

Delta Operations for Salmonids and Sturgeon (DOSS) Group
Conference call: 12/08/2015 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: Kevin Reece, Aaron Miller, Mike Ford, Rhiannon Mulligan

Reclamation: Josh Israel, Peggy Manza, Michele Palmer

NMFS: Jeff Stuart, Meiling Roddam

CDFW: Duane Linander, Ken Kundargi, Russ Bellmer

SWRCB: Matt Holland

Agenda Items

1. Agenda review and introductions
2. RPA Implementation review
3. Current Operations
4. Fish Monitoring
5. DCC Flex request
6. NMFS Coverage of Chinook tissue sampling in monitoring
7. DOSS Advice
8. Next DOSS meeting

Agenda Item 2.

RPA Implementation Review

Delta RPA Actions that may affect operations during December:

Action IV.1.1 (Alerts that indicate the Delta Cross Channel (DCC) gate operations may be triggered soon)¹:

- Recent (12/1-12/7/15) conditions for:
 - Wilkins Slough flow: 4,050-4,758 cfs (range of mean daily flow)
 - Knights Landing temperature: 46-50°F (range of temperatures reported at the rotary screw traps during trap checks)
 - Mill Creek and Deer Creek flows [highlighted cells exceeded the first component (95 cfs flow threshold) or second component (>50% flow change) in first alert]:

¹ For details, see pages 60-61 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. Note that in October 2014, NMFS approved a modification of the first component of the first alert to a 95 cfs mean daily flow threshold in either Mill Creek or Deer Creek in lieu of operating the Mill and Deer Creek rotary screw traps.

Date	Mill Creek (MLM)		Deer Creek (DCV)	
	mean daily flow	% increase in mean daily flow	mean daily flow	% increase in mean daily flow
12/1/2015	80	-	69	-
12/2/2015	81	1.3%	70	1.4%
12/3/2015	89	9.9%	75	7.1%
12/4/2015	117	31.5%	98	30.7%
12/5/2015	101	-13.7%	90	-8.2%
12/6/2015	111	9.9%	85	-5.6%
12/7/2015	130	17.1%	104	22.4%

- The first alert (triggered if either component is met) was triggered based on Mill Creek and Deer Creek flows >95 cfs (either or both creeks; see table above for details) on 12/4/15, 12/5/15, 12/6/15, and 12/7/15.
- The first component of the second alert was met based on Knights Landing temperatures less than 56.3°F on 12/1-12/7, but the second component (Wilkins Slough flows >7,500 cfs) was not met; the second alert is not triggered unless both components are met.

Action IV.1.2² (DCC gate operations):

- DCC gates were opened at 3:00 pm on 12/4/15 per DCC flexibility request³ by Reclamation to alleviate elevated salinity conditions in the Delta interior.

Action IV.3⁴ (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 (12/08/2015)

SWP		CVP	
Exports (cfs)			
Clifton Court Forebay	200	Jones Pumping Plant	400
Reservoir Releases (cfs)			
Feather - Oroville	2,000*	American - Nimbus	500
		Sacramento - Keswick	4,250

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 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. 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

⁴ 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

		Stanislaus - Goodwin	200
		Trinity - Lewiston	300
Reservoir Storage (in TAF)			
San Luis (SWP)	295	San Luis (CVP)	79
Oroville	914	Shasta	1,320
New Melones	269	Folsom	136
Delta Operations			
DCC	Open	Sacramento River at Freeport (cfs)	7,993
Outflow Index (cfs)	~6,900	San Joaquin River at Vernalis (cfs)	609
E:I	~7% (3-day avg.)	X2	>81 km

*Increased from 1,200 cfs due to water quality concerns in the Delta.

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 (12/8) Mean daily in milliSiemens/cm
Jersey Point	1.8	2.3
Bethel Island	~ 1	1.5
Holland Tract	0.8	~ 1
Bacon Island	0.7	0.94

OMR reported (in cfs):

Date: 12/5/15	5-day	14-day
USGS Gauges	-645	-974
Index	-712	-945

The weather forecast shows a storm in the upper Central Valley by early Thursday morning (12/10/15), which may produce up to 2 inches of precipitation in the upper Valley. Another smaller storm is expected on Sunday, 12/13/15. Stuart (NMFS) sent DOSS four hydrographs from the National Weather Service's CA-NV River Forecast Center that showed the predicted increase in flows from the coming storms at Colusa, Red Bluff, and Verona on the Sacramento River; and that showed no changes in flows are predicted at Vernalis in the San Joaquin River.

