Delta Operations for Salmonids and Sturgeon (DOSS) Group
Conference call: 01/06/2015 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, Mike Ford, Kevin Reece, Bryant Giorgi, Tracy Pettit
Reclamation: Peggy Manza, Jason Hassrick
NMFS: Barb Byrne, Jeff Stuart, Meiling Roddam
USFWS: Craig Anderson, Leigh Bartoo, Roger Guinee
CDFW: Duane Linander, Ken Kundargi, Bob Fujimura
SWRCB: Matt Holland
EPA: Erin Foresman

Agenda Items
1. Agenda review and introductions
2. Fish Monitoring
3. Current Operations
4. Smelt Working Group
5. Special Topic: Protocol for handling >300 mm Chinook at the salvage facilities.
6. RPA Implementation review
7. DOSS advice

Agenda Item 2.

Red Bluff Diversion Dam (RBDD)
USFWS biweekly report (December 17, 2014- December 31, 2014) for preliminary estimates of passage by brood-year and run for unmarked juvenile Chinook salmon captured by rotary screw traps at RBDD included:
- Winter run Chinook salmon biweekly total: 5,587
- Winter run Chinook salmon brood year 2014 total: 396,725

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	Prisoners Pt/ Jersey Pt.	Sacramento Trawls	Mossdale Kodiak Trawl	GCID RST[A]	Knights Landing RST[B]	Tisdale RST[C]	Beach Seines
Sample Date	12/28- 1/3	12/28- 1/3	12/28- 1/3	12/28- 1/3		12/29- 1/5	12/29- 1/5	12/28- 1/3
Total Catch	**129**	**59**	**2**	**0**		**27 (34mm-125mm)**	**209 (29mm-118mm)**	**575**
FR Chinook	2	3	2			14	148	304
WR Chinook	1					0	3	1
SR Chinook						10	57	270
LFR Chinook						2	1	
Ad-Clipped Chinook	9	1				1		
Delta Smelt	1	53						
Splittail	79							
Longfin Smelt	37	2						
Steelhead (ad-clip)								
Steelhead (wild)								
Green Sturgeon								
W. Temp. (avg. °F)						45	43	
Flows (avg. cfs)						9,814	9,528	
Turbidity (avg. NTU)						30	29	

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

[B] Sampling period is from 12/29 at 8:45 hours to 12/31 at 9:00 hours, and from 1/2 at 8:45 hours to 1/5 at 9:30 hours. Both RSTs were modified to 50% efficiency.

[C] Sampling period is from 12/29 at 16:00 hours to 1/5 at 7:30 hours. Both RSTs were fishing at 100% efficiency.

Byrne (NMFS) reported preliminary data for 1/4 and 1/5 as follows:

- Sacramento seines for 1/5/15: 83 FR Chinook, 33 SR Chinook, 1 ad-clipped Chinook
- Sacramento trawl for 1/5/15: No species of management concern
- Jersey Point trawl for 1/4/15: 15 Delta Smelt, 2 Longfin Smelt, 0 salmonids
- Prisoners Point trawl for 1/5/15: 1 Delta Smelt, 0 salmonids

DOSS discussed the drought sampling at Jersey Point and Prisoners Point (and the SWG suggestion to reduce sampling at these locations), and agreed that weekly sampling (or perhaps

even less, if smelt take concerns are very high) would be sufficient for salmonid purposes as long as no RPA flexibilities for which these data would be informative are being, or about to be, implemented.

Fish Salvage[1]:

For at least part of the past week, both the CVP and SWP fish collection facilities have implemented reduced salvage sampling times (*e.g.*, fish counts are based on 10 minute samples every 2 hours rather than 30 minute samples every 2 hours) due to high debris (CVP) or high debris in combination with high catch of striped bass, American shad, and bluegill (SWP). 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: December 29, 2014 - January 4, 2015
Prepared by Bob Fujimura on January 5, 2015 2100
Preliminary Results -Subject to Revision

Criteria	29-Dec	30-Dec	31-Dec	1-Jan	2-Jan	3-Jan	4-Jan	Trend	
Loss Densities									
Wild older juvenile CS	0	0	0	0	0	0	0.78	↘	0.11
Wild steelhead	0	0	0	0	0	0	0	→	0.00
Exports									
SWP daily export	6,844	8,174	5,982	5,556	6,305	5,761	6,664	↘	6,469
CVP daily export	5,549	5,562	5,529	5,539	5,542	5,543	5,539	↘	5,543

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;

		Weekly Total			Season Total	
Category		Salvage	Loss	Trend	Salvage	Loss
Wild						
	Winter Run	12	10	↘	32	53
	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**	**10**		**62**	**80**
Hatchery						
	Winter Run	8	37	↗	40	118
	Spring Run	0	0	→	0	0
	Late Fall Run	32	56	↗	136	340
	Fall Run	0	0	↗	41	180
	Unclassified	12	NC	↗	12	NC
	Total	**52**	**92**		**229**	**638**

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	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 12/29/14-01/04/15.

[1]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.

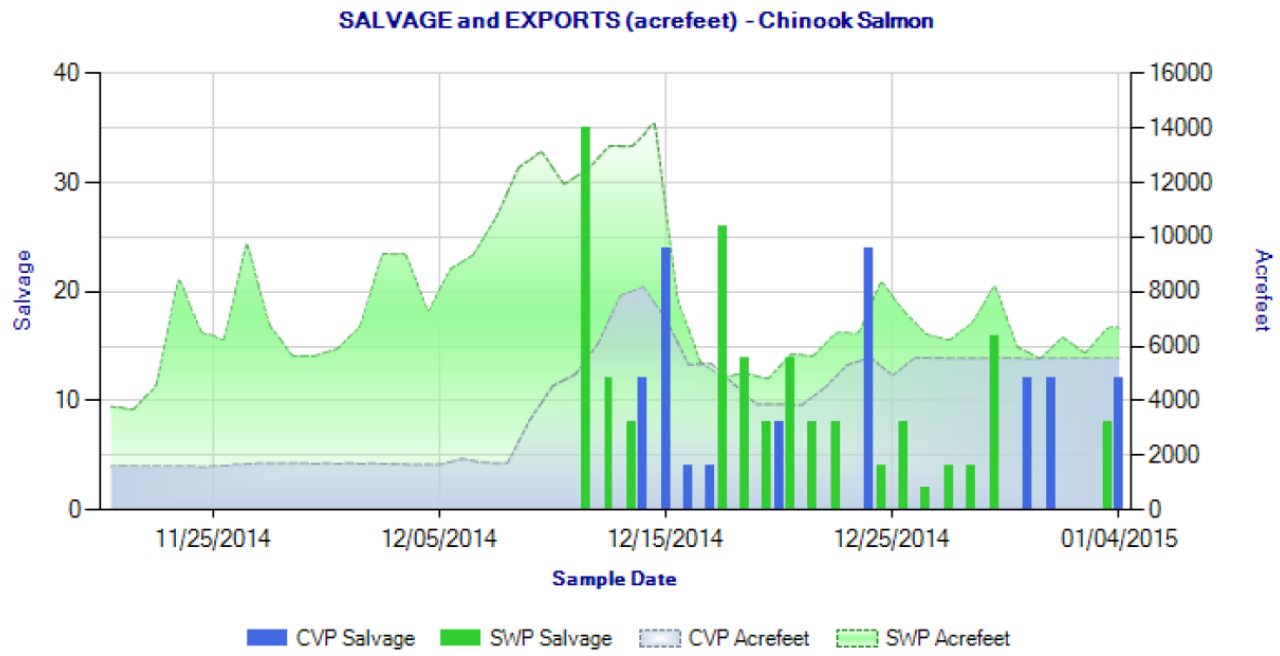


Figure 2. Daily salvage of Chinook salmon (all races) and water exports from the state and federal fish salvage facilities during November 14 through Jan. 4, 2015.

