Weekly Fish and Water Operations Outlook 11/30/2021 – 12/06/2021

Dry weather continues through this week. Expect cool mornings with local fog, and mild afternoons. Locally breezy winds on Tuesday and Wednesday. Extended forecast indicates chances of widespread, but light, precipitation next week.

Tributary/ Division	Anticipated Weekly Ranges	Related Environmental and Fish Conditions*
Clear Creek	• Current Release: 200 cfs • Anticipated Weekly Range of Releases: 200 cfs	• Spring-run Chinook Salmon eggs are incubating and hatching, and fry are rearing in the system • Adult fall-run Chinook Salmon spawning continues, peak has passed. Many millions of Fall-run Chinook Salmon eggs are incubating in the gravel • O. mykiss and steelhead adults present, their migrations into Clear Creek and upstream into Clear Creek will continue through the next few months. Spawning season begins in December. • Late-fall run Chinook Salmon migrating. Spawning season begins in December. (*updated 11/22/2021*)
Sacramento River	• Shasta Storage: 1.116 MAF • Current Release: 3,250 cfs • Anticipated Weekly Range of Releases: 3,250 cfs	• Winter-run Chinook Salmon juveniles present • Spring-run Chinook Salmon spawned eggs, alevins in gravel, some fry present • Fall-run Chinook Salmon adult spawning, eggs and alevin in gravel, and some adults still holding and waiting to spawn in November • Late fall-run Chinook Salmon holding • Green Sturgeon adults and juvenile present • Adult and juvenile steelhead present (*updated 11/16/21*)

Tributary/ Division	Anticipated Weekly Ranges	Related Environmental and Fish Conditions*
Feather River	• Oroville Storage: 1.053 MAF • Current Release: 1,150 cfs • Anticipated Weekly Range of Releases: 1,150 cfs • Daily temperature targets: 51°F (±4°F) at Fish Hatchery	• Fall-run Chinook Salmon spawning, eggs and alevin in gravel. • Juvenile and Adult steelhead present • Spring-run Chinook Salmon eggs and alevins in gravel. (*updated 11/23/21*)
American River	• Folsom Storage: 355 TAF • Current Release: 550 cfs • Anticipated Weekly Range of Releases: 550 cfs	• Fall-run Chinook Salmon holding and spawning. Eggs are in gravel. • Juvenile and adult steelhead are present. *(updated 11/18/21)*
Stanislaus River	• New Melones Storage: 860 TAF • Current Release: 200 cfs • Anticipated Range of Weekly Releases: 200 cfs	• Juvenile and adult *O. mykiss* expected to be present • Adult fall-run Chinook Salmon present • Adult Chinook Salmon spawning observed (*updated 11/18/21)*
Delta	• Freeport: 5,000 to 6,500 cfs • Vernalis: 500 to 700 cfs • Delta Outflow index: 2,500 to 3,000 cfs • Combined Exports: 1,000 to 2,000 cfs • JPP: 800 cfs to 1,700 cfs • CCF: 200 cfs to 300 cfs • Expected OMR Index Values: -1,000 to -2,000 cfs • DCC Gates: Closed on 11/30 for Rio Vista flow requirements and will remain closed for seasonal closure on 12/1.	• Juvenile winter-run Chinook Salmon 69-74% yet to enter Delta, 25-30% in Delta, 0-1% exited Delta past Chipps Island • YOY spring-run Chinook Salmon: 97-100% yet to enter Delta, 0-3% in Delta, 0% exited past Chipps Island • Juvenile Steelhead: 93-98% yet to enter Delta, 2-6% in Delta, 0-1% exited Delta past Chipps Island • Adult fall-run Chinook Salmon entering Delta and migrating upstream towards spawning grounds • Adult steelhead present • Adult and juvenile Green Sturgeon present • Subadult Delta Smelt expected to be present in the Sacramento Deep Water Ship Channel and in the vicinity of X2. • Longfin Smelt juveniles >60mm have been detected at Chipps and may be starting to move into the Delta. Juveniles present in Suisun Marsh, San Pablo and Central Bay. Adults present in Suisun Bay, and Suisun Marsh. Longfin Smelt have been

Tributary/ Division	Anticipated Weekly Ranges	Related Environmental and Fish Conditions*
		detected in the Sacramento Deep Water Ship Channel and Lower Sacramento River. (*updated 11/30/2021*)

* Environmental and fish conditions updated by respective watershed groups at varying intervals that may not coincide with the weekly range of Water Operations

Table 2a-b: WY 2022 relevant Fish and Environmental Criteria and Status in 2019 Reclamation LTO Action Cumulative loss for the duration of 2019 Biological Opinion began upon signature of ROD, 2/19/2020.

Table 2a: WY 2022 Salmonid Current Loss and Delta Smelt Abiotic Conditions. Additional Real-Time OMR Restrictions and Performance Objectives (4.10.5.10.2) and Onset of OMR Management (4.10.5.10.1).