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	Sacramento Trawl	Beach Seines	Knights Landing RST ^A	Tisdale RST ^B	GCID RST	Mossdale Kodiak Trawl
Sample Date	11/29-12/5	11/29-12/5	11/29-12/5	11/30-12/6	11/29-12/7	12/1-12/7	11/29-12/5
Total Catch	0	0	0	0	0	37	0
FR Chinook						2	
WR Chinook						13	
SR Chinook						1	
LFR Chinook						21	
Ad-Clipped Chinook							
Steelhead (wild)							
Steelhead (ad-clip)							
Green Sturgeon							
Delta Smelt							
Splittail							
Longfin Smelt							
Flows (avg. cfs)				4,241	4,388	818	
W. Temp. (avg. °F)				47	49	52	
Turbidity (avg. NTU)				4.32	8	5	

^A Sampling period was from 11/30 at 9:00 am to 12/6 at 12:30 pm

^B Sampling period was from 11/29 at 9:30 am to 12/7 at 8:00 am.

It was also noted that 1 Delta Smelt was caught in the Jersey Point Trawl on Monday, 12/07/15 in the daily Early Warning Monitoring surveys.

Red Bluff Diversion Dam (RBDD)

USFWS biweekly report (11/19/15-12/2/15) for preliminary estimates of passage by brood-year and run for unmarked juvenile Chinook salmon captured by rotary screw traps at RBDD included:

Run and Species	Biweekly Total	Brood Year Total
Winter-run Chinook (BY2015)	16,711	269,386

Fish Salvage⁵: 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 the bulk of young-of-year winter-run Chinook are still upstream of the Delta (~95%). No increase in catch has yet been observed at monitoring stations downstream of GCID. As of 12/08/15, DOSS believes that there is no change in the distribution of the listed Chinook and steelhead from the preceding week. However, with the upcoming storms and predicted amounts of precipitation, DOSS estimated that the predicted increases in flows in the upper Sacramento River and the associated increase in turbidity is likely to trigger downstream fish movement.

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>	>95% (same last week)	<5% (same last week)	0% (same last week)

Agenda Item 5.

DCC Flex Request

On 12/02/15, Reclamation submitted an official request for DCC gate operations flexibility during December 1-14. On 12/4/15 NMFS responded to Reclamation’s request. DCC gates will remain open until catch triggers are exceeded or until salinity concerns levels at any one of the select locations are no longer exceeded.

Agenda Item 6.

NMFS Coverage of Chinook tissue sampling in monitoring

- During the 12/1/15 DOSS call, interest was expressed in obtaining tissue samples from yearling-sized Chinook (late-fall-run, fall-run, or spring-run) caught in the monitoring reviewed by DOSS each week for genetic assessment and whether tissue collection was permitted through the section 10 research permits issued by NMFS for these monitoring efforts.
 - NMFS reviewed Section 10 permits for this year, and a summary of NMFS coverage of Chinook tissue sampling in the monitoring was sent to DOSS as a follow-up to this discussion.
- During the 12/8/15 call, DOSS discussed the general process and purpose of getting tissue samples from yearling-sized Chinook in the monitoring programs.
 - In the long term, genetic analysis of yearling-sized Chinook caught in monitoring programs can help improve the monitoring system for Chinook run distribution and stock assessment.

⁵Salvage 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.

- During the 12/8/15 DOSS call, CDFW indicated that a study plan was required in order for tissue sampling to be allowed under the State's permitting process.
- It was discussed that a general next step is for NMFS to meet with Reclamation, DWR, CDFW, and USFWS to figure out a study plan to determine the genetic profiles of all Chinook runs.

Agenda Item 7.

DOSS Advice to WOMT and NMFS: None.