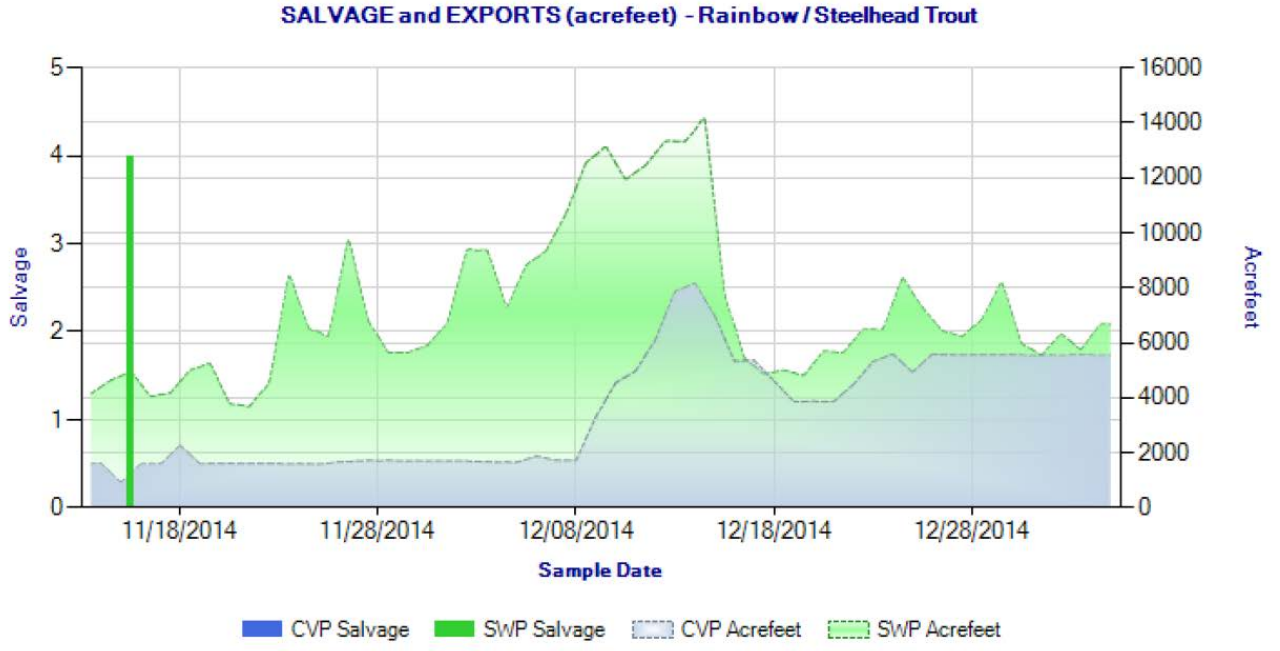


Figure 3. Daily salvage of steelhead and water exports from the state and federal fish salvage facilities during November 14 through Jan. 4, 2014.

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	539.09	853,100	n/a	0.063	n/a	n/a	n/a	12/12/2014	12/28/2014
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	12/25/2014
12/18/2014	LF	Coleman NFH	Battle Creek	Spring Surrogate	27.95	78,000	n/a	0.036	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 1/04/2015.
[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 1/05/2015
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. Over the past few weeks, 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, particularly since 12/22). Chinook salmon catch in the Delta beach seines, especially of fall-run and spring-run Chinook salmon, continues to be high.

In response to a question during the 12/30/14 DOSS call about whether or not DOSS members thought most young-of-year (YOY) spring-run Chinook salmon juveniles had emerged yet, CDFW compiled some information regarding spring-run emergence timing on various tributaries to the Sacramento River. Based on screw trap data and conversations with field biologists, CDFW concluded that YOY spring run emigration from most tributaries peaks in January and February. The CDFW summary is appended to these DOSS notes.

DOSS revised the estimated distribution of YOY spring-run Chinook salmon to include a 25% range of uncertainty that allows for a greater proportion of the population to still be upstream of the delta, compared to last week's estimate. The high catches of YOY spring-run Chinook in the delta monitoring and Knights Landing rotary screw traps support a higher estimate of the proportion of spring-run Chinook in the Delta; the following points support a lower estimate of the proportion of spring-run Chinook in the Delta:

- Biologists working in the tributaries to the Sacramento and upper Sacramento River estimate that <50% of this year's YOY spring-run Chinook have entered the delta,
- Historical patterns suggest YOY spring-run Chinook emigration from tributaries peaks in January and February
- Historical patterns at Knights Landing rotary screw traps suggest YOY spring-run Chinook emigration peaks in late spring
- YOY spring-run Chinook passage past RBDD usually peaks in April; the low passage to date could indicate lots of fish still upstream, or could also be a result of high egg mortality during spring-run Chinook incubation

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: ~50%)	25% - 50% (last week: ~50%)	< 5% (last week: same)
*Yearling spring-run Chinook salmon**	< 5% (last week: same)	80% - 90% (last week: same)	< 15% (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 3.

Current Operations (01/06/2014)

SWP		CVP	
Exports (cfs)			
Clifton Court Forebay	3,900	Jones Pumping Plant	1,800
Reservoir Releases (cfs)			
Feather - Oroville	950	American - Nimbus	900
		Sacramento - Keswick	3,250
		Stanislaus - Goodwin	200
		Trinity – Lewiston	300
Reservoir Storage (in TAF)			
San Luis (SWP)	566	San Luis (CVP)	308
Oroville	1,368	Shasta	1,903
New Melones	868	Folsom	437
Delta Operations			
DCC	Closed	Sacramento River at Freeport (cfs)	~14,000
Outflow Index (cfs)	~8,000	San Joaquin River at Vernalis (cfs)	~1,100
E:I	19% (14- day Avg.)	X2	71 km

OMR as of January 5, 2015 (cfs)		
	5-day average	**14-day average***
Index	-4,995	-5,260
OMR as of January 3, 2015 (cfs)		
	5-day average	**14-day average***
USGS	-4,910	-4,440
Index	-5,320	-5,140

*During early January, the 14-day averages include days in December, when Action IV.2.3 (OMR management) was not yet in effect. The first 14-day average of OMR that can be used to assess compliance with the OMR limit per Action IV.2.3 will be available January 15, based on the based on the 14-day average of OMR indices from January 1 through January 14.

OMR management per RPA Action IV.2.3 is currently controlling exports. Current OMR limit is -5,000 cfs.

D-1641 Delta outflow requirement for January is 6,000 cfs (measured as a monthly average) rather than 4,500 cfs, because the December 8-River Index exceeded 800 TAF.

Agenda Item 4.

Smelt Working Group (SWG)

Bartoo (FWS) provided the following e-mail update:

> The SWG agreed that as long as current Delta conditions remain (specifically interior Delta turbidities above 10NTU and OMRs of -5000cfs) salvage is expected to continue. Updated turbidity forecast modeling runs have not been produced since last week and it is therefore difficult to anticipate when the currently higher interior Delta turbidities will dissipate. If these current conditions continue, based on salvage data from the last four days, the Projects will likely exceed the WY 2015 ITL before the end of the week. As was observed when salvage rates decreased coincident with reduced exports in WY 2013, there is value to reducing pumping.

Agenda Item 5.

Special Topic: Protocol for handling >300 mm Chinook at the salvage facilities

The Skinner Fish Collection Facility (SWP) has observed four Chinook salmon >300 mm since the beginning of WY 2015. The salvage and handling procedures at Skinner are designed for salvage of juveniles; the length-at-date criteria for run identification do not cover fish of this size. The current practice at the Skinner facility is to measure and release Chinook >300 mm– no tissue samples are taken and coded wire tags, if present, are not recovered. While DOSS did express curiosity about the origin and life stage of fish >300 mm, DOSS also generally agreed that Chinook of this large size should be released. Bob F. (CDFW) reported that the salvage database indicates that just 28 and 13 Chinook salmon >300mm have been observed at the CVP and SWP, respectively, since 1993, so the situation is very infrequent.

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)

- In anticipation that the first- and second-stage JPE-based triggers in Action IV.2.3 will be less than the minimum trigger levels, Action IV.2.3 is being implemented using the minimum trigger values (along with all other triggers):
    - The first stage minimum action trigger is daily SWP/CVP older juvenile Chinook salmon loss density of 2.5 fish per TAF exported; exceedance would require OMR to be no more negative than -3500 cfs for at least five days.
    - The second stage minimum action trigger is daily SWP/CVP older juvenile Chinook salmon loss density of 5.0 fish per TAF exported; exceedance would require OMR to be no more negative than -2500 cfs for at least five days.
- No triggers have been exceeded; the projects are currently managing to an OMR limit of -5,000 cfs

Agenda Item 7.

