

**Delta Operations for Salmonids and Sturgeon (DOSS) Group
Conference call: 12/30/2014 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 (CVP) and the State Water Project (SWP) 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: Mike Ford, Aaron Miller, Dan Yamanaka, Farida Islam, Rhiannon Mulligan, Bryant Giorgi

Reclamation: Jason Hassrick, Russ Yaworsky, Josh Israel, Peggy Manza

NMFS: Barb Byrne, Jeff Stuart, Meiling Roddam

USFWS: Leigh Bartoo

CDFW: Bob Fujimura, Ken Kundargi, Duane Linander

SWRCB: Matt Holland

EPA: Erin Foresman

Agenda Items

1. Agenda review and introductions
2. Fish Monitoring
3. Current Operations
4. Special Topic: Discuss the upcoming RPA Action IV.2.3 effective January 1, 2015
5. Smelt Working Group Update
6. RPA Implementation review
7. DOSS Advice

Agenda Item 2.

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. ^A	Sacramento Trawls ^A	Mossdale Kodiak Trawl ^A	GCID RST ^B	Knights Landing RST ^C	Tisdale RST ^D	Beach Seines ^A
Sample Date	12/21-12/27	12/21-12/27	12/21-12/27	12/21-12/27		12/22-12/28	12/22-12/29	12/21-12/27
Total Catch	26	59	76	0		446 (30mm-123mm)	506 (25mm-127mm)	275
FR Chinook		11	65			346	473	175
WR Chinook	1		1			9	13	15
SR Chinook		2	7			83	15	81
LFR Chinook	6	1				4	3	
Ad-Clipped Chinook	7		2			4	1	
Delta Smelt	1 (59mm)	45 (54mm-67mm)						
Splittail	11							4
Longfin Smelt								
Steelhead (ad-clip)								
Steelhead (wild)							1	
Green Sturgeon								
W. Temp. (avg. °F)						53	50	
Flows (avg. cfs)						19,783	19,155	
Turbidity (avg. NTU)						73	58	

^A Summary for sampling dates 12/21 to 12/27 was sent out and reported to DOSS. Daily DAT data was not reported.

^B Trap cones lifted the morning of 12/3 due to forecasted increase in flow and subsequent stage change, so no catch available since then.

^C Traps did not fish on 12/25. Both traps were sampling at full efficiency and fishing during daylight only.

^D Sampling dates are from 12/22 at 0900 hours to 12/24 at 1530 hours and from 12/26 at 0800 hours to 12/29 at 1530 hours. Both traps were modified to 50% catch, except on 12/29 at 0730 hours to 12/29 at 1530 hours where both traps were fishing at 100% efficiency.

Fish Salvage¹:

Fujimura (CDFW) provided the following summaries of salvage and loss at the SWP and CVP fish collection facilities. The two salvage figures were generated on the CDFW salvage monitoring web-page: <http://www.dfg.ca.gov/delta/apps/salvage/SalvageExportCalendar.aspx>.

DOSS Weekly Salvage Update
 Reporting Period: December 22-28, 2014
 Prepared by Bob Fujimura on December 29, 2014 2100
 Preliminary Results -Subject to Revision

Criteria	22-Dec	23-Dec	24-Dec	25-Dec	26-Dec	27-Dec	28-Dec	Trend	
Loss Densities									
Wild older juvenile CS	0	0	0.79	0	2.66	0	0	↗	0.49
Wild steelhead	0	0	0	0	0	0	0	→	0.00
Exports									
SWP daily export	5,656	6,470	6,493	8,333	7,272	6,432	6,228	↘	6,698
CVP daily export	4,478	5,311	5,588	4,939	5,583	5,557	5,546	↘	5,286

*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)*

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;

Category	Weekly Total			Season Total	
	Salvage	Loss	Trend	Salvage	Loss
Wild					
Winter Run	20	44	↗	20	44
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	20	44		50	70
Hatchery					
Winter Run	8	35	↘	32	81
Spring Run	0	0	→	0	0
Late Fall Run	24	64	↘	104	284
Fall Run	6	27	↘	41	180
Unclassified	0	0	→	0	0
Total	38	126		177	545

*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

Category	Weekly Total			Season Total	
	Salvage	Loss	Trend	Salvage	Loss
Wild	0	0	→	4	17
Hatchery	0	0	→	0	0
Total	0	0		4	17

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 12/22/14-12/28/14.

¹Salvage 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.

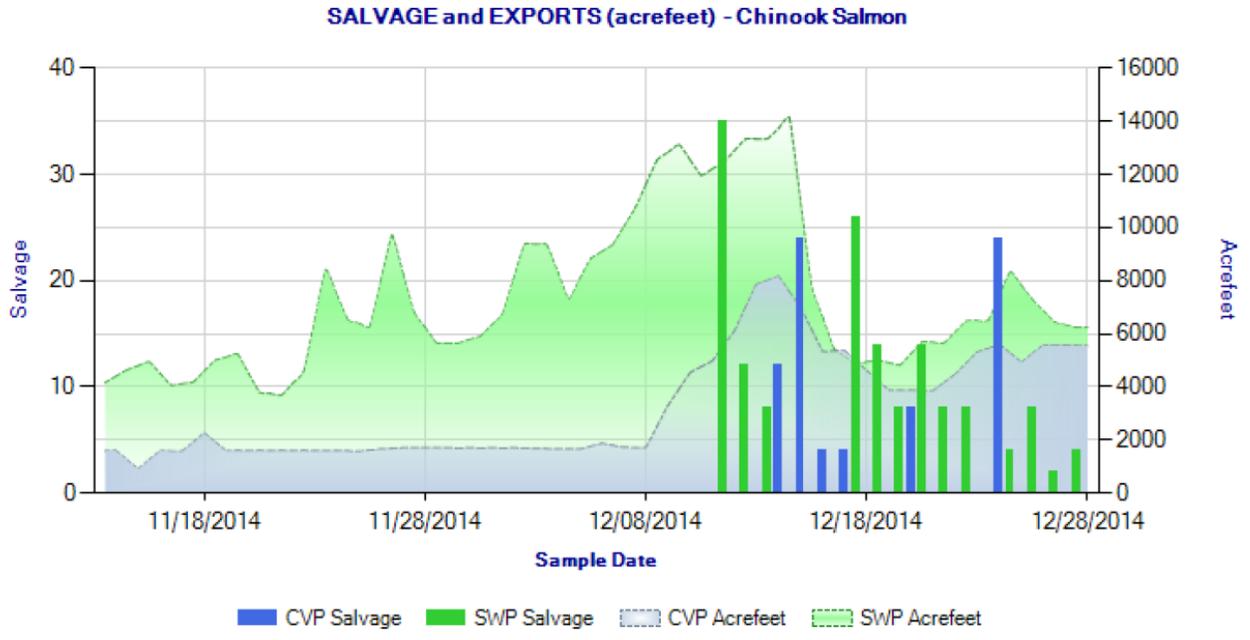


Figure 2. Daily salvage of Chinook salmon (all races) and water exports from the state and federal fish salvage facilities during November 14 through Dec 28, 2014.