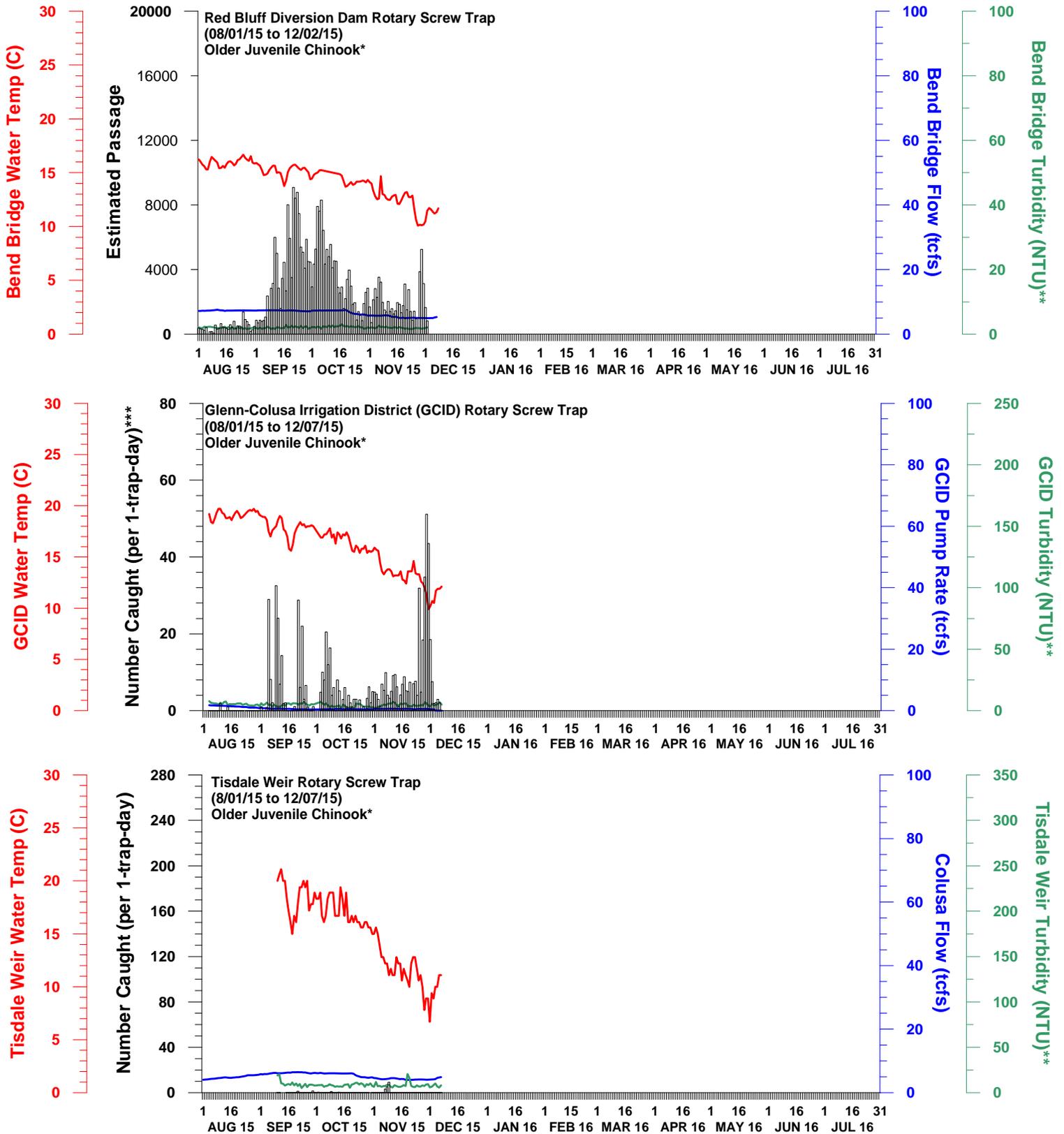
Agenda Item 8.

Next Meeting: The next DOSS conference call will be on 12/15/15 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>

