Weekly Fish and Water Operations Outlook 2/2/2021 – 2/8/2021

Unsettled weather continues this Monday through Wednesday. Mountain elevations will see more precipitation than valley regions. Dry weather returns Thursday and continues into the weekend, with periods of increased winds. X2 requirements for water project operations begin in February.

Tributary/ Division	Anticipated Weekly Ranges	Related Environmental and Fish Conditions
Clear Creek	• Current Release: 200 cfs • Anticipated weekly range: 200 cfs	• Spring-run Chinook salmon fry and juveniles are rearing. Some juveniles initiating downstream migration. • Fall-run Chinook salmon spawning has finished. Approximately half of the eggs are incubating in gravel, the other half are hatching and fry are emerging. Fry are beginning to migrate downstream. • Steelhead juveniles rearing. Adults are in Clear Creek, adult spawning is occurring.
Sacramento River	• Shasta Storage: 2.129 MAF • Current Release: 3,250 cfs • Anticipated Weekly Range of Releases to Sacramento: 3,250 cfs	• Juvenile winter-run Chinook salmon passage at Red Bluff Diversion Dam (RBDD; BY20 total through 1/28/2021: 1,985,860 fish; average historic passage (2011 – 2019) as of 01/31: 97.9%) • Juvenile spring-run Chinook salmon passage at RBDD (BY20 total through 1/28/2021: 157,409 fish; average historic passage (2011 – 2019) as of 01/31: 21.8%) • Fall-run Chinook salmon spawning is over. Approximately half of the eggs are incubating in gravel, the other half are hatching and fry are emerging and beginning to migrate downstream. Juvenile fall-run Chinook salmon passage (BY20) at RBDD ~3.6 million through 1/28/21. • Late fall-run adults are in the system, onset of spawning is occurring. • Onset of adult winter-run Chinook salmon migration into the upper river is occurring. Fish are holding in upper river prior to spawning. • Late fall-run Chinook salmon and steelhead juveniles rearing and beginning to migrate downstream. • Adult and juvenile steelhead are in river, some spawning is occurring. • Green sturgeon adults and juveniles present.

Tributary/ Division	Anticipated Weekly Ranges	Related Environmental and Fish Conditions
Feather River	• Oroville Storage: 1.230 MAF • Current Release:1,250 cfs • Anticipated Weekly Range of Releases to Feather: 1,250 cfs • Daily average temperature compliance targets: 55°F at Fish Hatchery gage	• Spring-run Chinook salmon fry and juveniles are rearing in river. Some juveniles may be initiating downstream migration. • Fall-run Chinook salmon spawning is over. Approximately half of the eggs are incubating in gravel, the other half are hatching and fry are emerging. Some fry are beginning to migrate downstream. • Juvenile steelhead rearing. Adults in the river, some spawning is occurring. • Green sturgeon adults holding.
American River	• Folsom Storage: 0.290MAF • Current Release: 950 cfs • Anticipated Weekly Range of Releases to American: 950 to 850 cfs	• Juvenile steelhead rearing. Adults in the river, some spawning is occurring. • Fall-run Chinook salmon spawning is essentially completed. Most eggs incubating in gravel, some are hatching and fry are emerging. Early hatching fry are beginning to migrate downstream. • Peak Chinook salmon carcass observation occurred during the week of 12/21/2020.
Stanislaus River	• New Melones Storage: 1.555 MAF • Current Release to Stanislaus: 200 cfs • Anticipated Range of Weekly Releases to Stanislaus: 200 cfs • February pulse flows are planned to coincide with storm events	• Juvenile steelhead rearing. Adults in the river, some spawning is occurring. • As of 1/10/2021, 8 *O. mykiss* passed the weir this water year. 1 of those 8 fish were clipped. Weir was pulled mid-January. • Numbers of returning adult fall-run Chinook salmon are lower than historically observed and similar to last year. • Fall-run Chinook salmon spawning is over. Approximately half of the eggs are incubating in gravel, the other half are hatching, earliest fry are emerging.
Delta	• Freeport: 9,000 to 16,000 cfs (*) • Vernalis: 1,000 to 2,200 cfs (*) • Delta Outflow index: 8,000 to 25,000 cfs (*) • Combined Exports: 3,150 to 3,900 cfs • JPP: 1,650 to 1,900 cfs • CCF: 1,500 to 2,000 cfs • Expected OMR Index Values: -2,000 to -3,000 cfs • DCC Gates: Closed and anticipated to remain closed • (*) this range reflects the variation in flows due to recent storms	• Green sturgeon adult and juveniles present. Adult green sturgeon are beginning to move upriver to spawn grounds. • Most adult late fall-run Chinook salmon and steelhead have finished immigrating through Delta • Adult winter-run Chinook salmon are moving through the Delta system and into the Sacramento River system towards their spawning grounds. • 25-55% winter-run Chinook salmon juveniles yet to enter the Delta and 45-75% in Delta. 0% exited the Delta past Chipps Island. • 65-75% YOY spring-run Chinook salmon juveniles yet to enter the Delta and 25-35% in Delta. 0% exited the Delta past Chipps Island. • 70-80% steelhead juveniles yet to enter the Delta and 15-30% in Delta. 0-5% exited the Delta past Chipps Island. • Based on our understanding of life history and limited distribution data, Delta Smelt adults would be present in Suisun Marsh and west of the Sacramento-San Joaquin