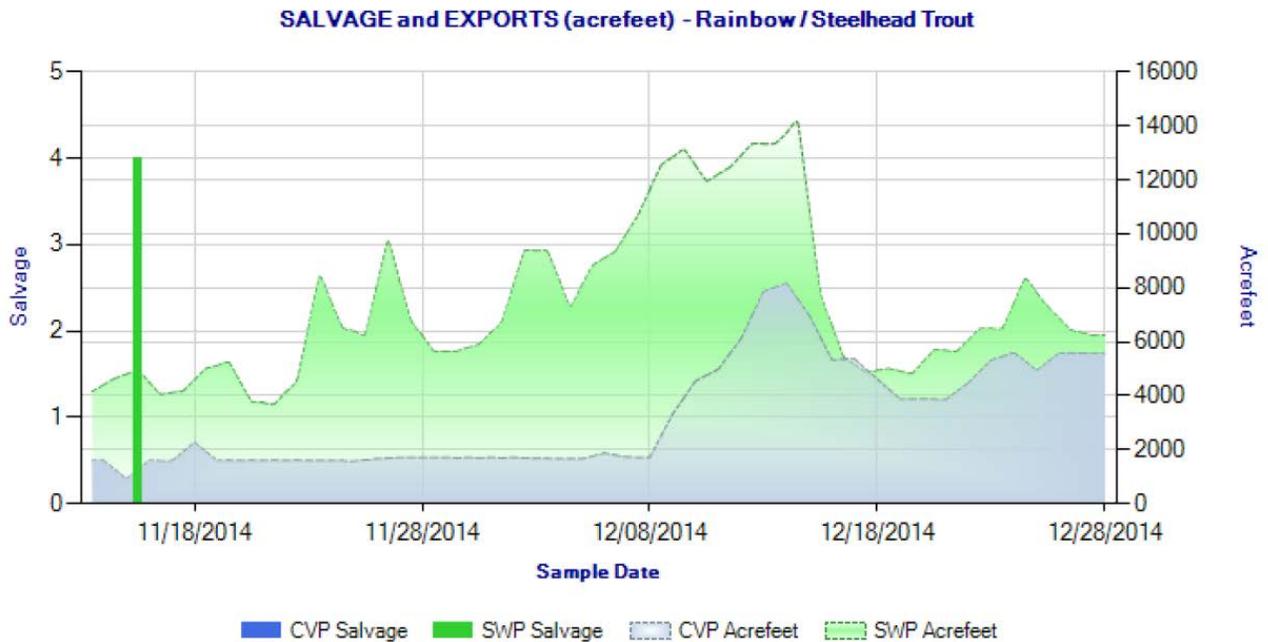


Figure 3. Daily salvage of steelhead and water exports from the state and federal fish salvage facilities during November 14 through Dec 28, 2014.

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	492.96	853,100	n/a	0.058	n/a	n/a	n/a	12/12/2014	12/28/2014
12/4/2014	LF	Coleman NFH	Battle Creek	Spring Surrogate	16.79	77,000	n/a	0.022	n/a	0.5%	1.0%	12/25/2014	12/25/2014
12/18/2014	LF	Coleman NFH	Battle Creek	Spring Surrogate	0.00	78,000	n/a	0.000	n/a	0.5%	1.0%	*	*

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 12/28/2014.

¹Number 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.

⁴Date of first and last loss accounts for all CWT loss even those from special studies where salvage and loss=0.

⁵Adipose-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).

⁶Adipose-fin clipped Chinook was collected during fish count and has not been processed yet.

⁷CWT has been read, but hatchery release information not yet available.

⁸Adipose-fin clipped Chinook released due to presence of sutures.

⁹CWT 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.

* - information not yet available.

DWR-DES Revised 12/29/2014

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. Over the past week, Sacramento River flows have been dropping and data from the Knights Landing and Tisdale rotary screw traps on the Sacramento River upstream of the Delta indicate a corresponding drop in Chinook salmon catch (the weekly total is high, but the daily catch has dropped markedly since 12/22). Chinook salmon catch in the Delta beach seines continues to be high.

DOSS estimated that most (>95%) of the winter-run Chinook salmon juveniles, and approximately half of the young-of-year spring-run Chinook salmon juveniles, have entered the Delta past Knights Landing. Though no yearling spring-run Chinook salmon have been observed in monitoring, high flows and turbidities (associated with yearling outmigration) have been reported in the tributaries to the Sacramento River for much of December and so DOSS updated the distribution of spring-run Chinook salmon yearling based on those observed physical conditions and the capture of Coleman National Fish Hatchery (CNFH) late fall-run Chinook salmon in downstream locations and in salvage (since some of the CNFH releases of late fall-run Chinook salmon are considered surrogates for yearling spring-run Chinook salmon).

The recent drop in water temperature was noted; the water temperature at the Tisdale rotary screw trap, for example, dropped from 53°F on 12/24/14 to 45°F on 12/28/14. There were differences in opinion on whether this drop in water temperature would cue Chinook to migrate vs. hold; the response could differ depending on life-stage, e.g., young-of-year and yearling Chinook salmon might respond differently to a drop in water temperature.

Location	Yet to Enter Delta (Upstream of Knights Landing)	In the Delta	Exited the Delta (Past Chipps Island)
<i>Young-of-year (YOY) winter-run Chinook salmon</i>	< 5% (last week: < 10%)	>95% (last week: >90%)	<5% (last week: same)
<i>YOY spring-run Chinook salmon</i>	~50% (last week: 50% - 60%)	~ 50% (last week: 40% - 50%)	< 5% (last week: same)
<i>Yearling spring-run Chinook salmon*</i>	< 5% (last week: < 10%)	80% - 90% (last week: > 75%)	< 15% (last week: <10%)

* 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 3.

Current Operations (12/30/2014)

SWP		CVP	
Exports (cfs)			
Clifton Court Forebay	3,800*	Jones Pumping Plant	2,850**
Reservoir Releases (cfs)			
Feather - Oroville	950	American - Nimbus	900
		Sacramento - Keswick	3,250
		Stanislaus - Goodwin	200
Reservoir Storage (in TAF)			
San Luis (SWP)	252	San Luis (CVP)	277
Oroville	1,332	Shasta	1,849
New Melones	546	Folsom	423
Delta Operations			
Delta Cross Channel (DCC)	Closed	Sacramento River at Freeport (cfs)	~25,600
Outflow Index (cfs)	~ 19,000	San Joaquin River at Vernalis (cfs)	~1,220

*Will be reduced to ~2,900 cfs on Thursday

**Will be maintained through the week.

The current daily OMR index is -5,900 cfs, and the projects will target an OMR index of -5000 cfs starting Thursday, 1/1/2015. Exports are currently being controlled by voluntary turbidity management and the anticipation of the -5,000 cfs calendar-based OMR limit effective January 1. Operations will be informed by local turbidity levels and special daily monitoring for listed species and adjustments made as warranted.

Agenda Item 4.

Special Topic: Discuss the upcoming RPA Action IV.2.3 effective January 1, 2015

Byrne (NMFS) reminded DOSS that Action IV.2.3 will start on January 1, 2015. As agreed on last week's DOSS call, until the official letter identifying the JPE and JPE-based incidental take limit for the projects is issued, DOSS advises that the projects use the minimum (2.5 fish/TAF) JPE-based fish density trigger to implement RPA Action IV.2.3.

Agenda Item 5.

Smelt Working Group

Bartoo (USFWS) provided the update:

The SWG agreed that the conditions for, and potential benefit from, implementing Action 1 have passed, and is now following guidance in the BiOp for Action 2. The SWG agreed, therefore, to recommend that project exports should result in OMRs no

more negative than -5000 cfs on a 14-day running average with a simultaneous 5-day running average no more negative than -6250 cfs. The SWG stated that OMR flows more negative than -5000 cfs would not be protective. Notwithstanding the recommendation, there was uncertainty expressed by some members as to whether OMR flows of no more negative than -5000 cfs would maintain the "low turbidity" region in the south Delta, currently believed to inhibit Delta Smelt movement to the export pumps. For this reason, the SWG recommends that should turbidities at interior stations, part of the "turbidity gap" as defined by Delta Conditions Team, reach or exceed 10 NTU, or should any salvage of Delta Smelt occur, OMR flows should not be more negative than -2000 cfs on a 14-day running average with a simultaneous 5-day running average no more negative than -2500 cfs.