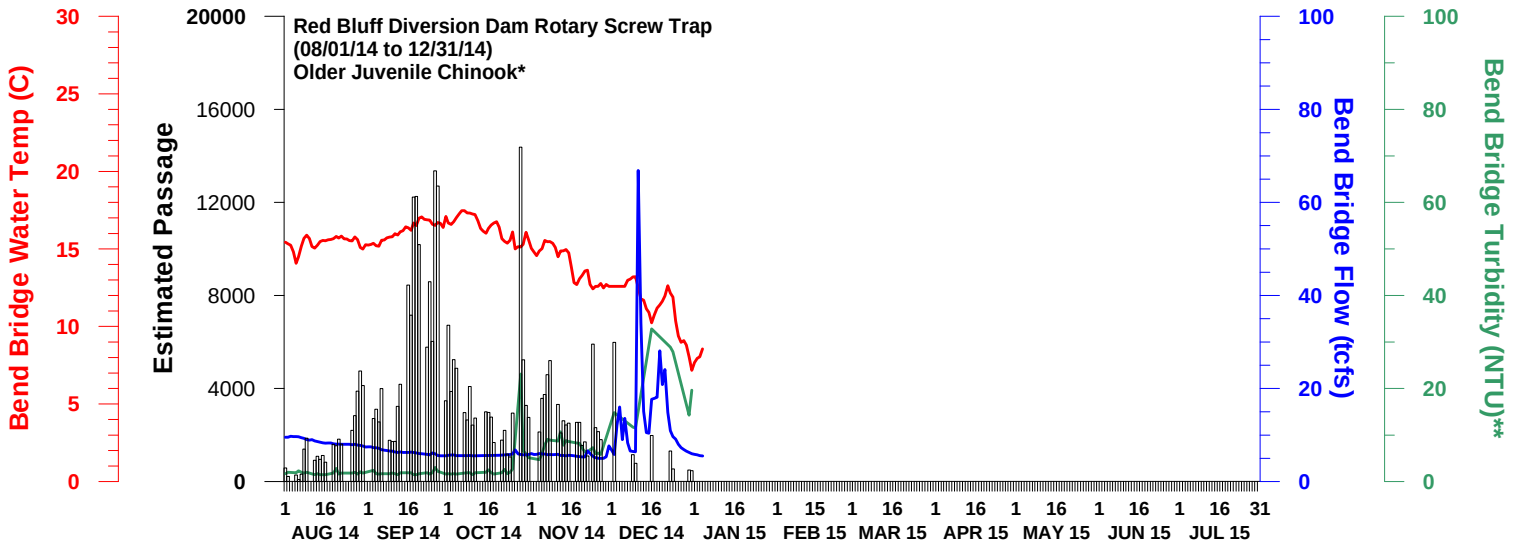
DOSS Advice

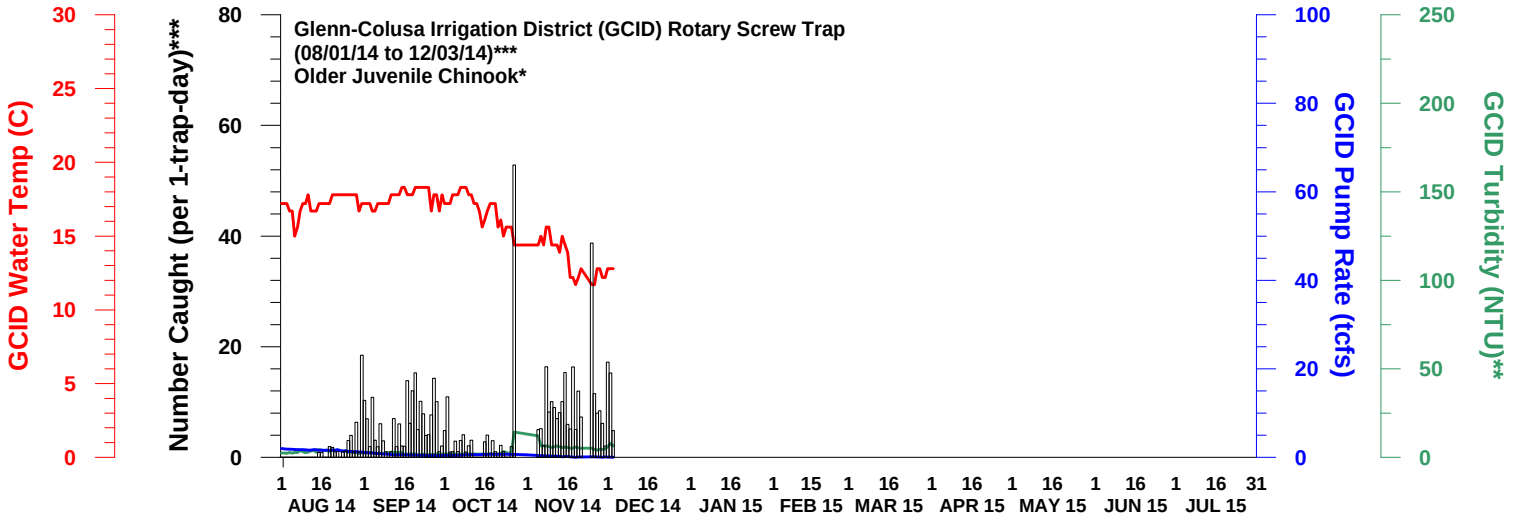
DOSS Advice to WOMT and NMFS: None for 1/6/15 related to RPA implementation.

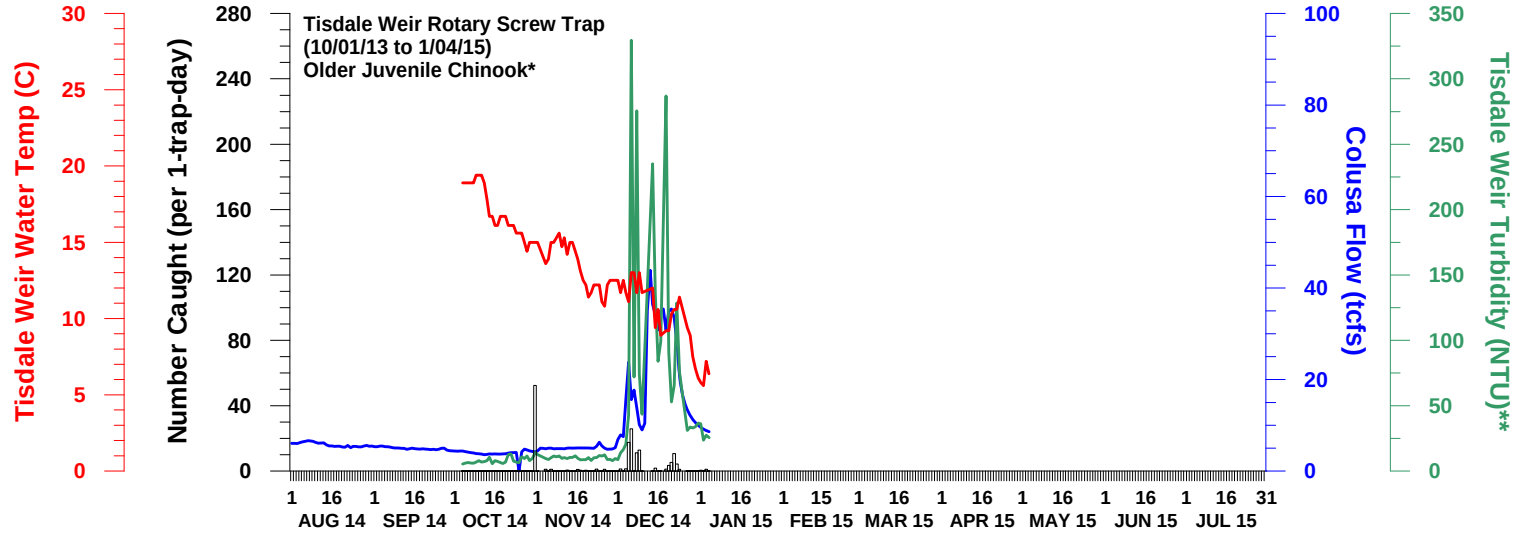
Next Meeting: The next DOSS conference call will be on 01/13/15 at 9am.