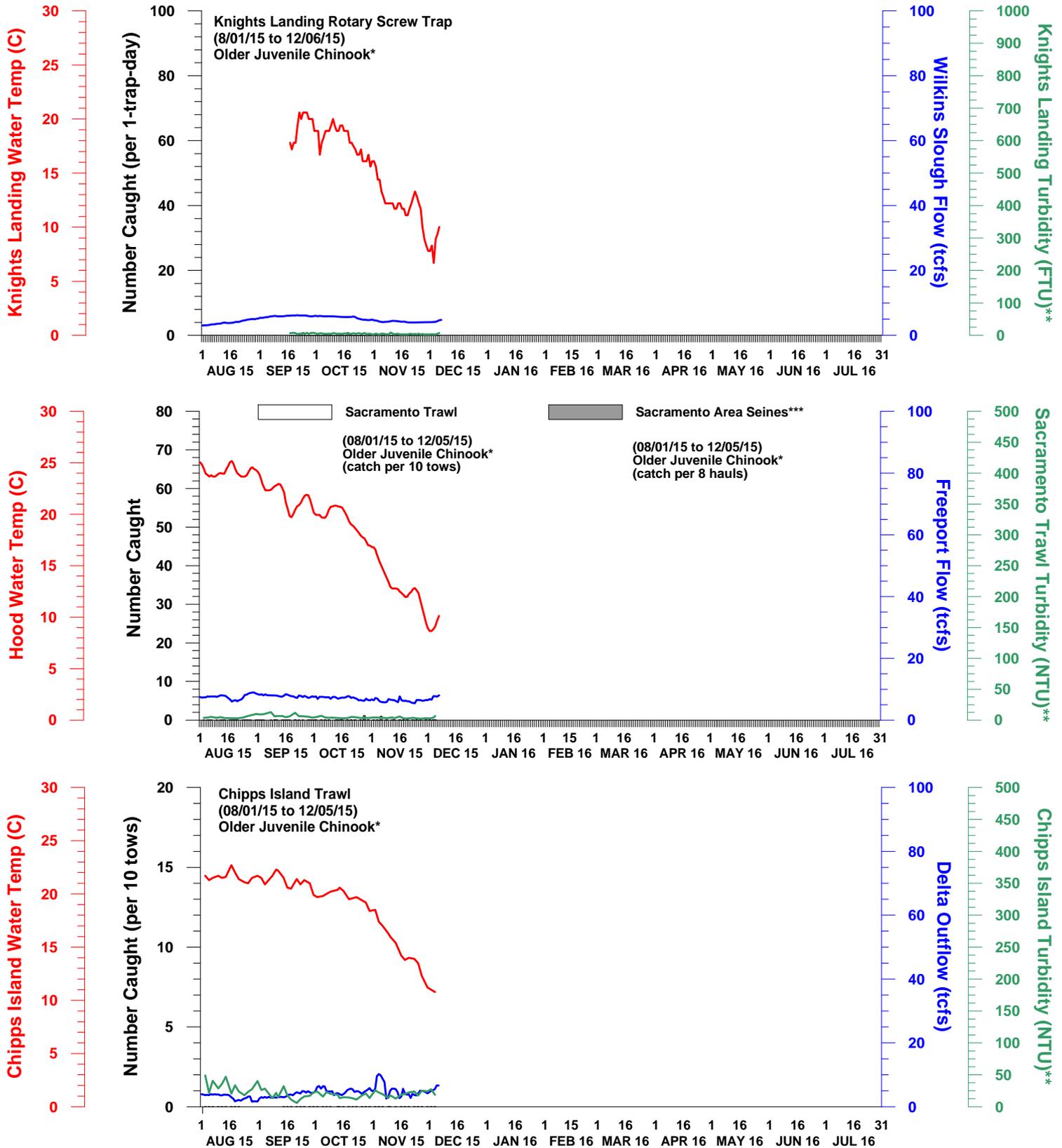
NUMBER OF UNMARKED OLDER JUVENILE CHINOOK MEASURED IN THE SACRAMENTO RIVER



DWR-DES 8 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.