Agenda Item 6.

RPA Implementation Review

Delta RPA Actions in effect during December:

Action IV.1.2² (DCC gate operations):

- DCC gates are closed.

Action IV.3³ (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.
- No salvage-based triggers that would require export reduction have been exceeded over the past week.

Agenda Item 7.

DOSS Advice

DOSS Advice to WOMT and NMFS: None.

Next Meeting: The next DOSS conference call will be on 01/06/2015 at 9 am.

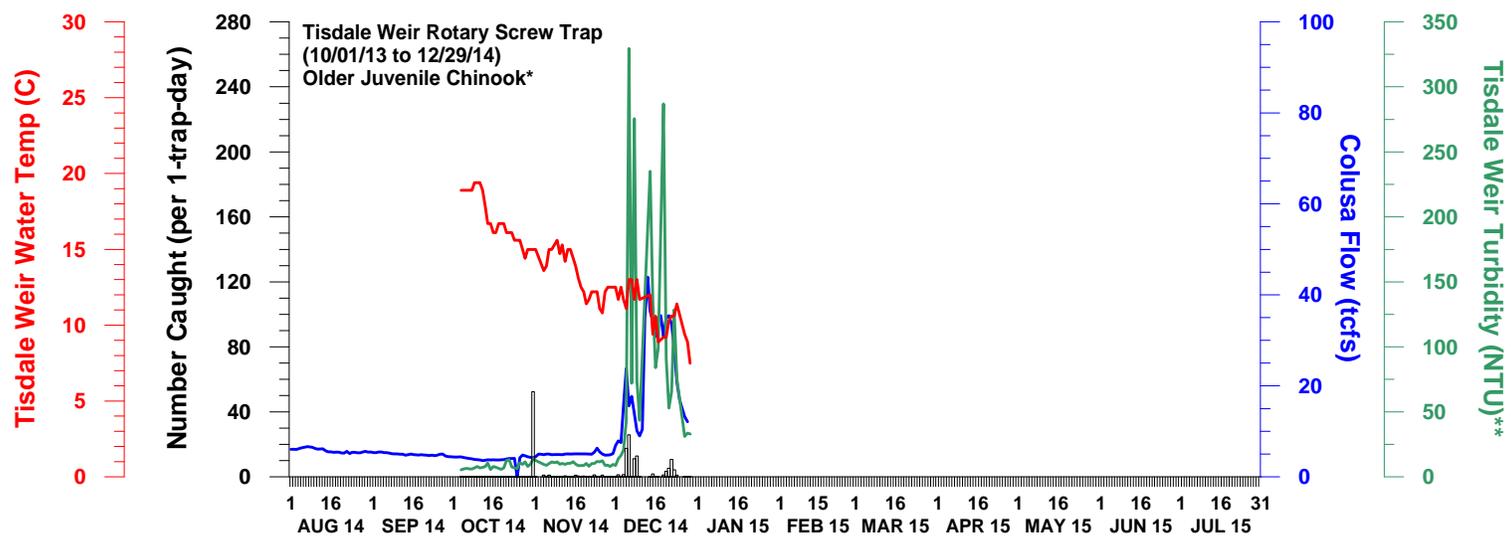
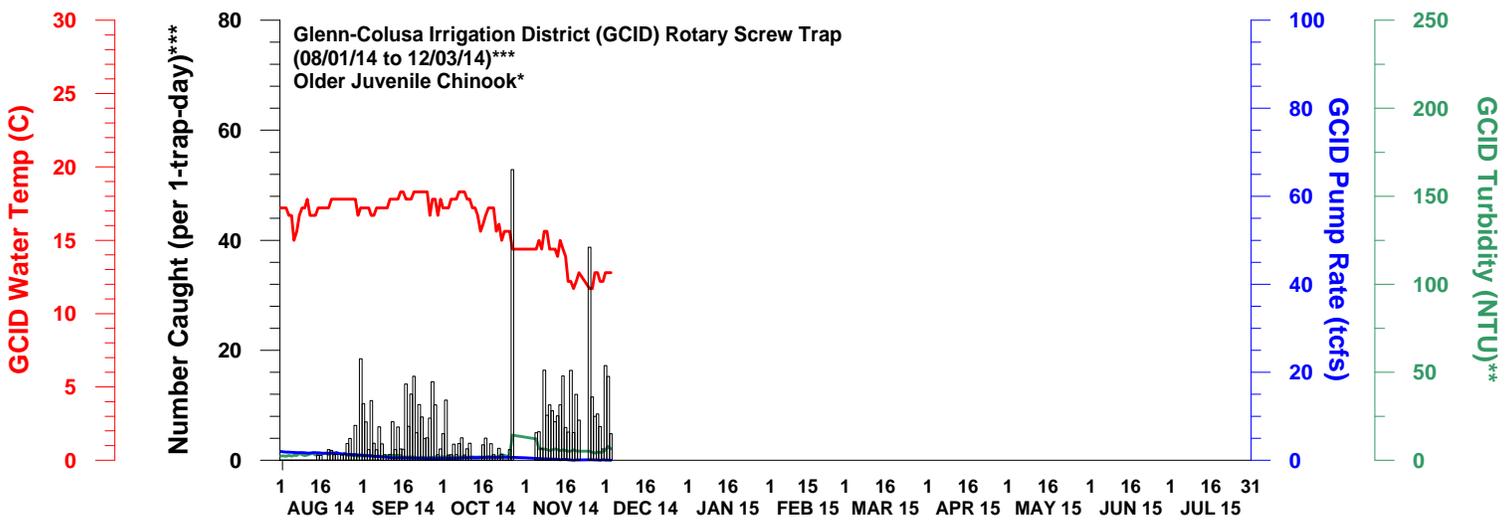
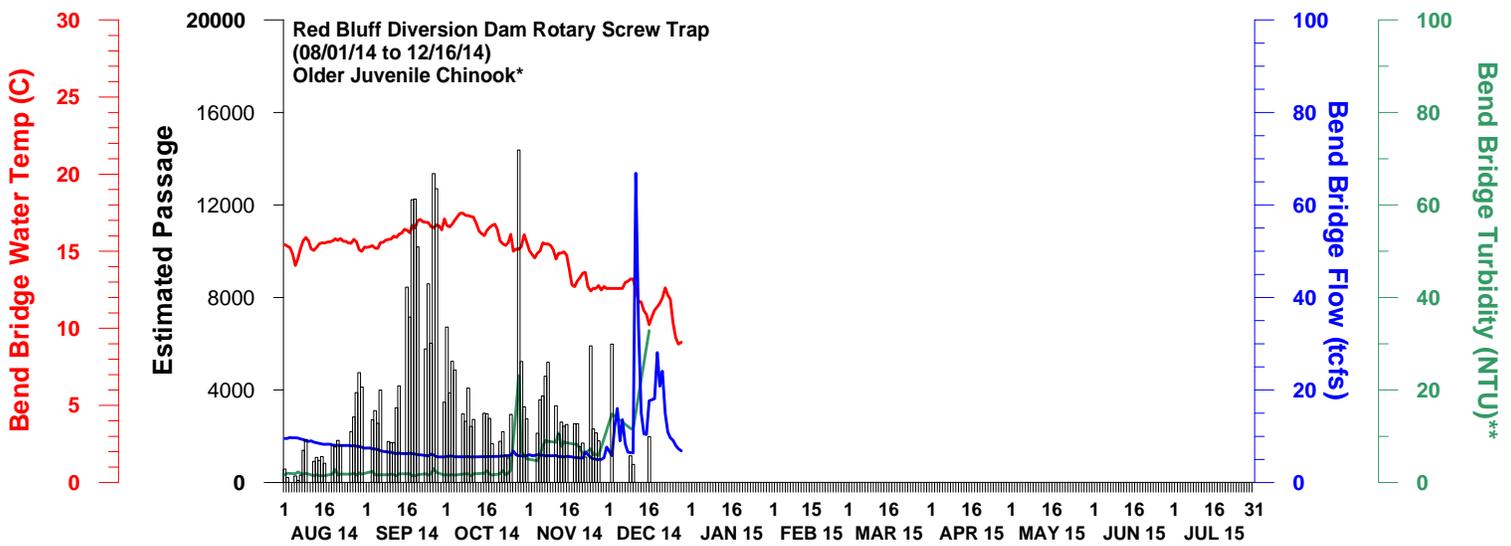
The following graphs were provided by DWR for Chinook salmon and steelhead observed at monitoring locations in the Sacramento and San Joaquin rivers and Delta. For additional graphs, please visit the DWR website at:

<http://www.water.ca.gov/swp/operationscontrol/calFed/calFedMonitoring.cfm>.