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







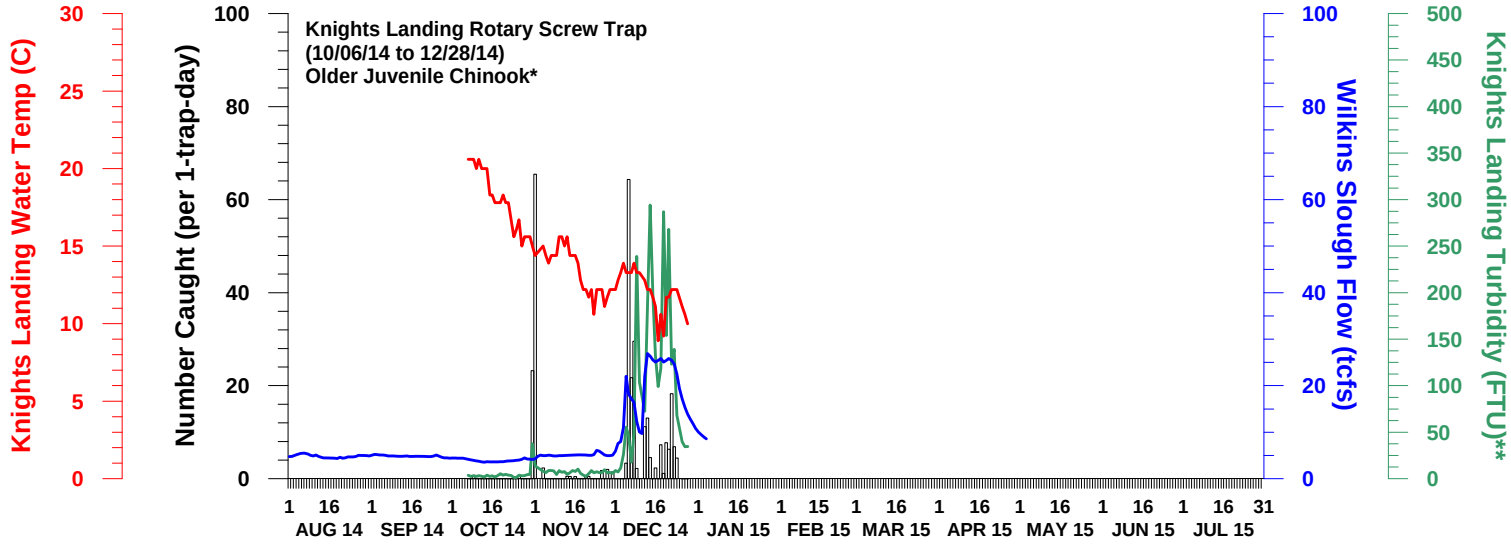
DWR-DES 5 JANUARY 2015
Preliminary data from DFW, FWS, GCID, and CDEC; subject to revision.

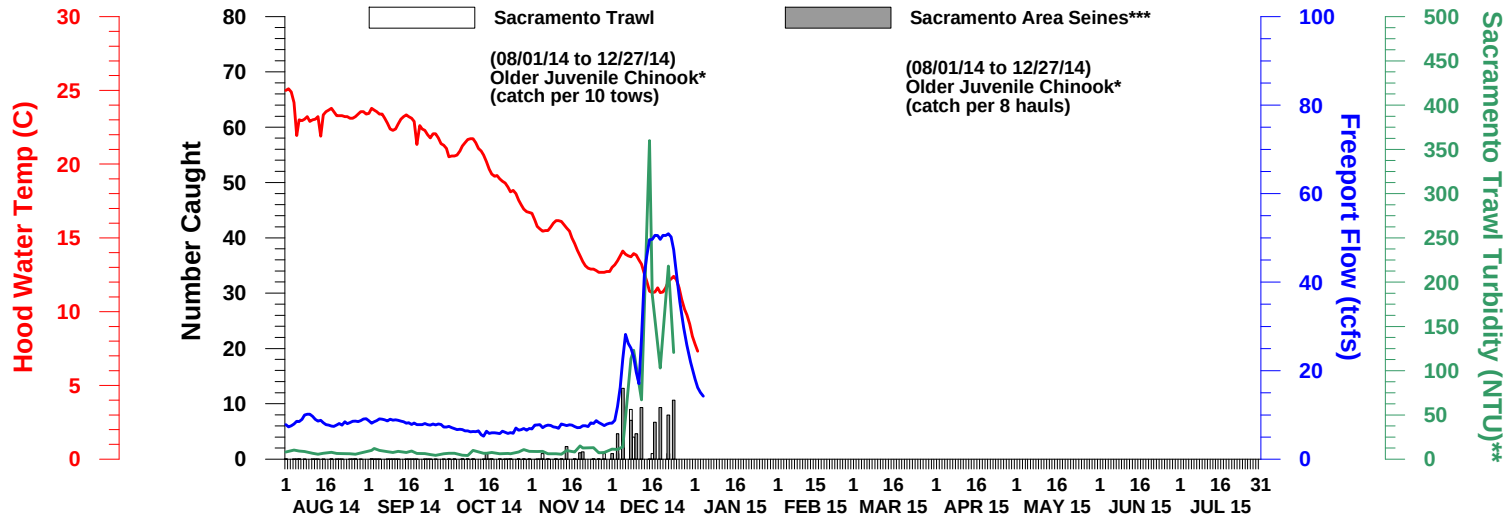
*Older juvenile Chinook defined as all Chinook greater than or equal to the minimum winter run length-at-date criteria and less than the maximum size included in the length-at-date criteria (Frank Fisher model) for which a race is assigned on a given sampling date.

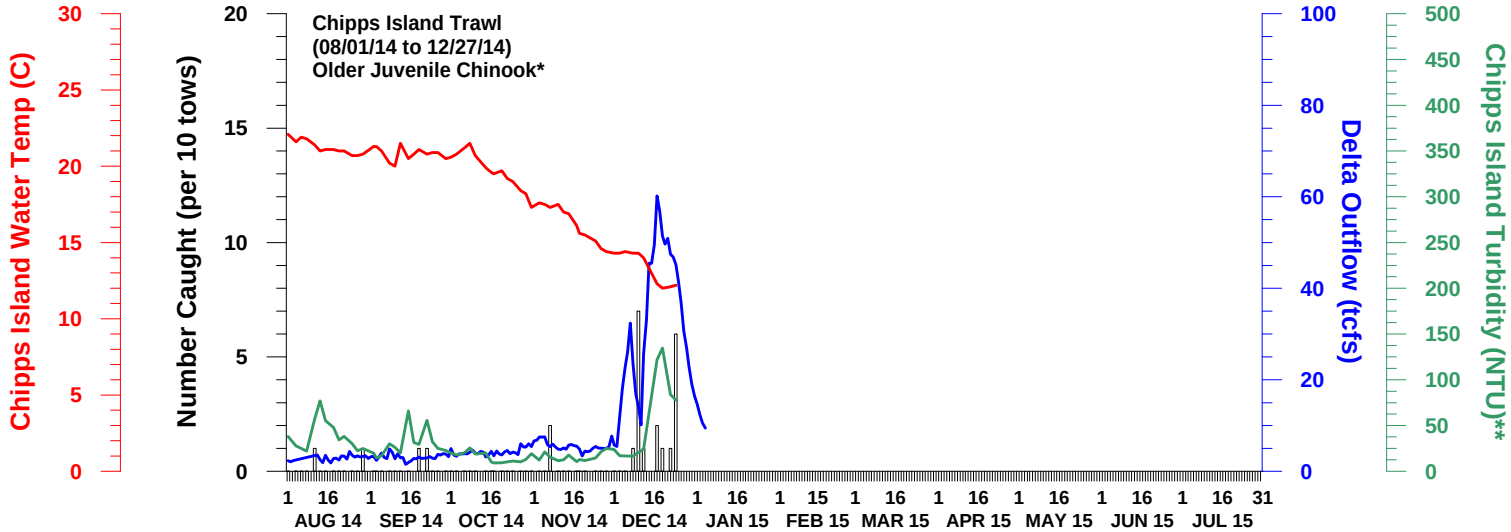
**Turbidity is a discrete measurement and is not measured continuously. Therefore, data are interpolated on days when turbidity was not measured unless data are missing for more than five days.

***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 has been pulled again on 12/3 14 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