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



DWR-DES 8 December 2015

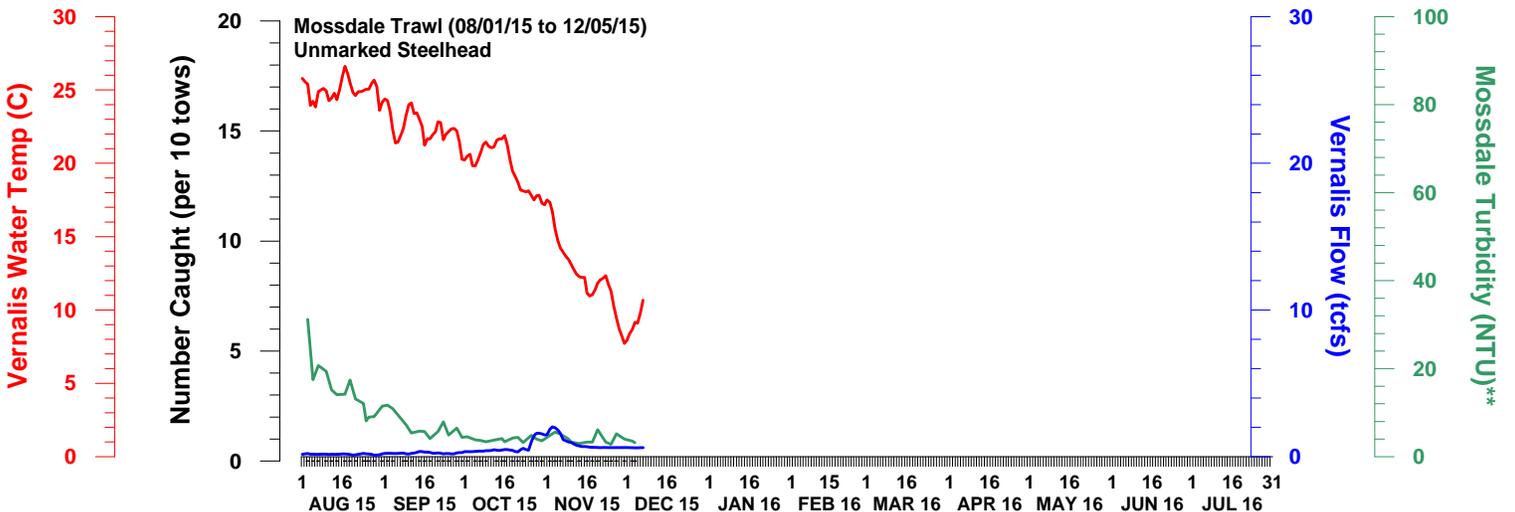
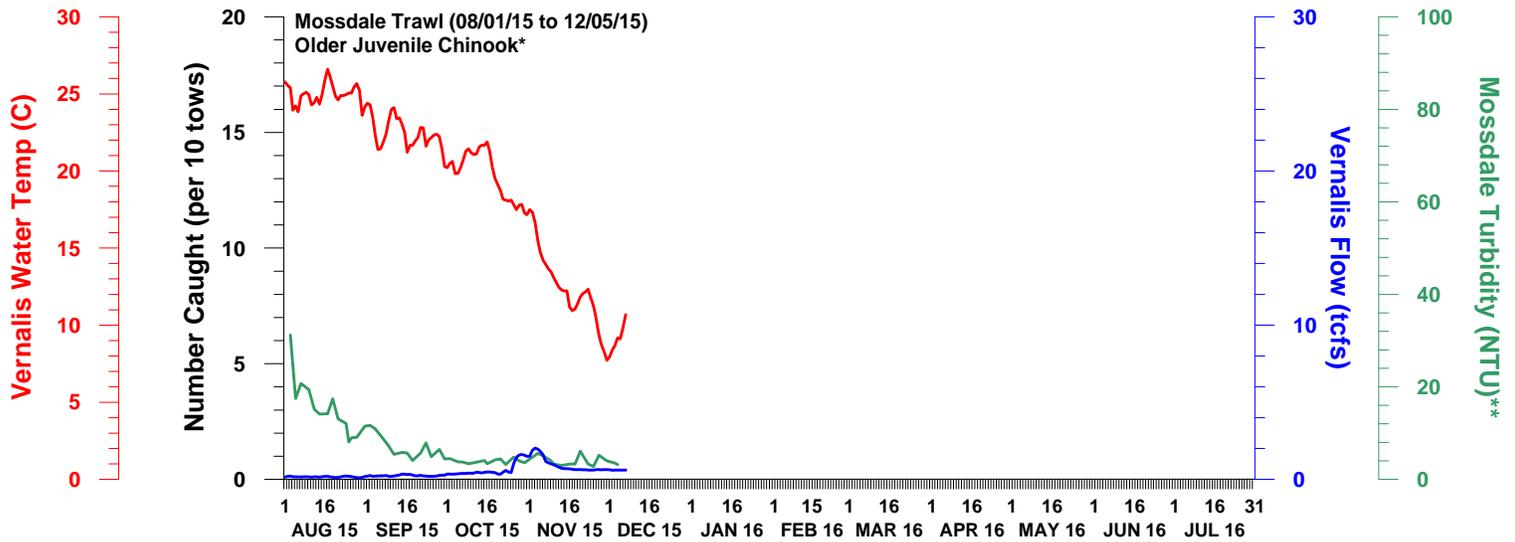
Preliminary data from DFW, FWS, and CDEC; subject to revision.

