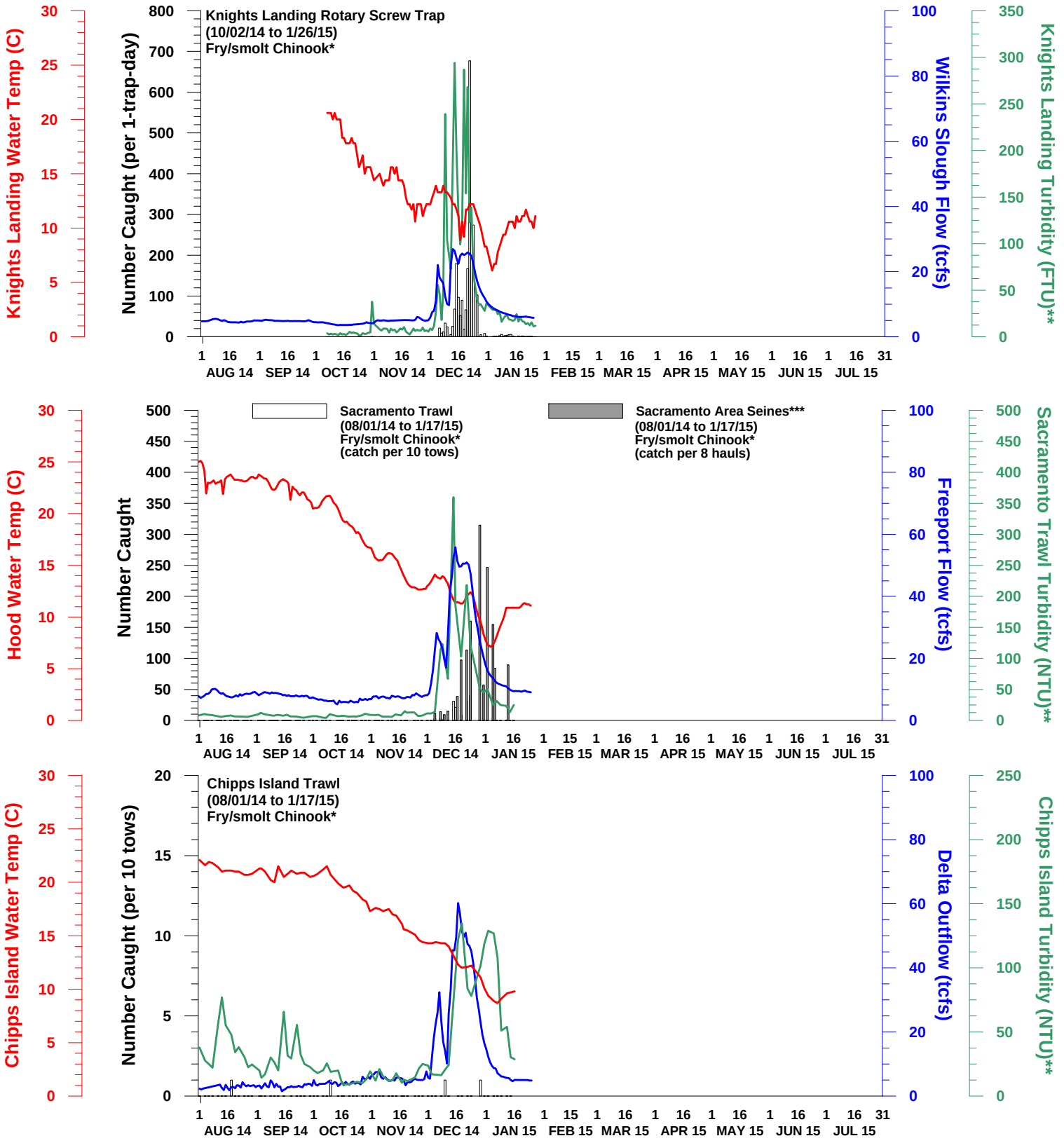






DWR-DES 26 JANUARY 2015
Preliminary data from DFW, FWS, GCID, and CDEC; subject to revision.
*Fry/smolt Chinook defined as all Chinook less than the minimum winter run length-at-date criteria (Frank Fisher model).
**Turbidity is a discrete measurement and is not measured continuously. Therefore, data are interpolated on days when turbidity was not measured unless data are missing for more than five days.
***Trap was pulled on 10/28/14 due to extremely turbid conditions, heavy debris, and high number of listed winter run Chinook and has resumed since 11/5/14.