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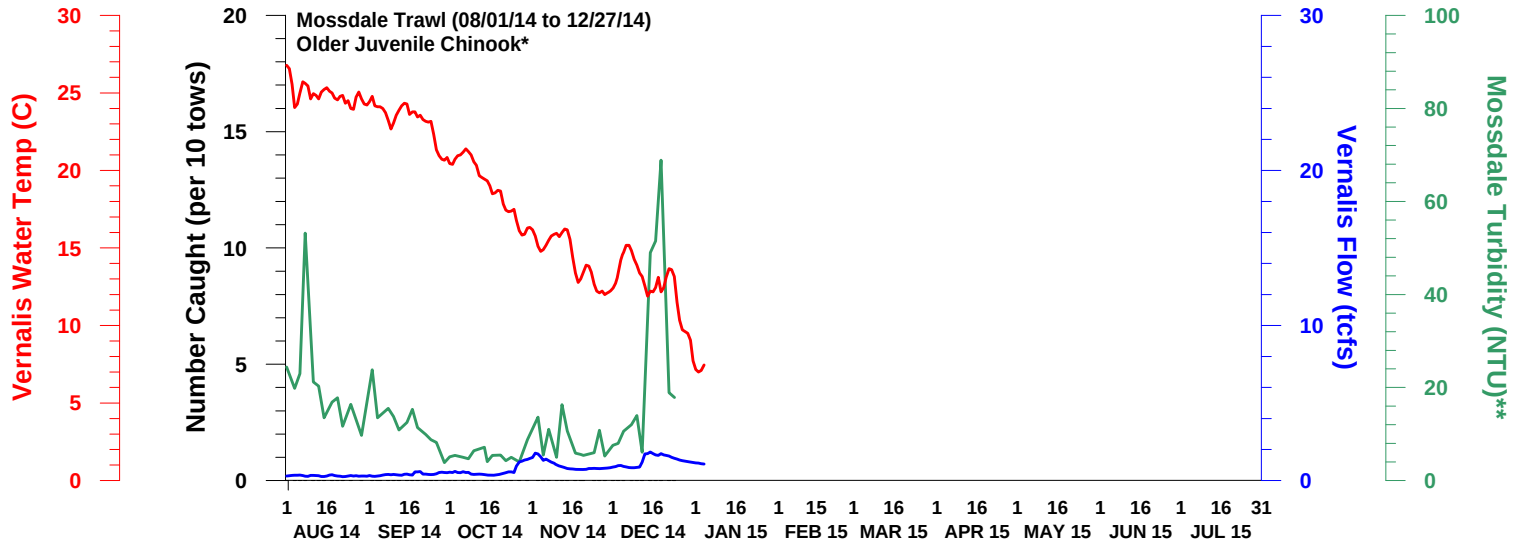
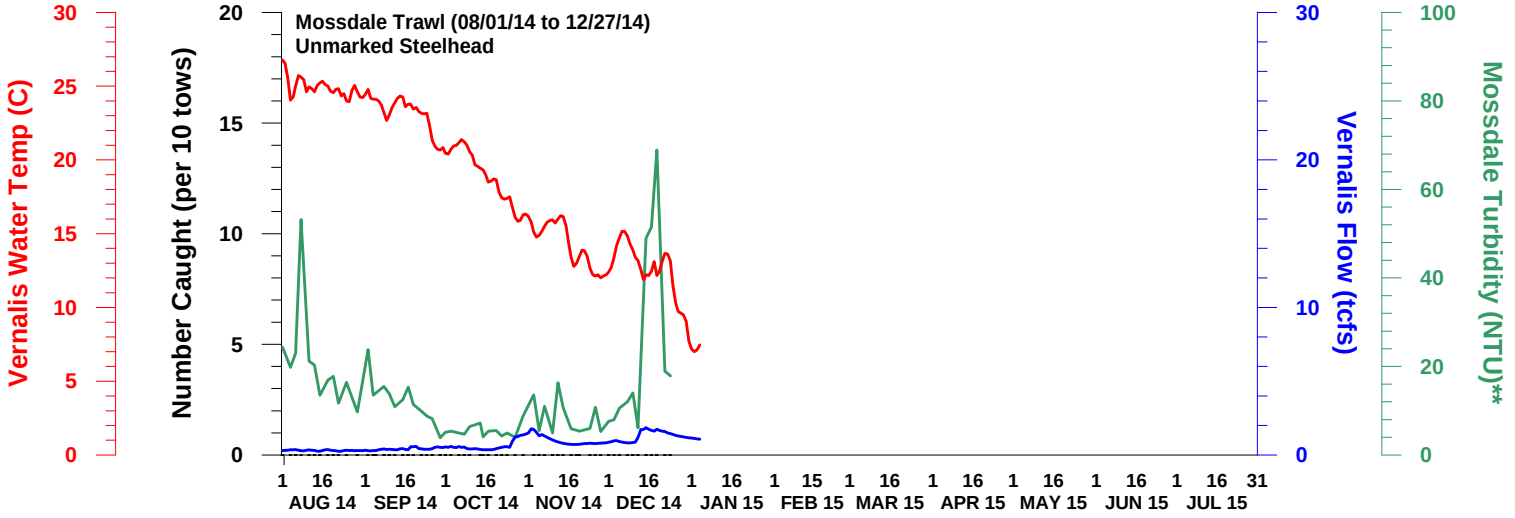
***Sacramento area seine route consists of the following seine sites: Verona, Elkhorn, Sand Cove, Discovery Park, American River, Miller Park, Sherwood Harbor, and Garcia Bend. Bars are stacked if Chinook caught from the trawl and seines are from the same day.

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





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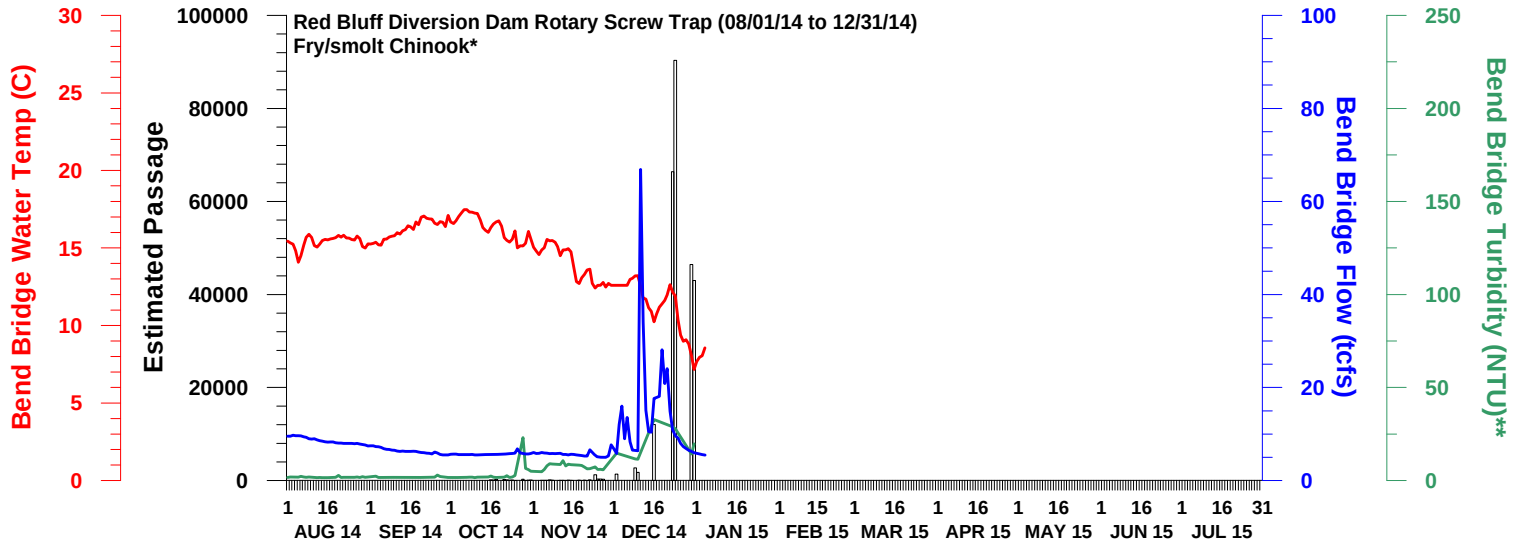
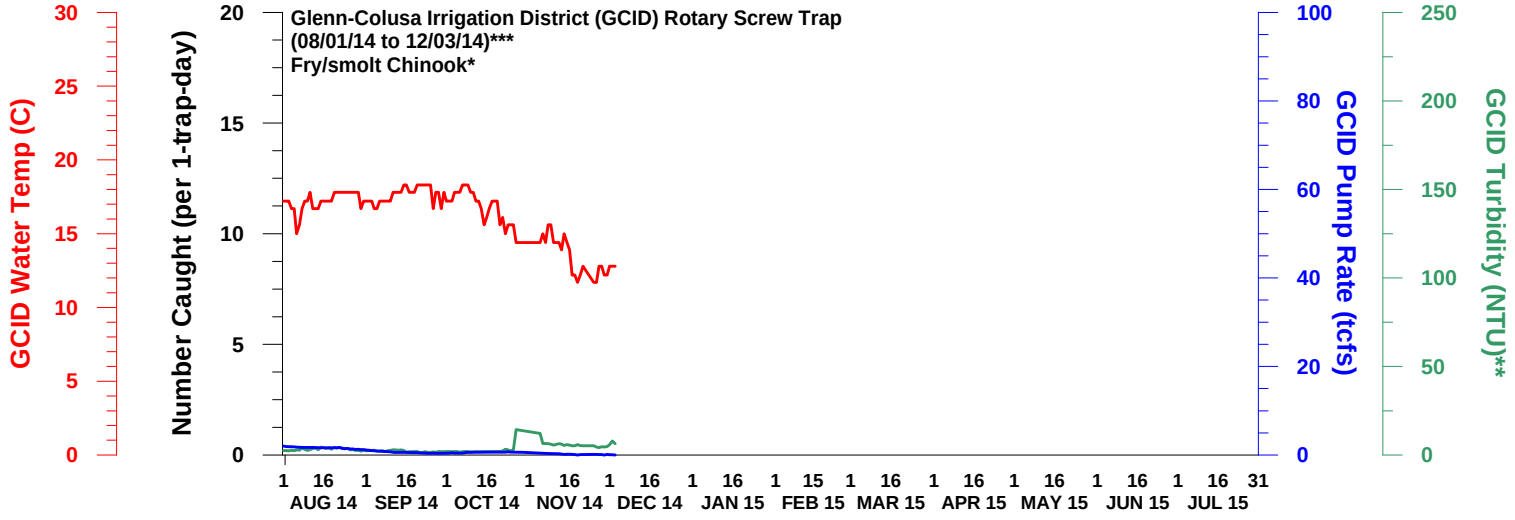
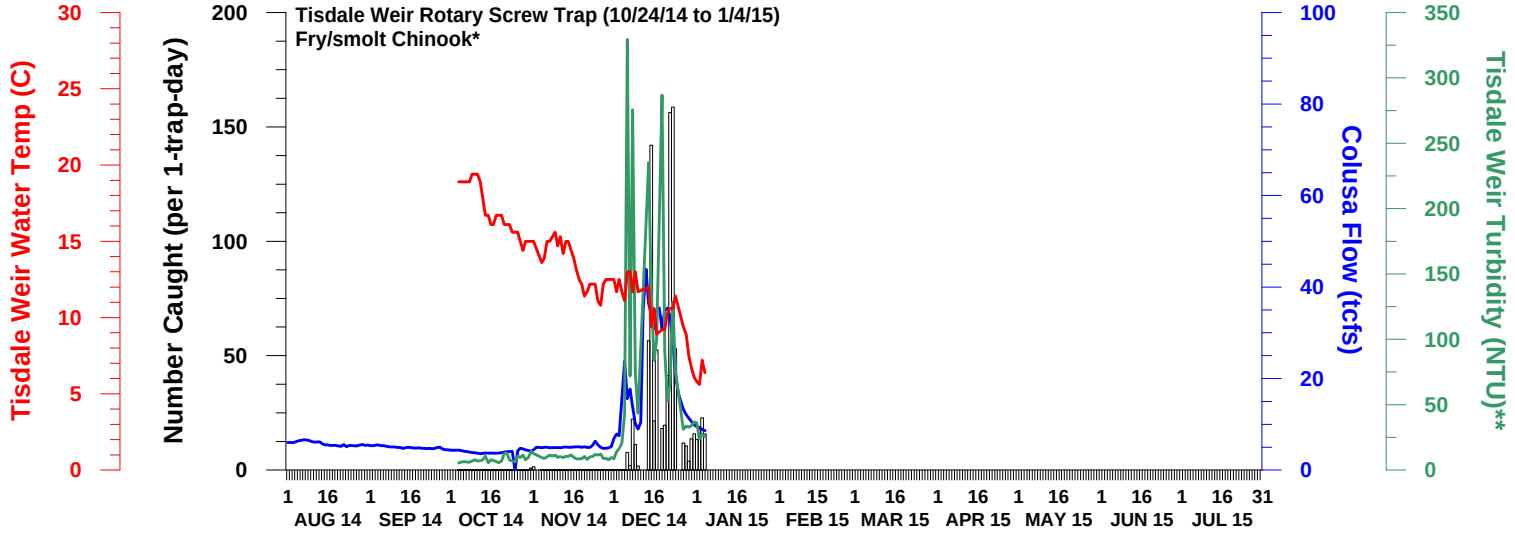
NUMBER OF UNMARKED FRY/SMOLT CHINOOK MEASURED IN THE SACRAMENTO RIVER