Tributary/ Division	Anticipated Weekly Ranges	Related Environmental and Fish Conditions
		confluence in anticipation of migration. The Delta Smelt detected in the Sacramento Deep Water Ship Channel may be freshwater residents, and may not be representative of migratory movement. • Adult and age-1 Longfin Smelt have been detected downstream of the confluence and in the Sacramento River. Larval Longfin Smelt were detected in the Sacramento River, San Joaquin River, and the north Delta indicating spawning and hatching are underway. Larvae were detected at 5 of 12 south and central Delta stations, triggering 8.4.2 OMR restrictions. Two larvae was detected at station 716, triggering Barker Slough Pumping Plant restrictions.

Table 2a-b: WY 2021 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 2021 Salmonid Current Loss and Delta Smelt abiotic conditions. Hatchery and natural winter-run Chinook salmon, spring-run Chinook salmon surrogates, and natural steelhead relevant action(s): Additional Real-Time OMR Restrictions and Performance Objectives (4.10.5.10.2). Delta smelt relevant action(s): Onset of OMR Management (4.10.5.10.1).

Species/run	Threshold	Current Status	Weekly Salvage Trend	Updated
Green sturgeon	WY 2021 salvage = 74	WY 2021 salvage = 0 (0%) * * 1 dead Green sturgeon collected on trashracks at the Skinner Fish Collection Facility (Clifton Court) (1/22/21), take estimate TBD.	No change expected	1/31/2021
Natural winter-run Chinook salmon	WY 2021 loss = 1,931 (50% of 3,862)	WY 2021 loss = 0 (0%)	No change expected	1/31/2021
Hatchery winter-run Chinook salmon released into the Sacramento River	WY 2021 loss = 59 (50% of 117) 1/30/2021: 302,166 hatchery WRCS released into Sacramento River	WY 2021 loss = 0	No change expected	1/31/2021
Hatchery yearling spring-run Chinook salmon surrogates	> 0.5% of each release group: 1) 1/8/2021: 66,912 = 334.6 2) 1/22/2021: 57,357 = 286.8 3) 1/29/2021: 64,807 = 324.0	1) 0 (0%) 2) 0 (0%) 3) 0 (0%)	Expected to increase	1/31/2021

Species/run	Threshold	Current Status	Weekly Salvage Trend	Updated
Natural steelhead	Dec 1 – Mar 31 = 707 (50% of 1,414)	Dec 1 – Mar 31 = 2.72 (0.38%)	Expected to increase	1/31/2021
Delta smelt	• Daily Average turbidity at Old River at Bacon Island >12 NTU	• Turbidity = 5.10 FNU	No change expected	2/1/2021

Table 2b: 10-Year Salmonid Cumulative Loss

Species/run	Threshold	Current Status	Updated
Natural winter-run Chinook salmon	Loss = 8,738	Cumulative loss = 183 (2.1%)	1/31/2021
Hatchery winter-run Chinook salmon	Loss = 5,356	Cumulative loss = 0 (0%)	1/31/2021
Natural steelhead	December 1 – March 30 Loss = 6,038 April 1 - June 15 Loss = 5,826	Cumulative loss Dec 1 – Mar 31 = 404.72 (6.7%) April 1 – Jun 15 = 325 (5.6%)	1/31/2021

Table 3a-c: Relevant Water Year 2021 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. 0.00991%triggered (8.3.2)	Jan. 1 - Jun. 30 *(when ≥ 5% of spring-run or winter- run in Delta)*	In effect	- 5% of the Winter-run or Spring-run population in Delta	**35-65% of the Winter Juveniles are in the Delta**	**no change expected;** **Threshold previously met**	**2/1/21**	**Based on Action Assessment from 1/26/21 SaMT call**
Winter-run yearly loss (8.6.1)	Nov. 1 - Jun. 30	In effect (Based on JPE Value)	- cum. loss of unclipped (natural) Winter-run [1.17% of JPE] = **3,862** cum. loss of clipped (hatchery)	**Current yearly loss = 0; 0 natural, 0 hatchery**	**no change expected until first salvage observed**	**2/1/21**	**Based on 1/31/21 salvage data**

Action	Timeframe	Current Action Status	Threshold(s)	**Current Relevant Data**	**Weekly Trend**	**Last Updated**	**Comments**
			Winter-run Sacramento release [0.12% of JPE] = **117** Winter run Battle Creek release [0.12% of JPE] **= 45**				
Winter-run discrete daily loss (8.6.2)	Nov. 1 - Dec. 31	Not 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	1/4/21	Action 8.6.2 ended on 12/31/20 per ITP
Winter-run relative daily loss (8.6.3)	Jan. 1 - May 31	In effect (Based on JPE Value)	**2/1 - 2/28: 0.00991% = 32.71**	**max single daily loss from previous week = 0.00 fish (no WR observed yet)**	**no change expected until first salvage observed**	**2/1/21**	**Based on 1/31/21 salvage data**
Spring-run surrogate protection (8.6.4)	Feb. 1 - Jun. 30	Not in effect	- Feather CWT Spring-run surrogates cum. loss >0.25% for any release group OR - Coleman or Nimbus Fall-run cum. loss >0.25% for any release group	**N.A**	**N.A**	**N.A**	**No hatchery surrogate releases are scheduled to occur**