NUMBER OF UNMARKED FRY/SMOLT CHINOOK MEASURED IN THE LOWER SACRAMENTO RIVER AND CHIPPS ISLAND



DWR-DES 26 JANUARY 2015

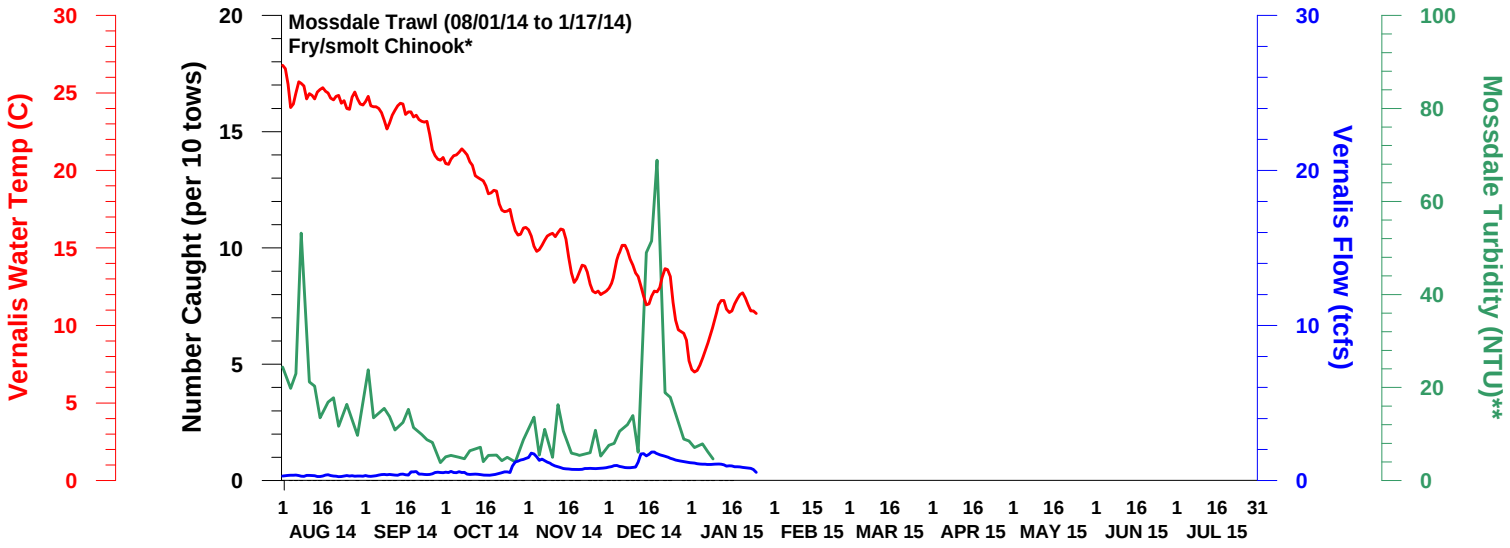
Preliminary data from DFW, FWS, and CDEC; subject to revision.

*Fry/smolt Chinook defined as all Chinook less than the minimum winter run length-at-date criteria (Frank Fisher model).