² 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

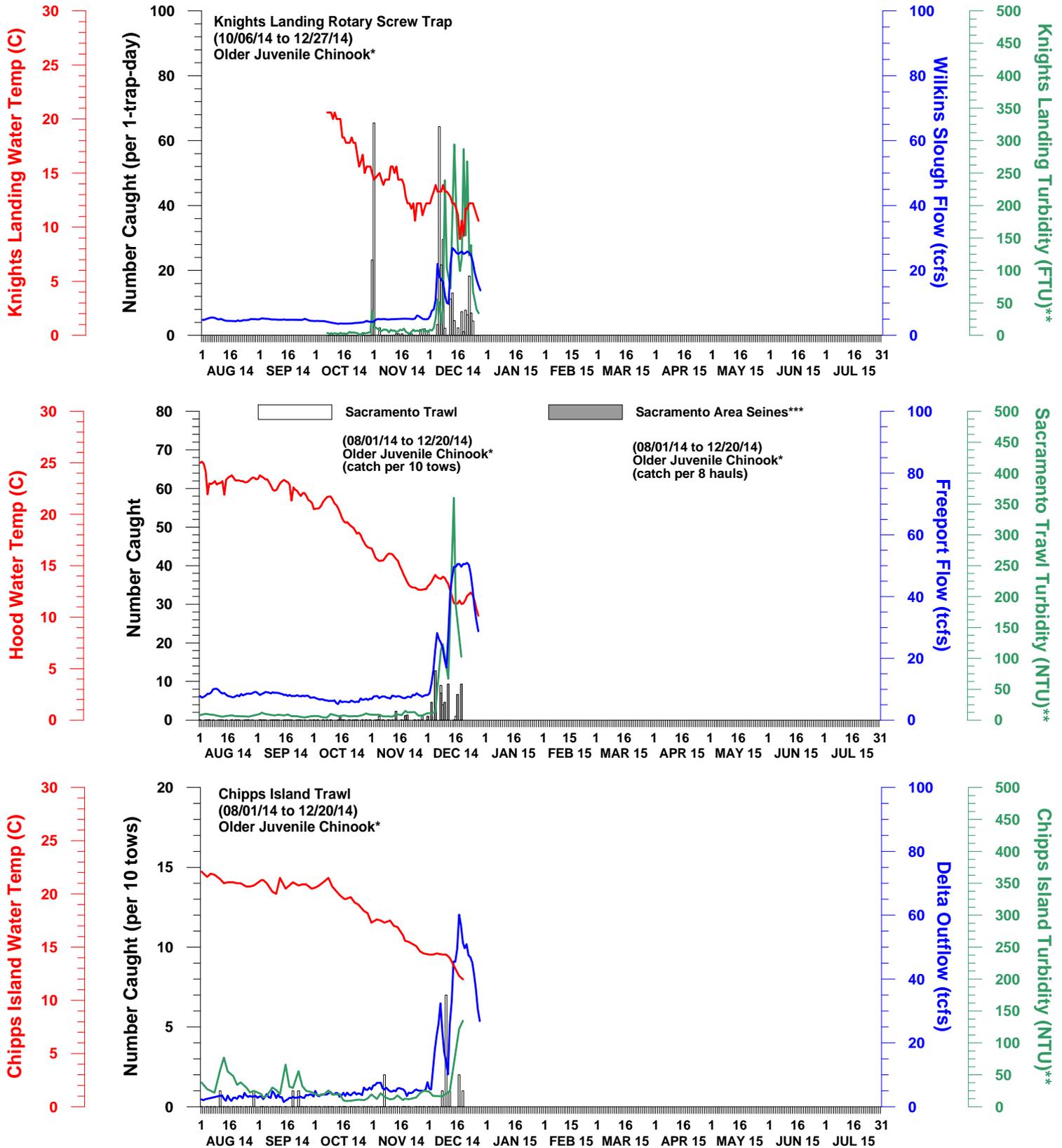
³ For details, see pages 79-80 in Enclosure 2 of the 2011 Amendments to the 2009 RPA document at: http://www.westcoast.fisheries.noaa.gov/publications/Central_Valley/Water%20Operations/Operations,%20Criteria%20and%20Plan/040711_ocap_opinion_2011_amendments.pdf

NUMBER OF UNMARKED OLDER JUVENILE CHINOOK MEASURED IN THE SACRAMENTO RIVER



DWR-DES 29 DECEMBER 2014
 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 has been pulled since 12/16/14 due to forested increase in flow and subsequent destruction of trap.