Table 3b: Delta Smelt

Action	Timeframe	Current Action Status	Threshold(s)	**Current Relevant Data**	**Weekly Trend**	**Last Updated**	**Comments**
Integrated Early Winter Pulse	Dec. 1 - Jan. 31	Not in effect, Offramped	- three-day Freeport daily flow running	**N/A**	**N/A**	**N/A**	**N/A**

Action	Timeframe	Current Action Status	Threshold(s)	**Current Relevant Data**	**Weekly Trend**	**Last Updated**	**Comments**
Protection ('First Flush') (8.3.1)			avg >= 25,000 AND [three-day Freeport turbidity running avg >=50 FNU OR Smelt Monitoring Team recommendation]				
Turbidity Bridge Avoidance (8.5.1)	Dec. 15 - Apr. 1	In effect	Occurs after the Integrated Early Winter Pulse protection or February 1 (whichever until April 1 ,)comes first - avg. OBI turbidity > 12 NTU	**OBI daily turbidity: 6.82 FNU**	**First day of data used for condition is 2/1/21**	**2/1/21**	**Data from 1/31/21**
Larval and/Juvenile Delta smelt Protection (8.5.2)	ongoing	In effect	- 5-day cum. salvage of juv. DS >= 1 [average 3-yr FMWT index + 1] OR, 3-day cum. salvage of juv. DS >11	**current 5-day salvage = 0**	**No change from last week**	**2/1/21**	**Based on salvage data from 1/31/21**

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	In effect, but not triggered	- Cum. salvage > [most recent FMWT/10] = 3 fish OR - Smelt Monitoring Team determines high likelihood of LFS movement into high-risk areas	**Cumulative Salvage = 0**	**No change from last week**	**2/1/21**	**Based on salvage data from 1/31/21**
OMR Mgt. for Adults (8.4.1)	Dec. 1 -Feb. 28	Not in effect, off-ramped	- Smelt Monitoring Team recommendation	**N.A.**	**N.A.**	**N.A.**	**N.A.**

Action	Timeframe	Current Action Status	Threshold(s)	**Current Relevant Data**	**Weekly Trend**	**Last Updated**	**Comments**
Larval and Juvenile longfin smelt Entrainment Protection (8.4.2)	Jan 1 – Jun 30	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	**SLS #2: 22 LFS larvae at 809, 8 at 812, 2 at 815, 1 at 906, and 2 at 901, plus two larvae at 716 and 1 at 711. 140 larval LFS in the lower Sac River.**	**Next larval monitoring will happen 2/8**	**2/2/21**	**Processing for SLS #1 is complete, SLS #2 is still being processed, SLS #3 will begin on 2/8/21**
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	In effect	- Sac. R. at Rio Vista >55,000, OR SJR at Vernalis >8,000	**Rio Vista = 8,000 to 14,000 cfs** **SJ = 1,000 to 2,200 cfs**		**2/1/21**	

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 Spring- run 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	**N.A.**	**N.A.**	**N.A.**	**N.A.**

			- 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				

Table 4. Fish monitoring gear efficiency and disruptions: COVID-19 or air quality impacts.

Monitoring Survey	**Status (as of 2/2/2021)**
Delta	
SWP regular counts, CWT reading, and larval sampling	Ongoing (possible delay in processing CWT fish)
CVP regular counts, CWT reading, and larval sampling	Ongoing (possible delay in processing CWT fish)
Smelt Larval Survey	Only 23 of 35 stations due to weather
20mm Survey	Begins in March
Spring Kodiak Trawl	Ongoing
Bay Study	Currently off water due COVID- 19 restrictions
DJFMP- Chipps and Sacramento Trawls	Chipps Island trawl ongoing 5 days a week, resumed 12/27/2020; Sacramento Trawls ongoing, sampling 5 days a week
DJFMP- Seines	Some Seines should be resuming on 2/15.
EDSM	Ongoing
EMP	December surveys canceled; January discrete survey canceled
Mossdale	Scheduled to resume 2/15
USGS Flow monitoring	Continuous monitoring continues
Sacramento River	
Red Bluff Diversion Dam screw trap	Ongoing
Knights Landing screw trap	Ongoing through modified staffing
Tisdale screw trap	Ongoing through modified staffing
Redd dewatering and stranding surveys	Ongoing
Sacramento Carcass and Redd Surveys	Continuing
Feather River	
Feather River screw trap	Suspended indefinitely
San Joaquin River	
SJRRP CDFW Field Monitoring	Suspended indefinitely
SJRRP USFWS and USBR Field Monitoring	Ongoing since 8/31