**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.

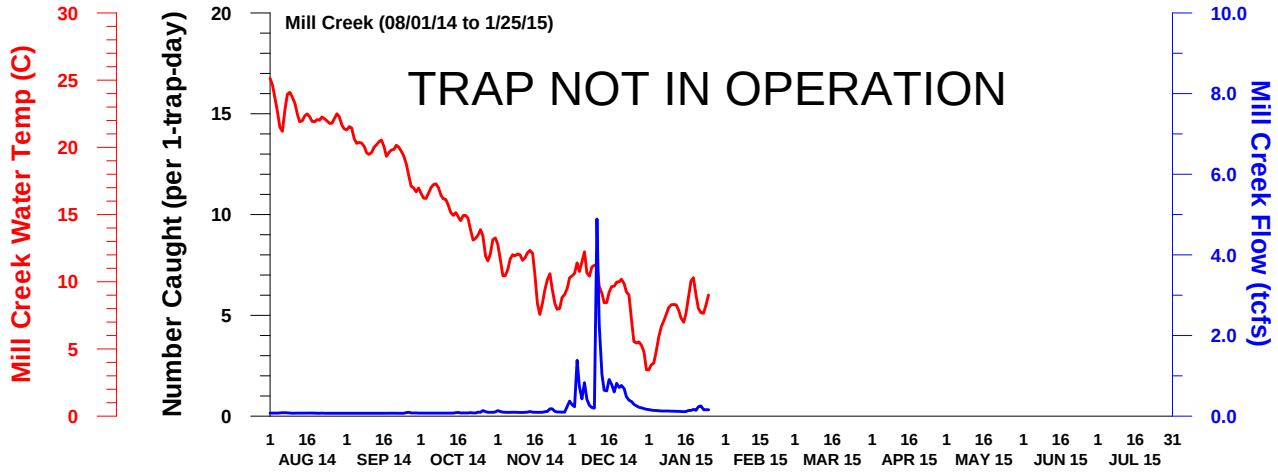
***Sacramento area seine route consists of the following seine sites: Verona, Elkhorn, Sand Cove, Discovery Park, American River, Miller Park, Sherwood Harbor, and Garcia Bend. Bars are stacked if Chinook caught from the trawl and seines are from the same day.

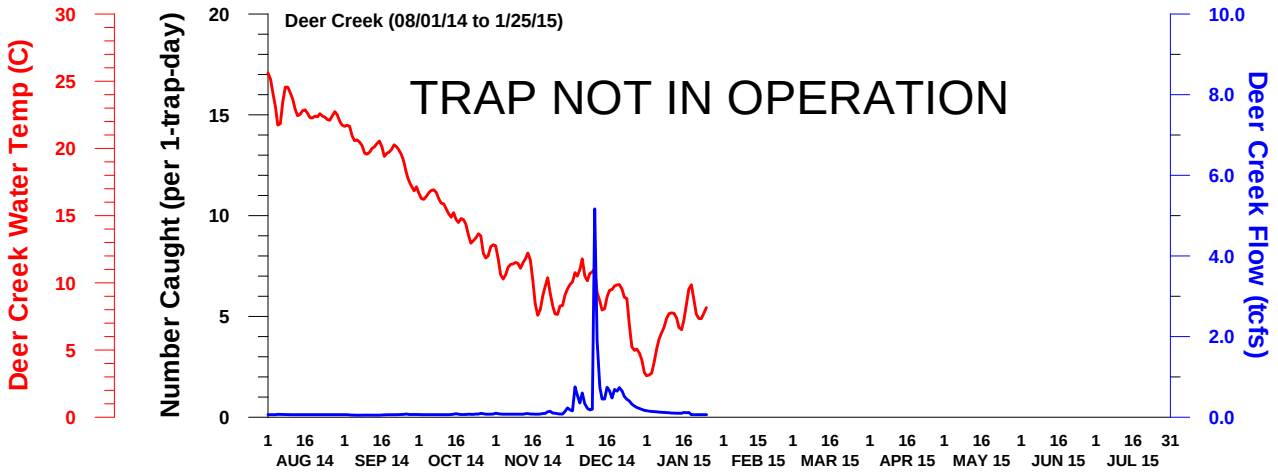
NUMBER OF UNMARKED FRY/SMOLT CHINOOK MEASURED IN THE SAN JOAQUIN RIVER



DWR-DES 26 JANUARY 2015
Preliminary data from FWS and CDEC; subject to revision.
*Fry/smolt Chinook defined as all Chinook less than the minimum winter run length-at-date criteria (Frank Fisher model).
**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





DWR-DES 26 JANUARY 2015
Preliminary data from CDEC; subject to revision.

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.aspx).

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)[1], North Central Region.