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



DWR-DES 29 DECEMBER 2014

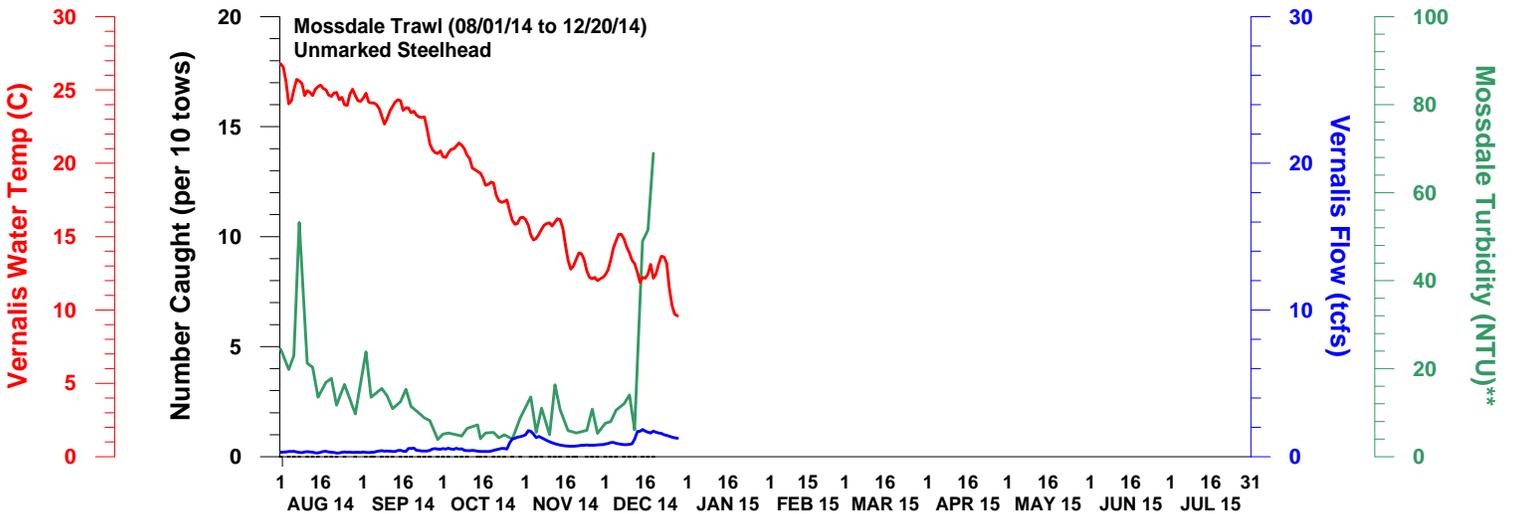
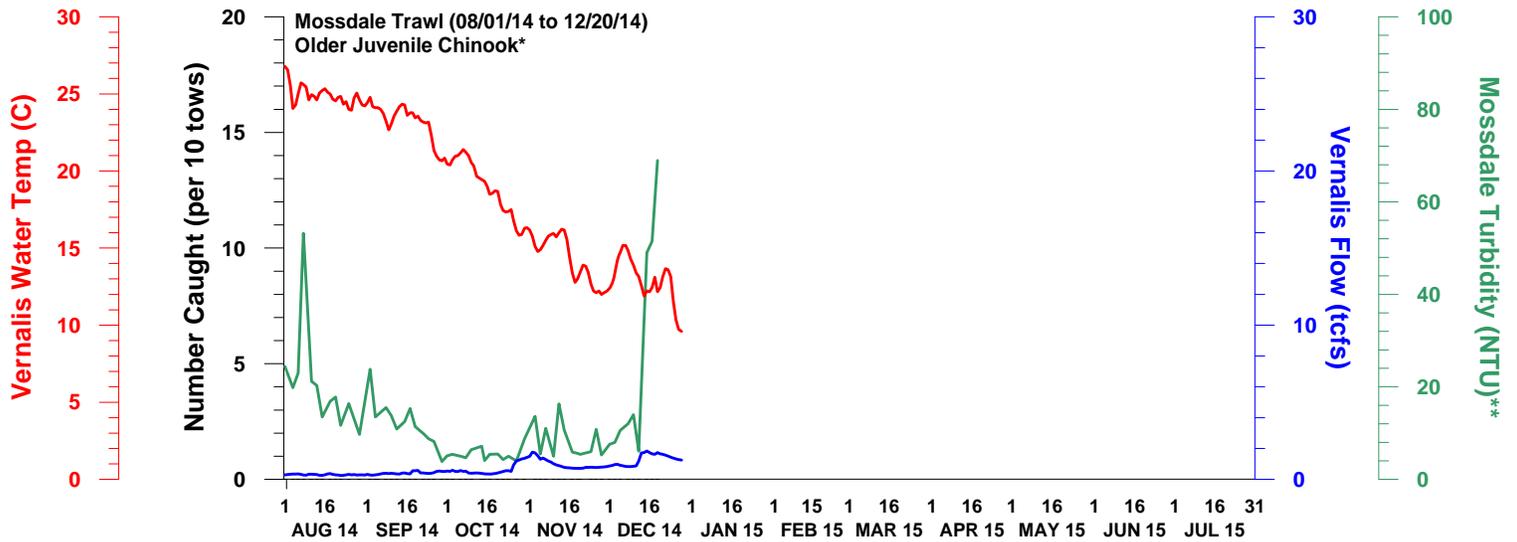
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***Sacramento area seine route consists of the following seine sites: Verona, Elkhorn, Sand Cove, Discovery Park, American River, Miller