Species/run	Threshold	Current Status	Weekly Trend	Updated
Green sturgeon	WY 2022 salvage = 74	WY 2022 salvage = 0 (0%)	No change expected	11/28/2021
Natural winter-run Chinook Salmon	WY 2022 loss = TBD *	WY 2022 loss = 0	Possible but unlikely	11/28/2021
Natural Steelhead **	Dec 1 – Mar 31 = 707 (50% of 1,414) Apr 1 – June 15 = 776 (50% of 1,552)	Dec 1 – Mar 31 = 3.29 (0.47%) Apr 1 – June 15 = 0 (0%)	Possible	11/28/2021
Delta Smelt	After Dec. 1: Running 3-day avg. flows at Freeport >25,000 cfs Running 3-day avg. turbidity at Freeport =>50 FNU	Freeport 3-day avg. Flow = 6208 Turbidity = 5.04	Not applicable until Dec. 1	11/30/2021

* TBD – no draft JPE produced, ITL and performance thresholds are TBD currently

** Steelhead observed on 10/30/2021 and 11/19/2021 are included in the December 1 through March 31 period. Note: Last week there was an error in reporting natural juvenile CCV steelhead loss in the Operations Outlook and PA Assessment. The loss of natural steelhead was reported as 3.29 fish due to an accounting error related to a predator removal event at the CVP. A value of 0.57 fish was incorrectly reported instead of the correct value of 0.68 fish. This error has been corrected.

Table 2b. 10-Year Salmonid Cumulative Loss

Species/run	**Threshold**	**Current Status**	**Updated**
Natural winter-run Chinook salmon	Loss = 8,738	Cumulative loss = 204.9 (2.3%)	10/28/2021
Hatchery winter-run Chinook salmon	Loss = 5,356	Cumulative loss = 0 (0%)	10/28/2021
Natural steelhead	Loss = 6,038 (Dec 1 – Mar 31) Loss = 5,826 (Apr 1 – June 15)	Cumulative loss = 446.59 (7.4% Dec 1 – Mar 31) 374.8 (6.4%, Apr 1 – June 15)	10/28/2021

Table 3a-d: Relevant Water Year 2022 Fish Criteria and Status for Listed Fish under the SWP Long-Term Incidental Take Permit.
Table 3a: Chinook Salmon

Action	Timeframe	Current Action Status	Threshold(s)	**Current Relevant Data**	**Weekly Trend**	**Last Updated**	**Comments**
OMR Mgmt. triggered (8.3.2)	Jan. 1 - Jun. 30 (when ≥ 5% of spring-run or winter- run in Delta)	Not in effect	- 5% of the Winter-run or Spring-run population in Delta	N.A.	N.A.	**10/4/21**	**N.A.**
Winter-run yearly loss (8.6.1)	Nov. 1 - Jun. 30	In effect (Based on JPE Value)	TBD (Based on JPE guidance)	Current yearly WR loss (natural) = 0; Current yearly WR loss (hatchery) = 0	Possible but unlikely for natural Winter-run	**11/29/21**	**Based on salvage data from 11/28/21**
Winter-run discrete daily loss (8.6.2)	Nov. 1 - Dec. 31	In effect	11/1-11/30: loss of 6/day unclipped older juv. Winter-run 12/1-12/31: loss of 26/day unclipped older juv. Winter-run	max single daily loss from previous week = 0.00 fish (no WR observed yet)	No change expected	**11/29/21**	**Based on salvage data from 11/28/21**

Action	Timeframe	Current Action Status	Threshold(s)	**Current Relevant Data**	**Weekly Trend**	**Last Updated**	**Comments**
Spring-run surrogate protection (8.6.4)	Feb. 1 - Jun. 30	Not in effect:	TBD (based on the number of fish released)	N.A.	N.A.	**11/1/21**	**N.A.**

Table 3b: Delta Smelt

Action	Timeframe	Current Action Status	Threshold(s)	**Current Relevant Data**	**Weekly Trend**	**Last Updated**	**Comments**
Integrated Early Winter Pulse Protection ('First Flush') (8.3.1)	Dec. 1 - Jan. 31	Not in effect	three-day Freeport daily flow running avg >= 25,000 AND [three-day Freeport turbidity running avg >=50 NTU OR Smelt Monitoring Team recommendation]	**N.A.**	**N.A.**	**N.A.**	**N.A.**
Turbidity Bridge Avoidance (8.5.1)	Dec. 15 - Apr. 1	Not in effect	Occurs after the Integrated Early Winter Pulse protection or February 1 (whichever until April 1) comes first - avg. OBI turbidity > 12 NTU	**N.A.**	**N.A.**	**N.A.**	**N.A.**
Larval and/Juvenile Delta smelt Protection (8.5.2)	ongoing	In effect	5-day cum. salvage of juv. DS >= 1.67 [average 3-yr FMWT index + 1] OR, 3-day cum. salvage of juv. DS >11	**current 5-day salvage = 0**	**no change expected**	**11/29/2021**	**Based on salvage data from 11/28/21**