*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

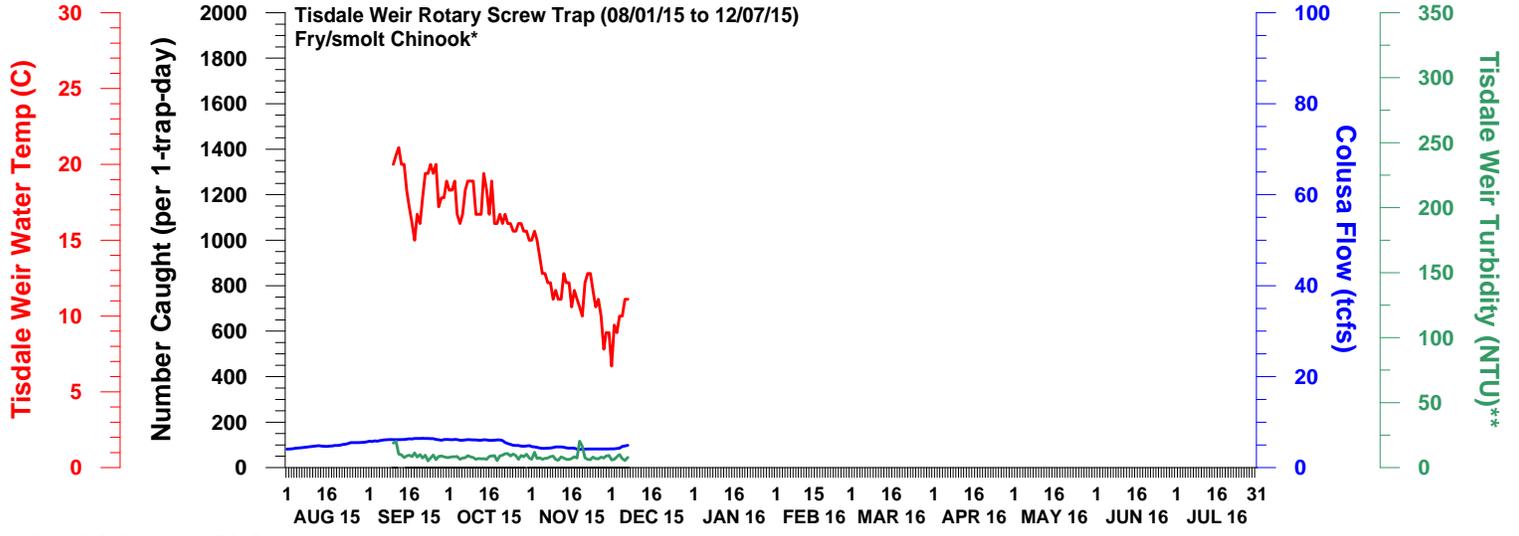
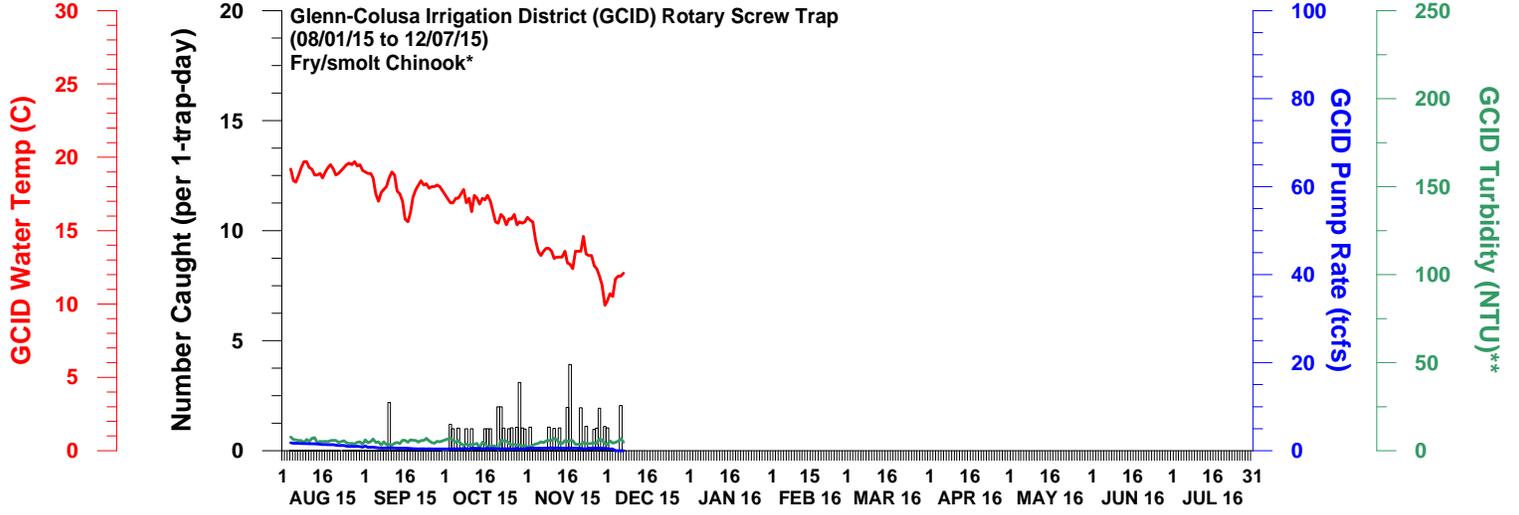