Park, Sherwood Harbor, and Garcia Bend. Bars are stacked if Chinook caught from the trawl and seines are from the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

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

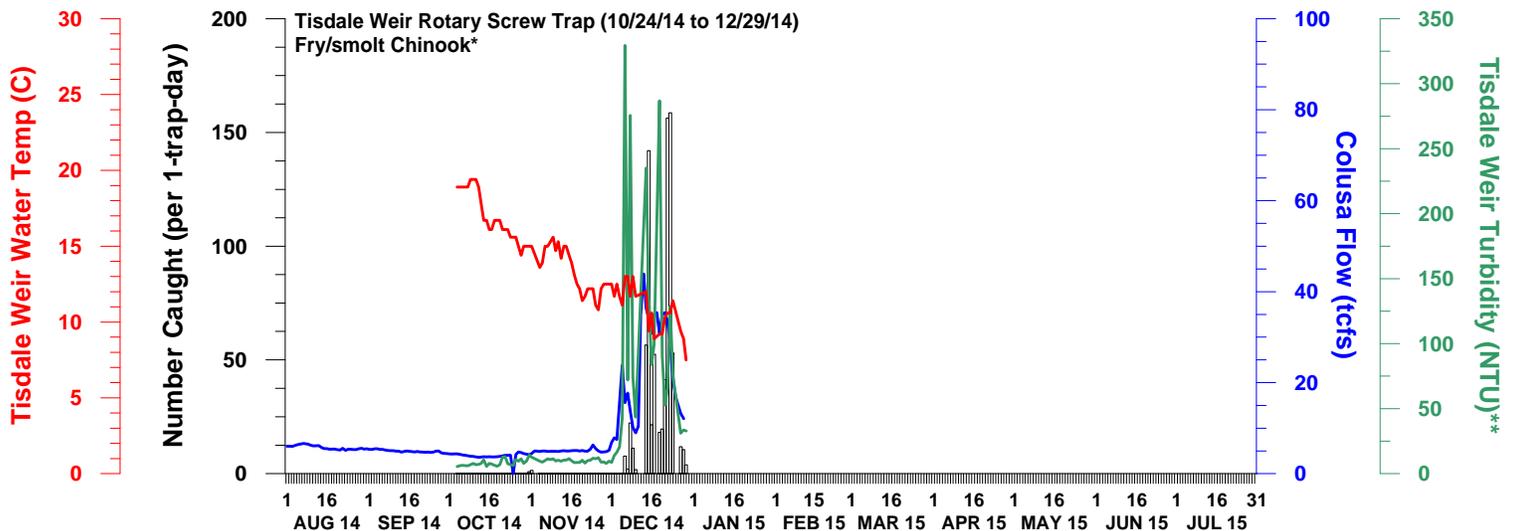
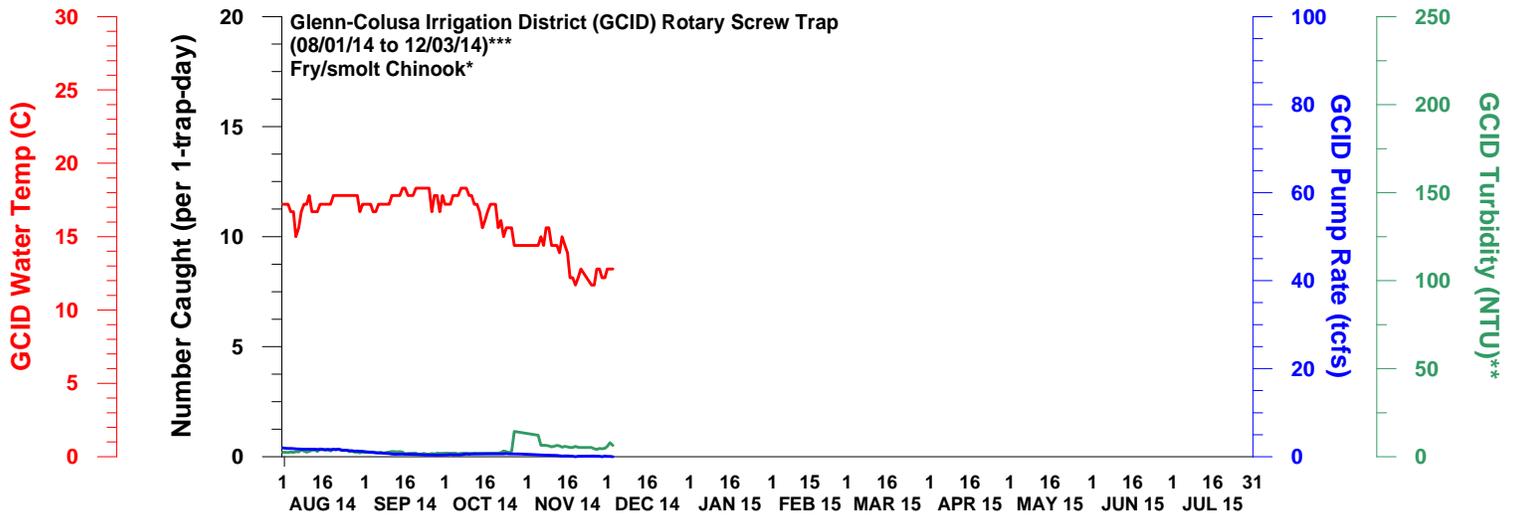
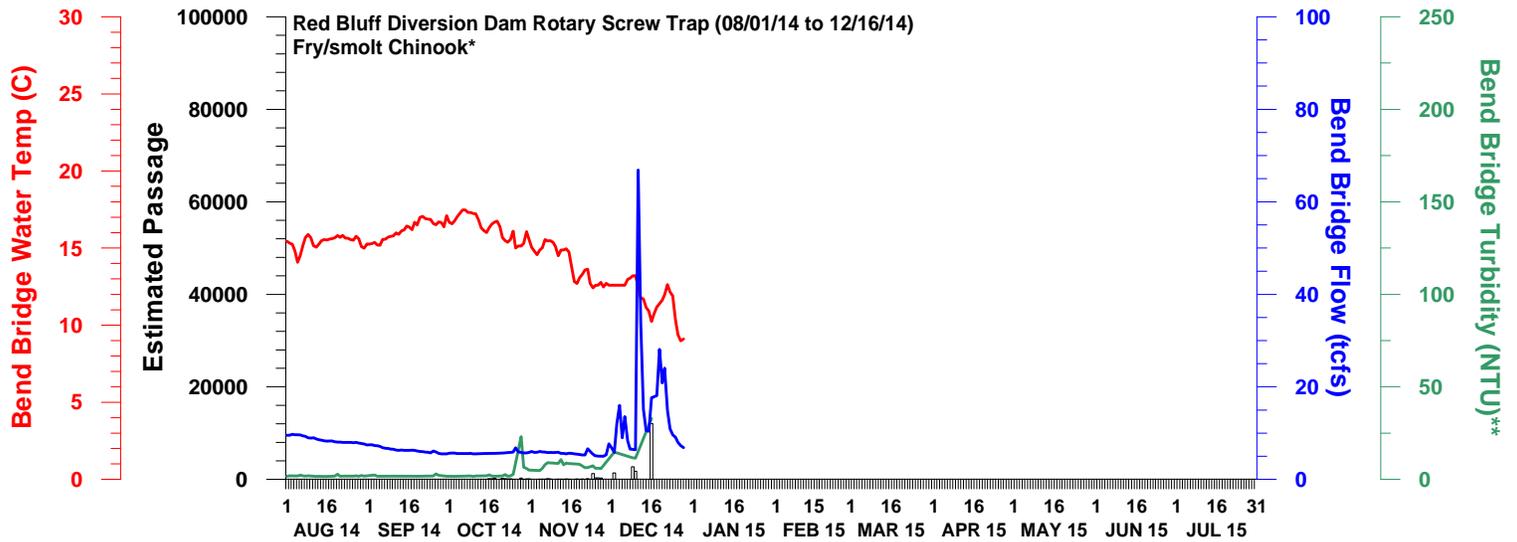