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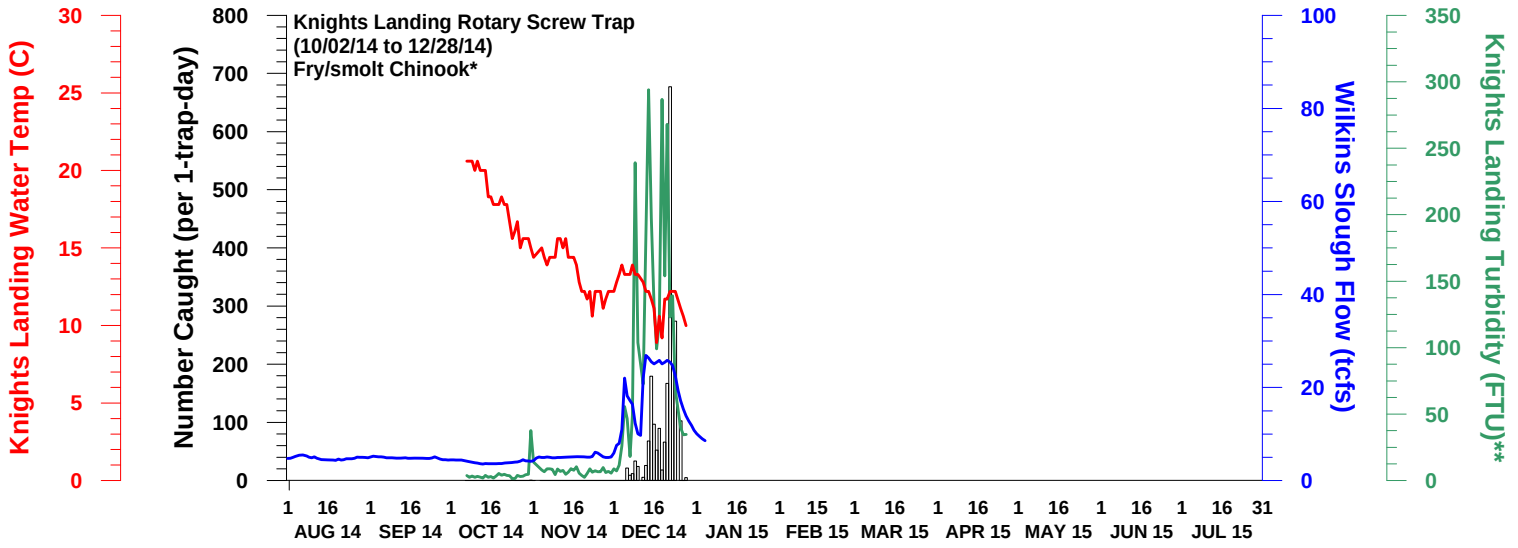