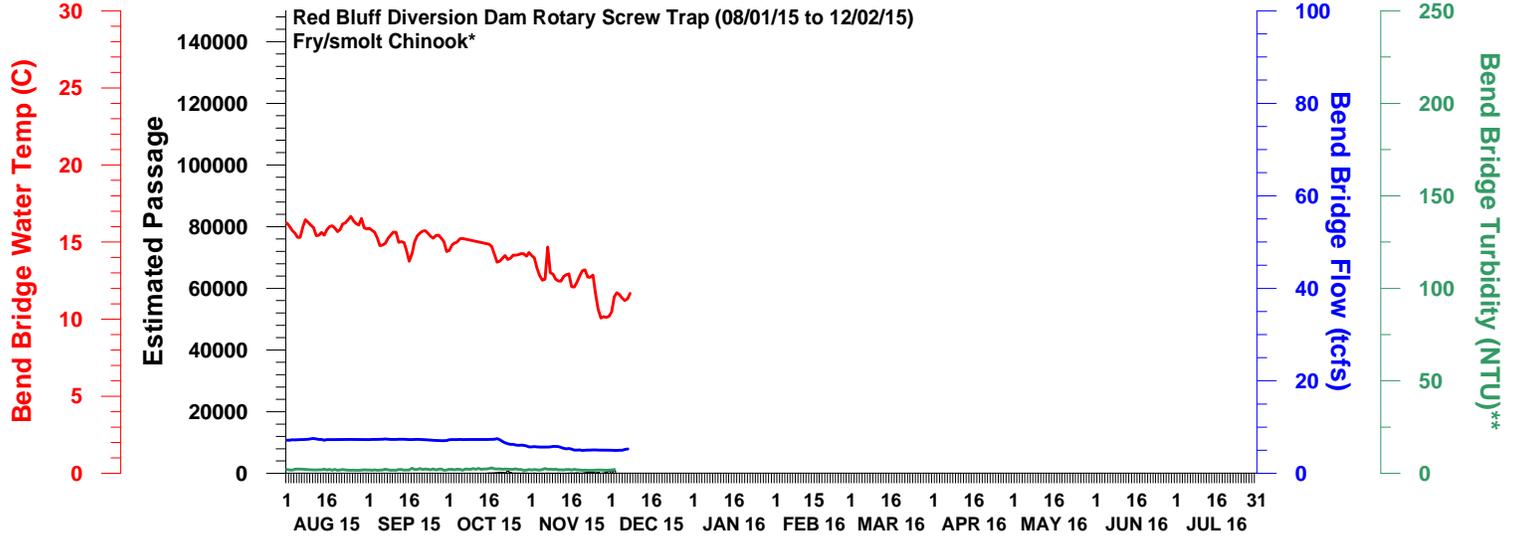


DWR-DES 8 December 2015
Preliminary data from FWS and CDEC; subject to revision.