DWR-DES 29 DECEMBER 2014
Preliminary data from FWS and CDEC; subject to revision.

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



DWR-DES 29 DECEMBER 2014

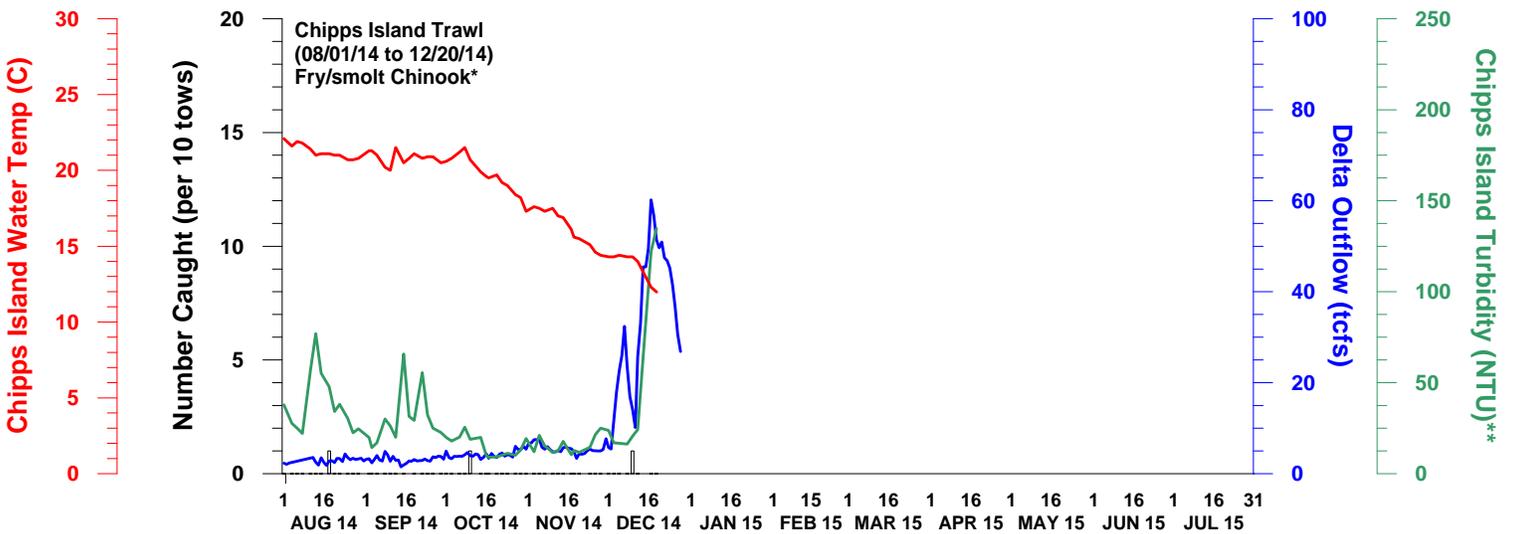
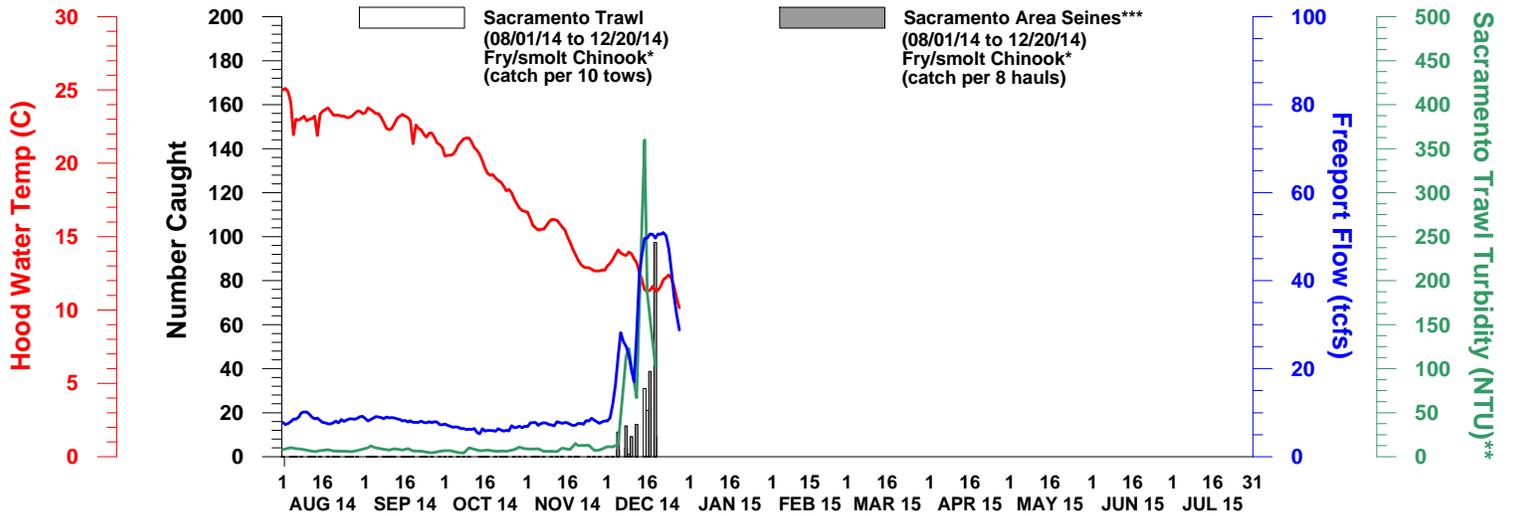
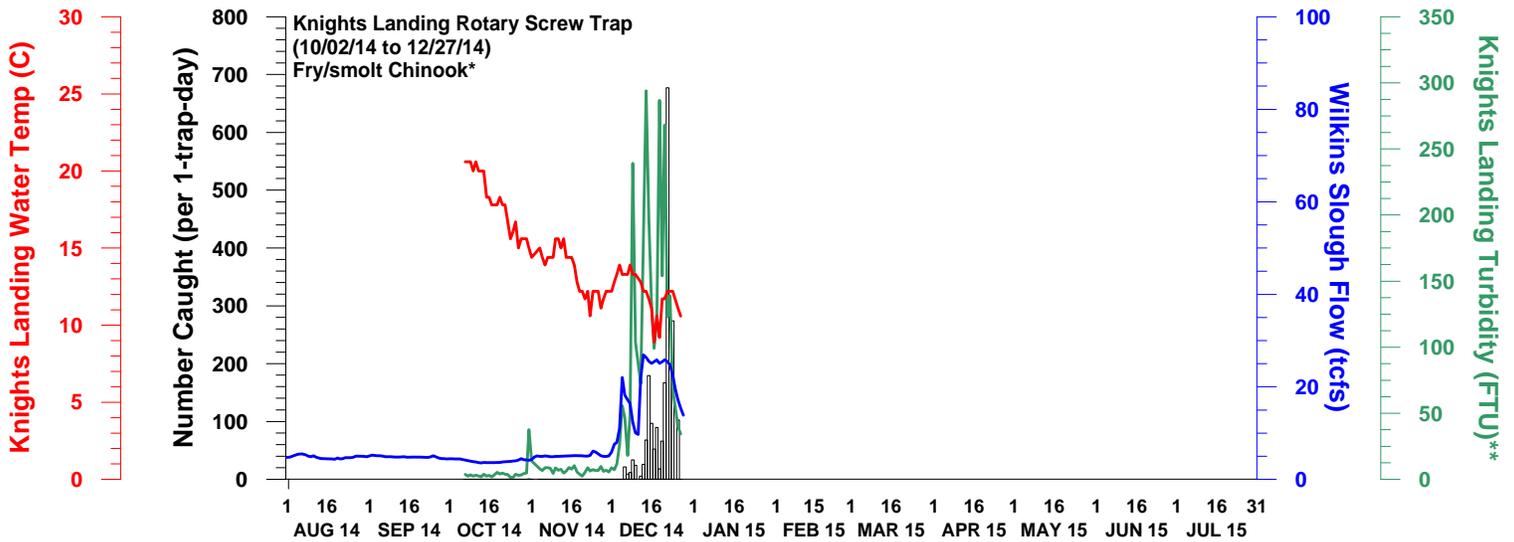
Preliminary data from DFW, FWS, GCID, and CDEC; subject to revision.

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



DWR-DES 29 DECEMBER 2014

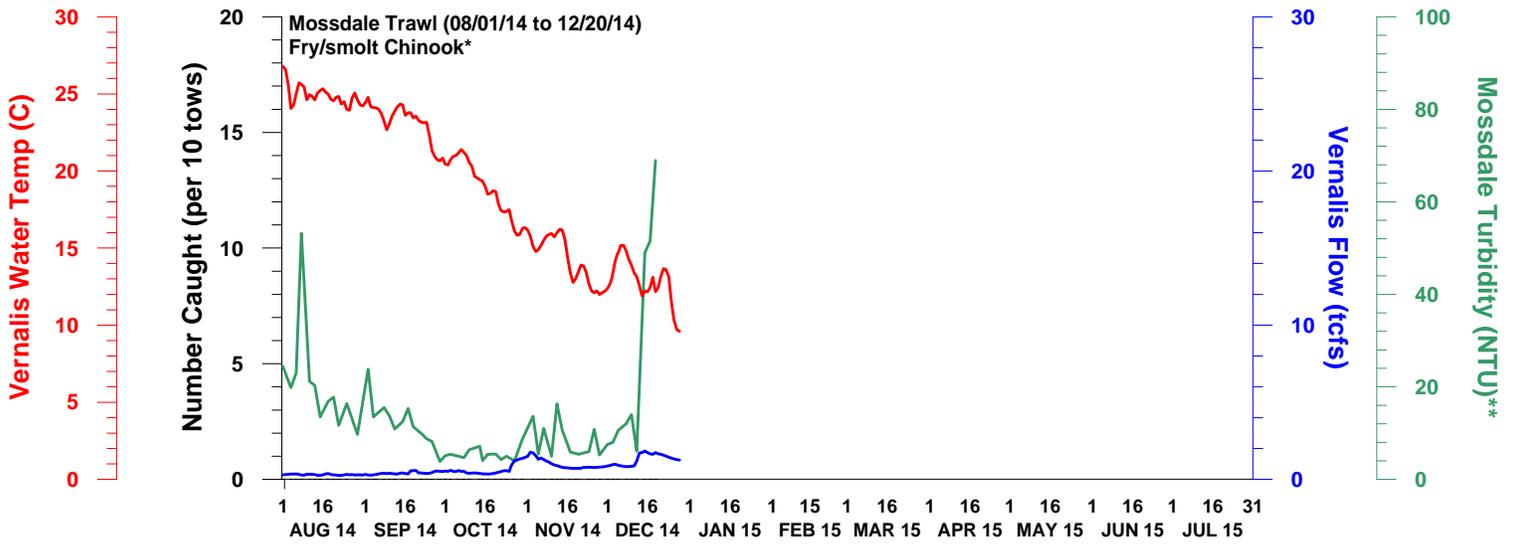
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NUMBER OF UNMARKED FRY/SMOLT CHINOOK MEASURED IN THE SAN JOAQUIN RIVER