Table 3c: Longfin Smelt

Action	Timeframe	Current Action Status	Threshold(s)	**Current Relevant Data**	**Weekly Trend**	**Last Updated**	**Comments**
Early Adult Protection (8.3.3)	Dec. 1 - Feb. 28	Not in effect	Cum. salvage > [most recent FMWT/10] = Cum salvage > [most 1.2 fish OR Smelt Monitoring Team determines high likelihood of LFS movement into high-risk areas	**N.A.**	**N.A.**	**N.A.**	**N.A.**

Action	Timeframe	Current Action Status	Threshold(s)	**Current Relevant Data**	**Weekly Trend**	**Last Updated**	**Comments**
OMR Mgt. for Adults (8.4.1)	Dec. 1 -Feb. 28	Not in effect	- Smelt Monitoring Team recommendation	**N.A.**	**N.A.**	**N.A.**	**N.A.**
Larval and Juvenile longfin smelt Entrainment Protection (8.4.2)	Jan 1 – Jun 30	Not in effect	- LFS larvae or juveniles in >=4 SLS or 20 mm stations in central and south Delta, OR - LFS catch/tow >5 larvae or juveniles in >=2 stations	**N.A.**	**N.A.**	**N.A.**	**N.A.**
High Flow OMR Off-Ramp for longfin smelt (8.4.3)	Based on the status of 8.3.3, 8.4.1, & 8.4.2	Not in effect	Sac. R. at Rio Vista >55,000, OR SJR at Vernalis >8,000	**Rio Vista = 5,000 to 7,000 cfs** **SJ = 800 to 1,000 cfs**	**N.A.**	**N.A.**	**N.A.**

Table 3d: OMR

Action	Timeframe	Current Action Status	Threshold(s)	**Current Relevant Data**	**Weekly Trend**	**Last Updated**	**Comments**
OMR Mgmt. Offramp (8.3.2)	Jun. 1 – Jun. 30	Not in effect	- >95% of the Winter-run and Springrun populations have migrated past Chipps Island AND Current daily average water temperature at Mossdale exceeds22.2°C for 7 non consecutive days in June AND -Current daily average water temperature at Prisoners Point exceeds 22.2°C for 7 non-consecutive days in June. -Current daily mean water temperature at CCF is greater than 25°C for three consecutive days	N.A.	**N.A.**	**10/4/21**	N.A.

Table 4. Fish monitoring gear efficiency and disruptions.

Monitoring Survey	**Notes (as of 11/30/2021)**	**Status ***
Delta	N.A.	N.A.
SWP regular counts, CWT reading, and larval sampling	Active (No disruptions)	1
CVP regular counts, CWT reading, and larval sampling	Active (No disruptions)	1
Smelt Larval Survey	Not Active	4
20mm Survey	Not Active	4
Spring Kodiak Trawl	Not Active	4
Fall Mid-water Trawl	Active (No disruptions)	1
Summer Townet Survey	Not Active	4
Bay Study	Active (No disruptions)	1
DJFMP- Chipps and Sacramento Trawls	Active (some disruptions due to fog)	2
DJFMP- Seines	Active with one disruption: not sampling San Joaquin Seines (due to low water)	2
EDSM	Active (some disruptions due to fog)	2
EMP	Active (No disruptions)	1
Mossdale	Not active this week	4
USGS Flow monitoring	Active (No disruptions)	1
Sacramento River	N.A.	N.A.
Red Bluff Diversion Dam screw trap	Active (No disruptions)	1
Knights Landing screw trap	Active (No disruptions)	1

Monitoring Survey	**Notes (as of 11/30/2021)**	**Status ***
Tisdale screw trap	Active (No disruptions)	1
GCID screw trap	Active	1
Redd dewatering and stranding surveys	Not Active	4
Sacramento Carcass and Redd Surveys	Active (No disruptions)	1
Feather River	N.A.	N.A.
Feather River screw trap	Active (upper rotary screw trap at Eye Riffle active as of 11/15; lower rotary screw trap at Herringer Riffle active as of 11/29)	1
San Joaquin River	N.A.	N.A.
SJRRP CDFW Field Monitoring	Active (No disruptions)	1
SJRRP USFWS and USBR Field Monitoring	Active (No disruptions)	1
Stanislaus Fish Weir	Active (No disruptions)	1

* Status: Weekly categories include:
[1] Active (ongoing sampling)
[2] Partial Interruption (some sampling interruptions)
[3] Interrupted (sampling fully suspended)
[4] Not Active (sampling not scheduled)