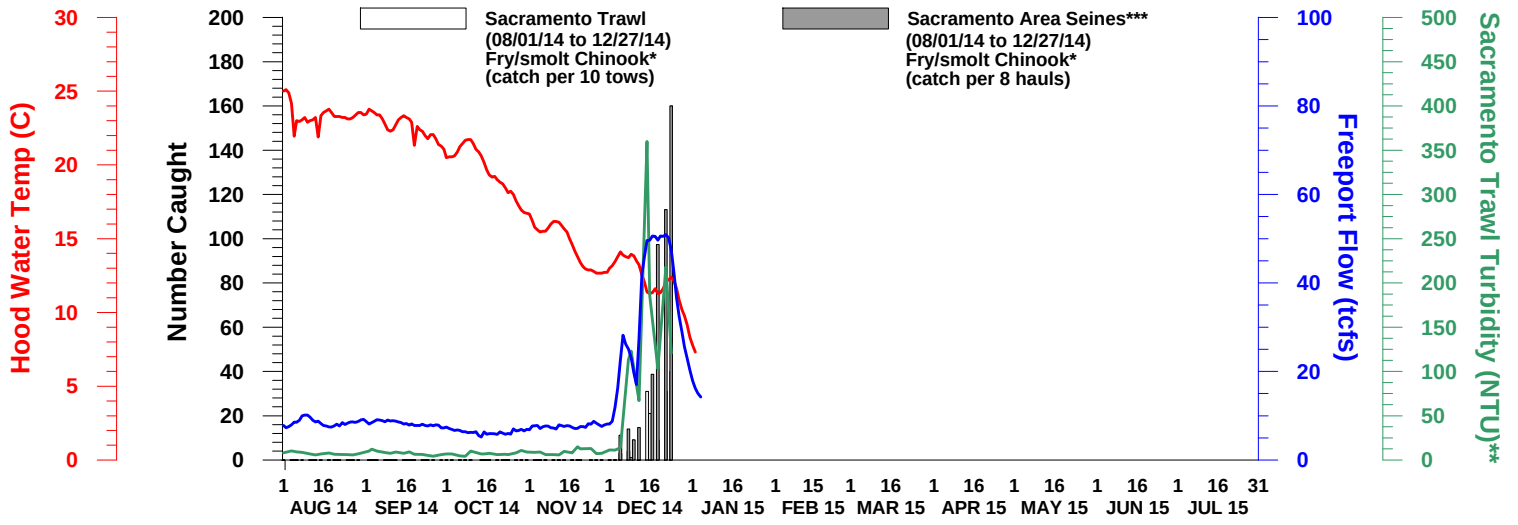

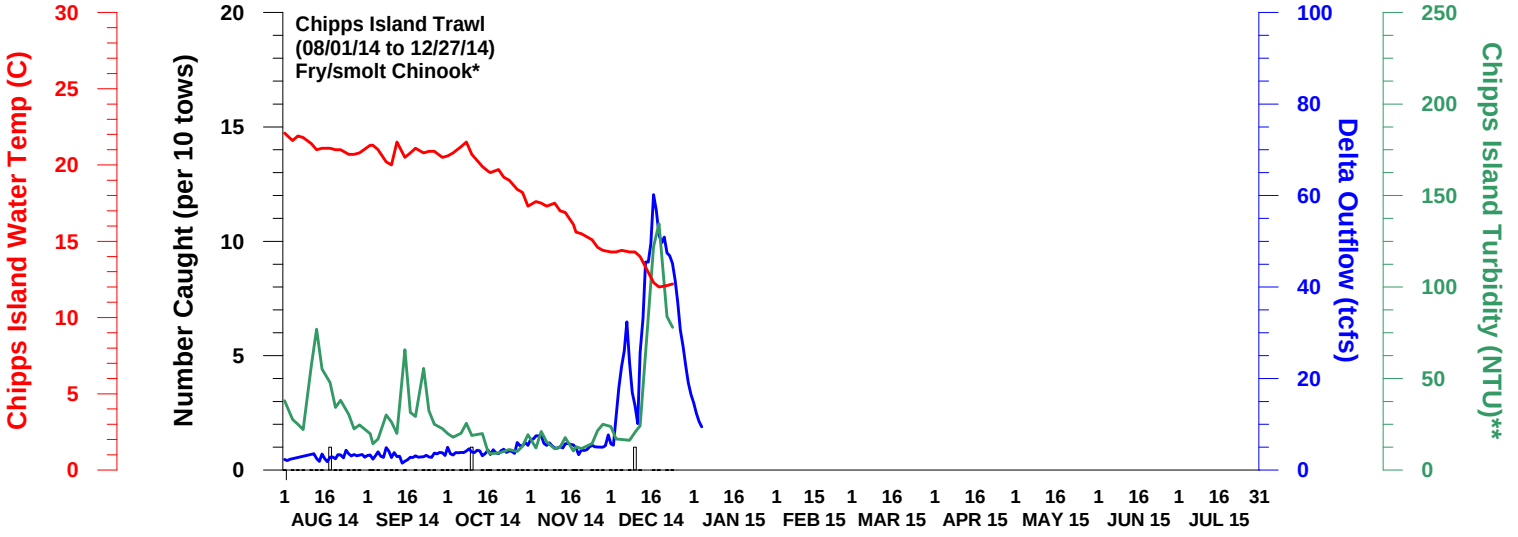

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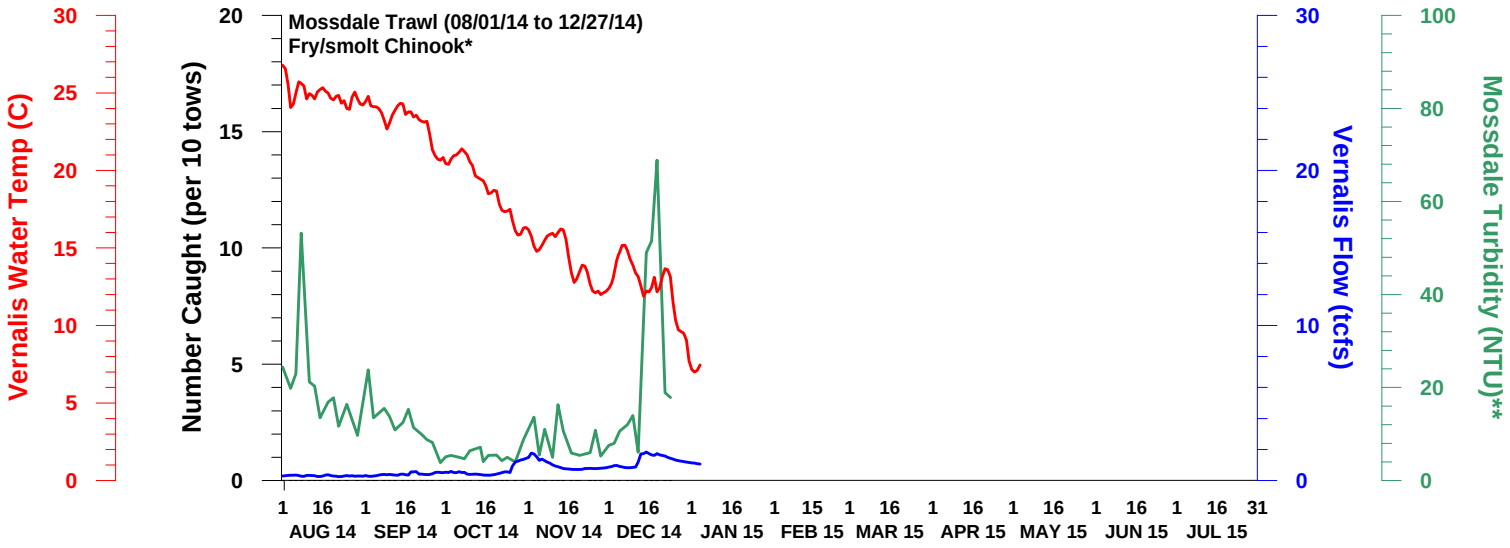
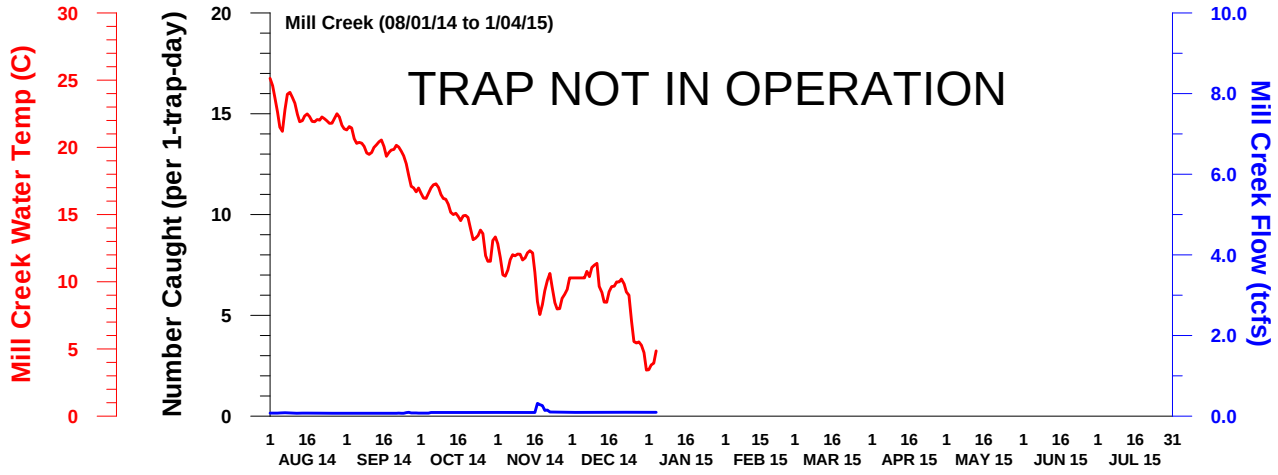
*Fry/smolt Chinook defined as all Chinook less than the minimum winter run length-at-date criteria (Frank Fisher model).
**Turbidity is a discrete measurement and is not measured continuously. Therefore, data are interpolated on days when turbidity was not measured unless data are missing for more than 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.