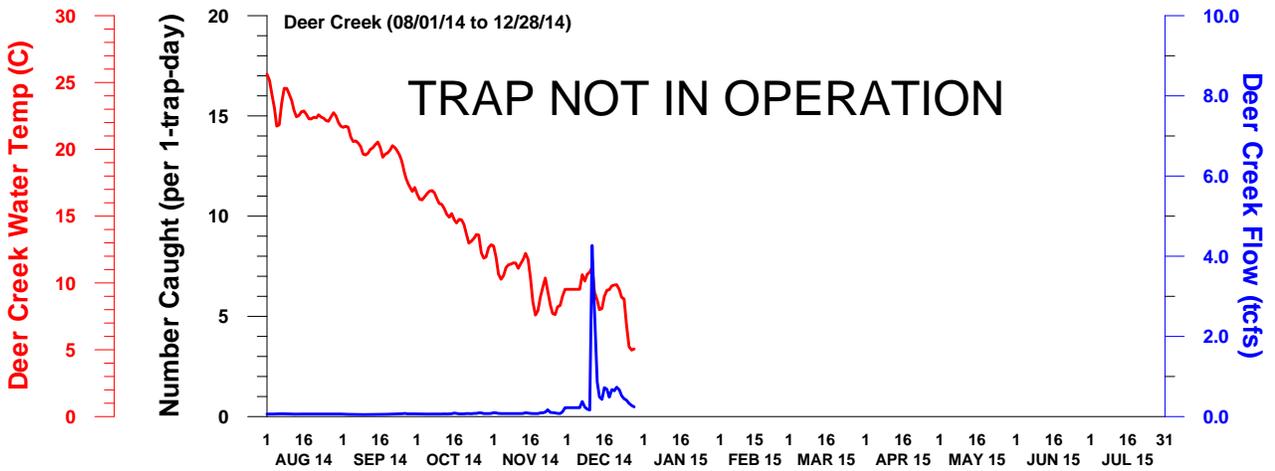
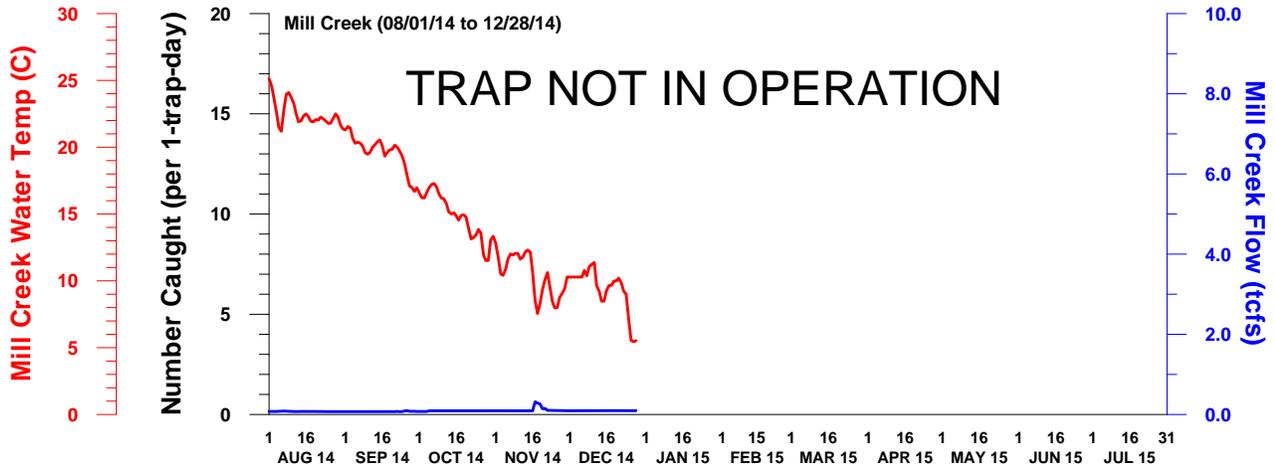
DWR-DES 29 DECEMBER 2014

Preliminary data from FWS and CDEC; subject to revision.

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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.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.

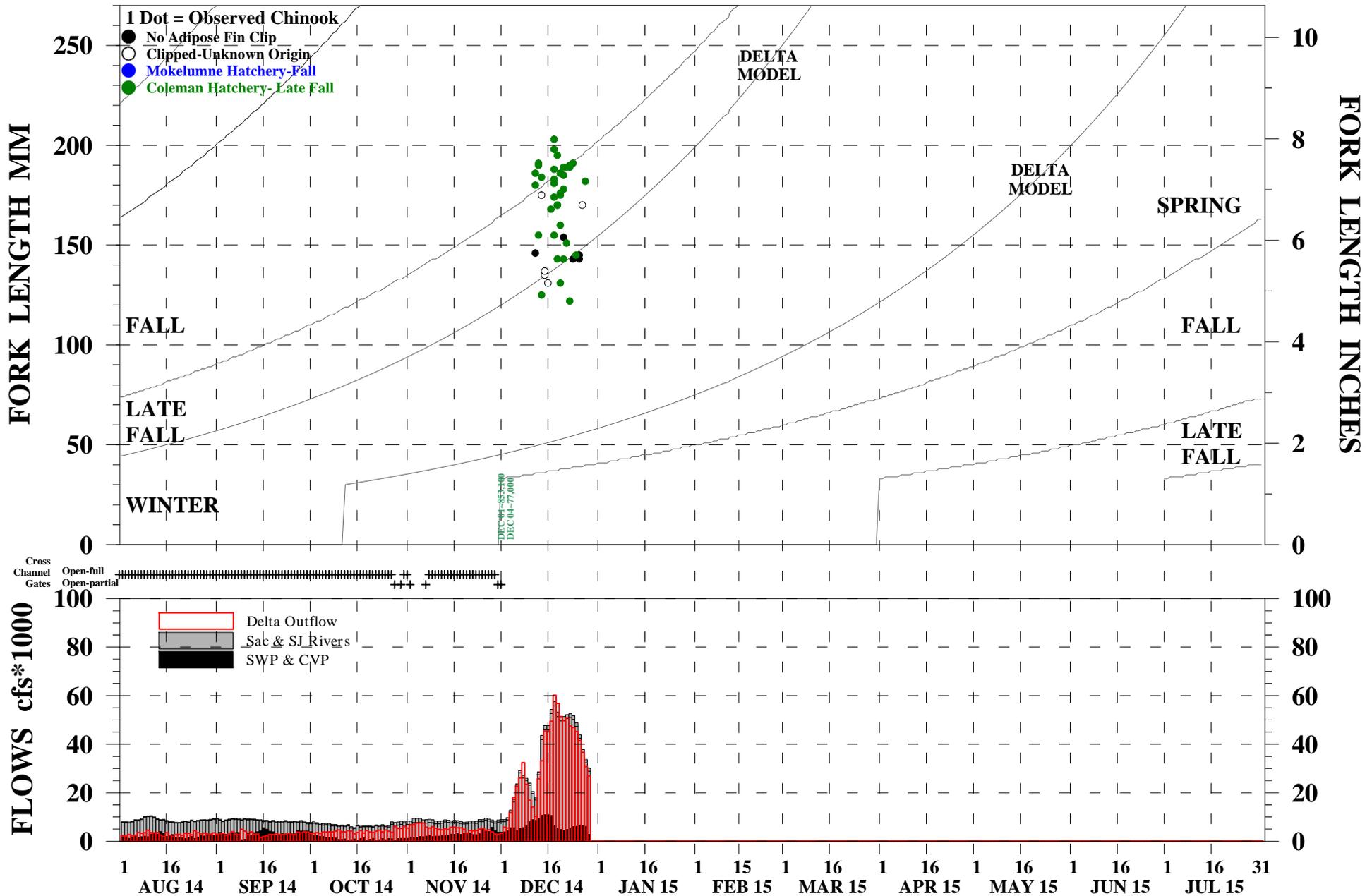
Sacramento River Trawl, Sacramento Area Beach Seine, and Chipps Island Trawl data were obtained directly from FWS, Stockton Fish and Wildlife Office (<http://www.fws.gov/stockton/ifmp/>).

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.

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 12/28/2014



DWR-DES 29 DEC 2014

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.