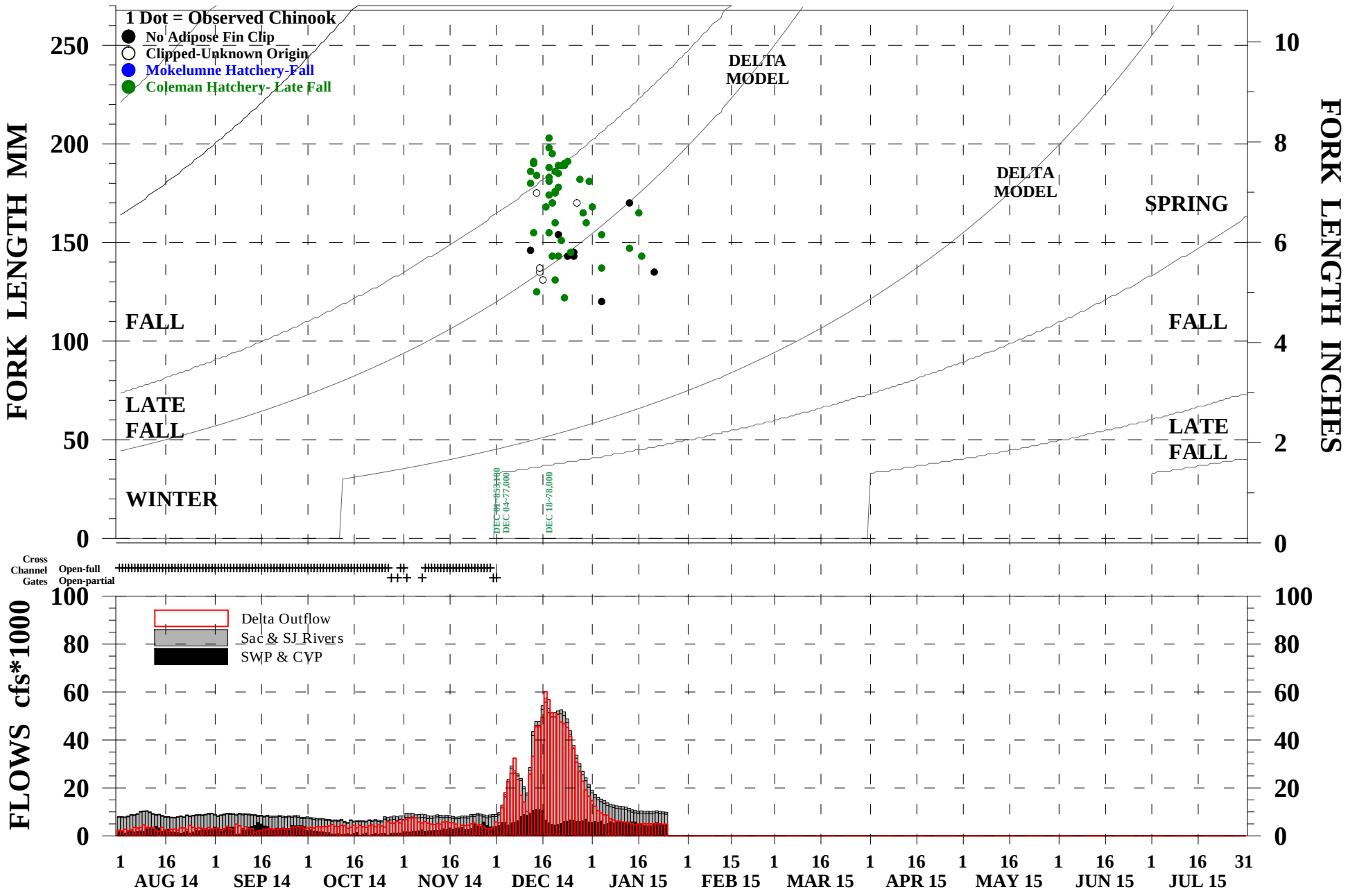
Sacramento River Trawl, Sacramento Area Beach Seine, and Chipps Island Trawl data were obtained directly from FWS, Stockton Fish and Wildlife Office (http://www.fws.gov/stockton/jfmp/).

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.