*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.

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

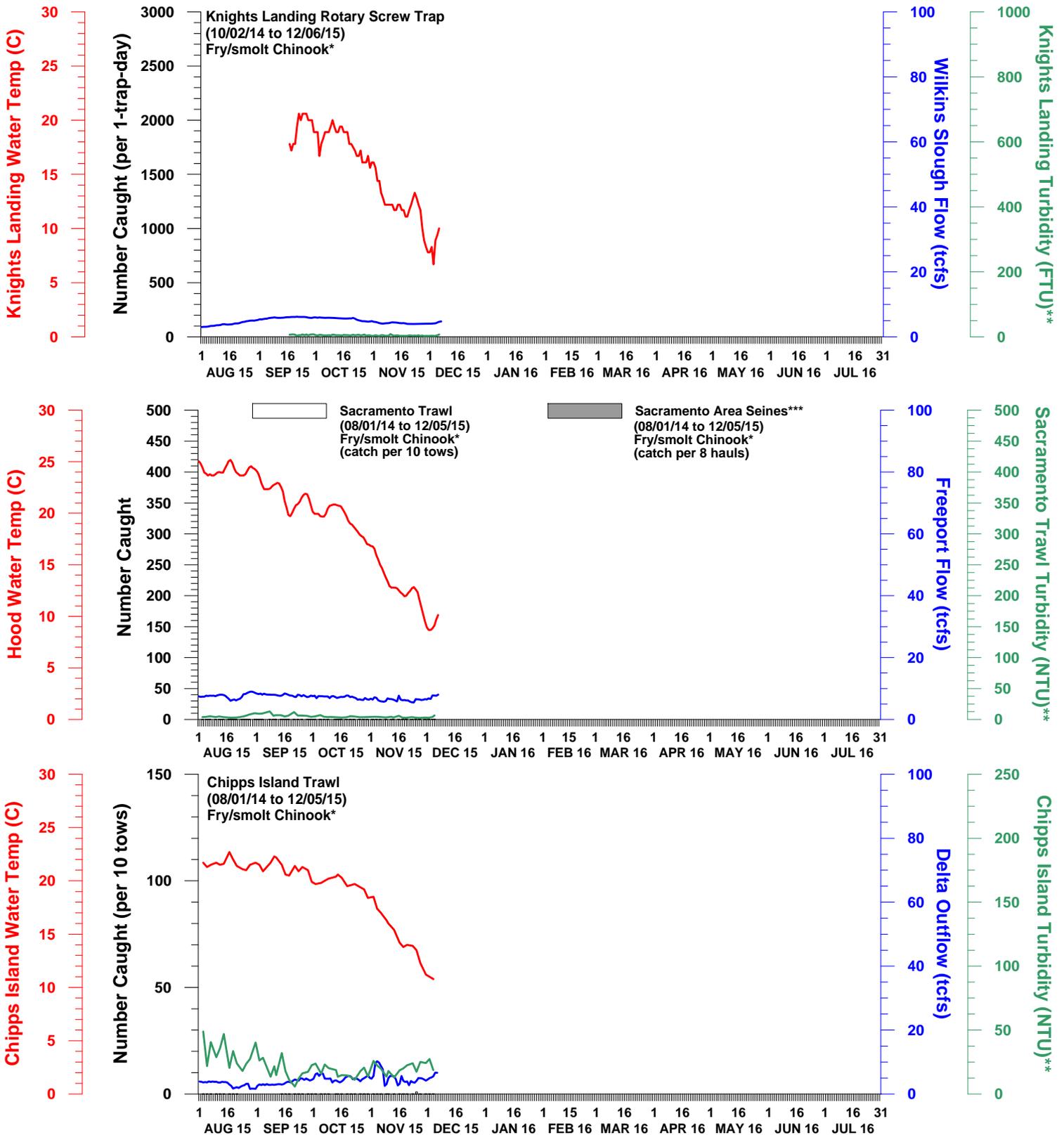


DWR-DES 8 December 2015
Preliminary data from DFW, FWS, GCID, and CDEC; subject to revision.

*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.

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



DWR-DES 8 December 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.

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).

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).