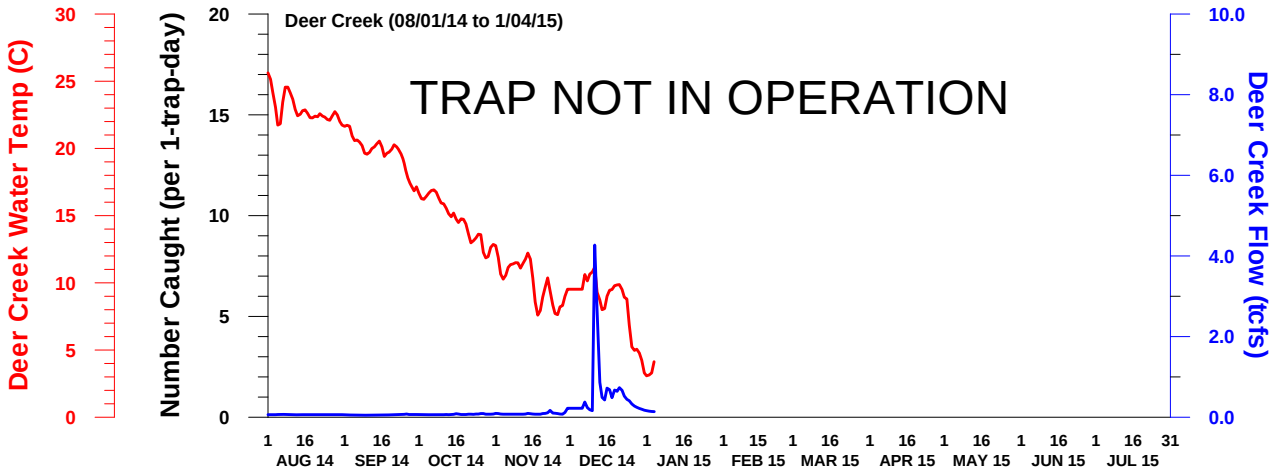
NUMBER OF UNMARKED FRY/SMOLT CHINOOK MEASURED IN THE SAN JOAQUIN RIVER



DWR-DES 5 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 5 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.

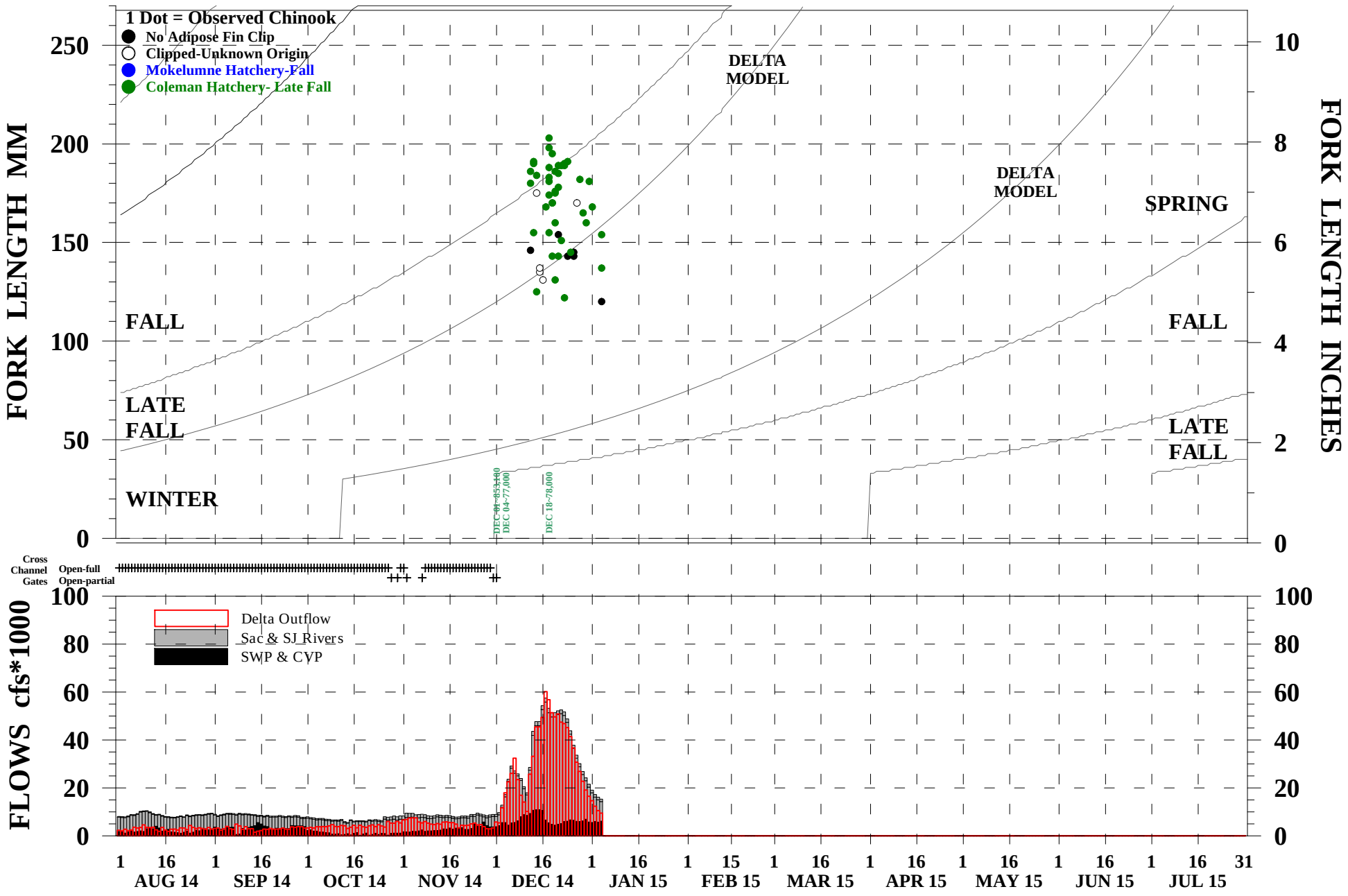
Sacramento River Trawl, Sacramento Area Beach Seine, and Chipps Island Trawl data were obtained directly from FWS, Stockton Fish and Wildlife Office (http://www.fws.gov/stockton/jfmp/).

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 1/04/2015



DWR-DES 05 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.

Summary about spring-run Chinook salmon emergence and emigration in Sacramento River tributaries (provided by CDFW):

Clear Creek:

Most Clear Creek have emigrated this year. Historically emigration peaks in December but continues through May because water temp is moderated by Whiskeytown releases (Table 2, pers. comm. Matt Johnson, Jason Roberts).

Battle Creek:

Battle Creek has more variation (longer emergence timing than Clear Creek) because system is more natural (colder water). RST is not currently operating so emigration timing this year cannot be determined but historically peaks in January and continues through May (Table 2, pers. comm. Matt Johnson, Jason Roberts)

Deer and Mill creeks:

RST and e-fishing data in upper tribs (watersheds) suggest Spring-run emigration on Deer and Mill occurs between December through June and peaks February through April (Table 2). Yearling emigration peaks October to December and continues into June (Table 2).

Butte Creek:

Butte Creek first yolk sac fry observed in RST on November 23rd, November 21st last year. Generally peak of emergence and emigration of fry is late January and February coinciding with winter flows (Table 1). Yearlings emigrate in the fall months peaking in November and December and into January (pers comm. Clint Garman). Please be aware that fall run salmon are prevented from spawning upstream from the Parrot Phelan Diversion Dam. Therefore, the data in Table 1 reflects only spring run emigration.

Feather River:

Feather River spring run usually begin emerging in mid/late November, emigration peaks in January and continues into March. The vast majority of all emigrants are fry and juveniles with few smolts and rare occurrence of yearlings (Ryon Kurth). Table 2; however, indicates that yearlings emigrate November through March with the peak occurring in December and January.

Yuba River:

Yuba River spring run YOY emigrate from October through June with the peak occurring in January and February. Yearling outmigration occurs October through March and peaks December and January.

Table 1. Semi-monthly catch summary of SRCS caught in the screen trap at Parrott-Phelan Diversion Dam from November 13, 2012 to June 30, 2013; yearling captures are included.

Trapping Period		Mean FL (mm)	Standard Deviation	Range FL (mm)		Total No. Captured	No. Trapping Days
11/01/12	11/15/12	110	-	110	110	1	2
11/16/12	11/30/12	44.4	31.0	26	163	74	11
12/01/12	12/15/12	35.3	10.9	30	113	655	9
12/16/12	12/31/12	34.1	1.6	30	40	1,023	11
1/01/13	1/15/13	34.8	2.9	30	106	2,300	15
1/16/13	1/31/13	35.0	1.3	32	39	12,801	16
2/01/13	2/15/13	35.1	1.3	31	42	14,813	15
2/16/13	2/28/13	35.4	1.6	32	45	9,934	13
3/01/13	3/15/13	35.8	2.4	32	53	7,085	15
3/16/13	3/31/13	38.4	7.5	31	132	724	16
4/01/13	4/15/13	50.2	13.4	25	83	233	15
4/16/13	4/30/13	64.0	7.7	34	96	650	15
5/01/13	5/15/13	65.4	8.4	42	91	168	15
5/16/13	5/31/13	70.0	6.5	51	87	127	16
6/01/13	6/15/13	73.7	14.5	46	85	6	15
6/16/13	6/30/13	-	-	-	-	0	15
					Total	50,594	214