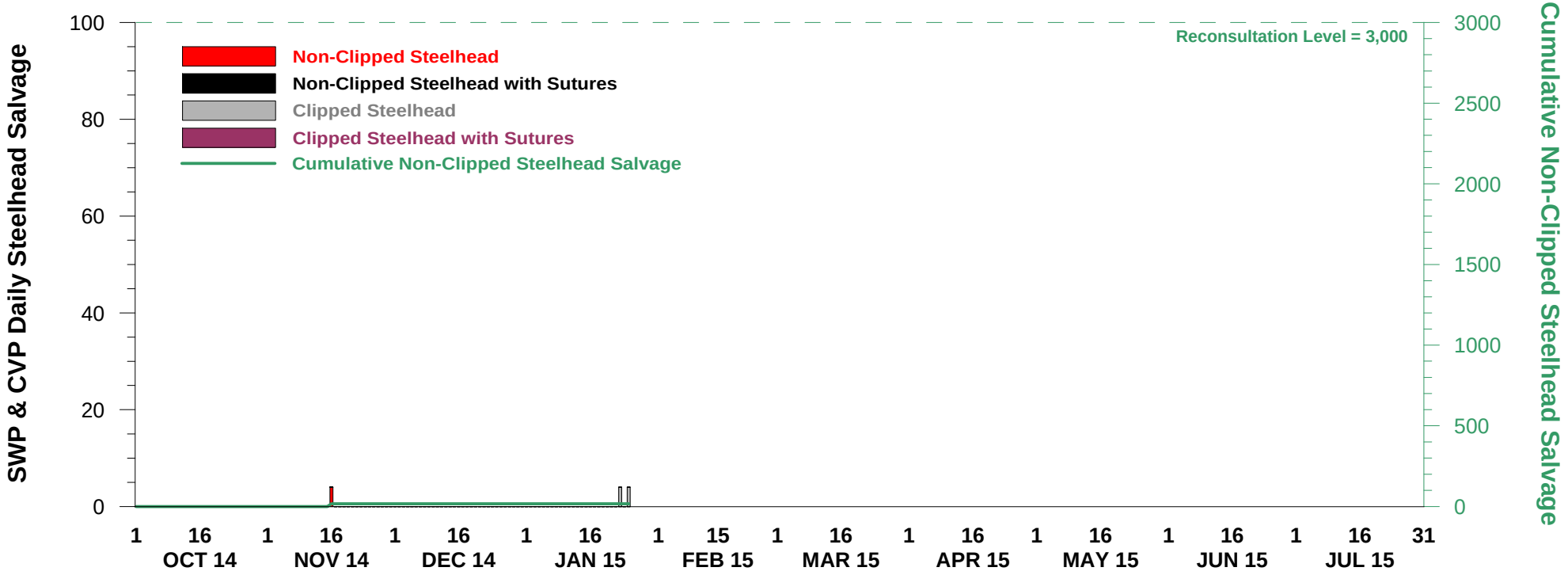
[1] Formerly known as the California Department of Fish and Game (DFG).

OBSERVED CHINOOK SALVAGE AT THE SWP & CVP
DELTA FISH FACILITIES 08/01/2014 THROUGH 1/25/2015



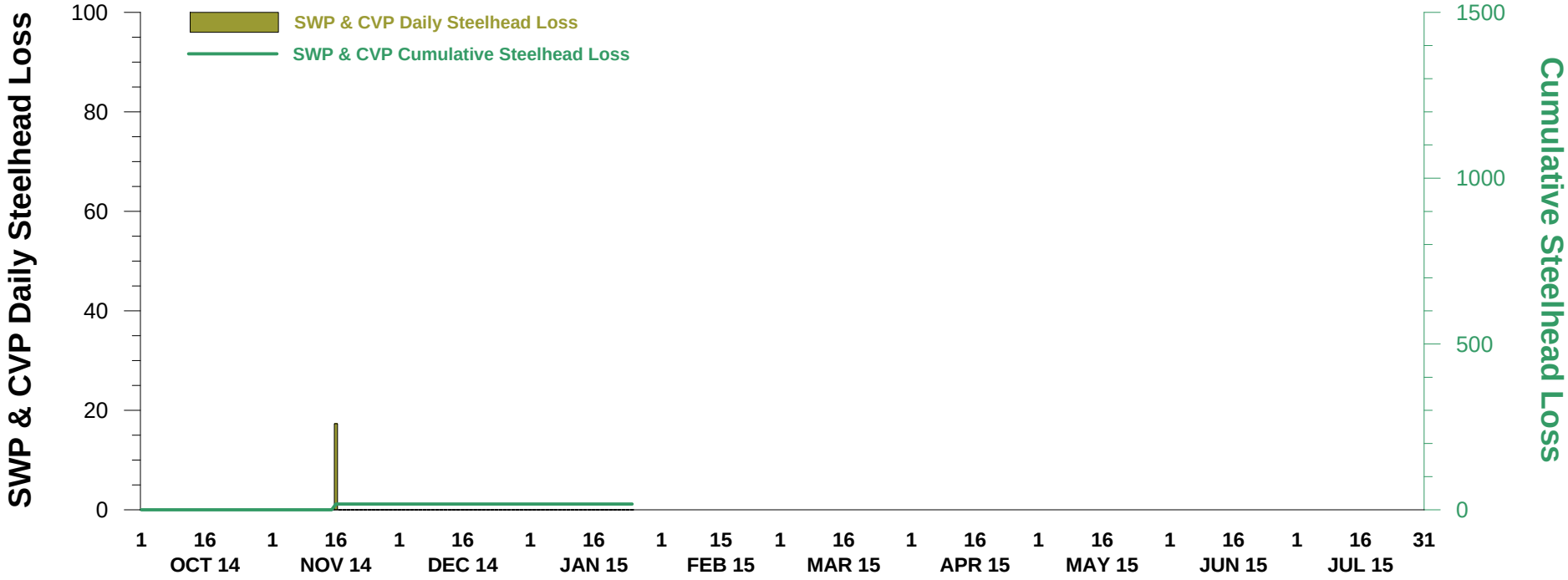
DWR-DES 26 JAN 2015
Preliminary data from DFW, DWR, FWS, Reclamation, and CDEC; subject to revision.
*Chinook not measured for length and Chinook outside of the length-at-date criteria (Delta model) are not reported.

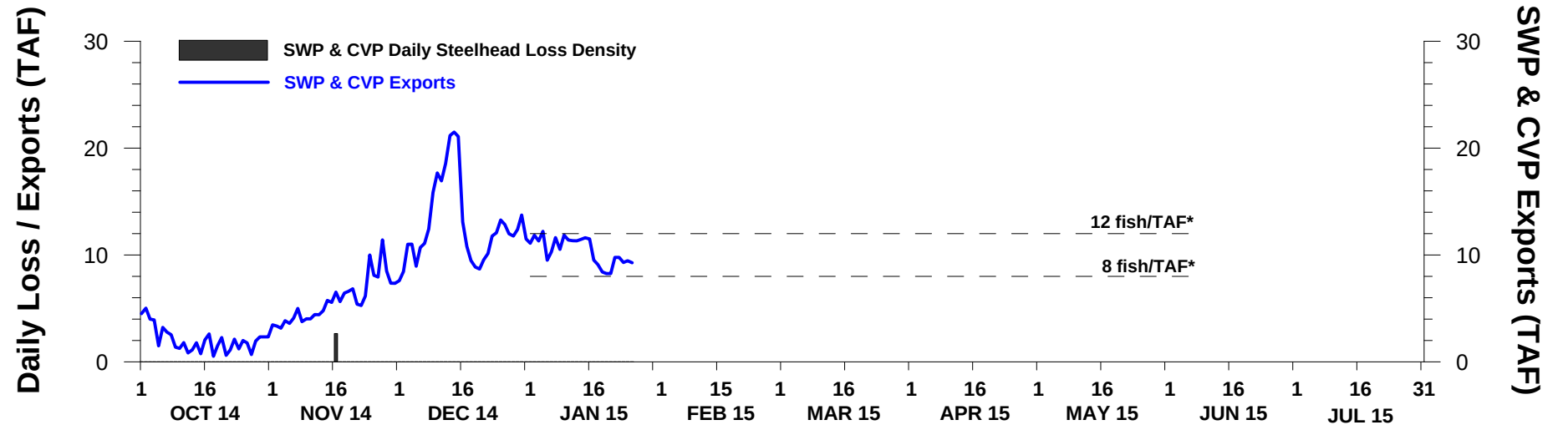
STEELHEAD SALVAGE AT THE DELTA
FISH FACILITIES 01 OCT 2014 THROUGH 25 JANUARY 2014



DWR-DES 26 JANUARY 2015
Preliminary data from DFW; subject to revision.

NON-CLIPPED STEELHEAD LOSS AT THE DELTA FISH FACILITIES 01 OCT 2014 THROUGH 25 JANUARY 2015





DWR-DES 26 JANUARY 2015
Preliminary data from DFW; subject to revision.
*Used to roughly estimate whether the daily loss is greater than 8 fish/TAF multiplied by the volume exported in TAF or 12 fish/TAF multiplied by the volume exported in TAF.