

Weekly Fish and Water Operations Outlook 3/2/2021 – 3/8/2021

Dry and mild weather through Friday, with a chance of rain and snow in the mountains over the weekend.

Tributary/ Division	Anticipated Weekly Ranges	Related Environmental and Fish Conditions
Clear Creek	<ul style="list-style-type: none"> • Current Release: 200 cfs • Anticipated weekly range: 200 cfs 	<ul style="list-style-type: none"> • Spring-run Chinook salmon juveniles are rearing. Juveniles migrating downstream . • Fall-run Chinook salmon spawning has finished Most eggs have hatched and fry have emerged. Fry are beginning to migrate downstream. • Steelhead juveniles are rearing and migrating downstream. Adults are in Clear Creek, adult spawning is occurring.
Sacramento River	<ul style="list-style-type: none"> • Shasta Storage: 2.277 MAF • Current Release: 3,250 cfs • Anticipated Weekly Range of Releases to Sacramento: 3,250 -3,750 cfs 	<ul style="list-style-type: none"> • Juvenile winter-run Chinook salmon passage at Red Bluff Diversion Dam (RBDD); BY20 total through 2/25/2021: 2,093,940 fish; average historic passage (2011 – 2019) as of 02/28 98.8%) • Juvenile spring-run Chinook salmon passage at RBDD (BY20 total through 2/25/2021: 116,948 fish; average historic passage (2011 – 2019) as of 02/28 25.0%) • Fall-run Chinook salmon spawning is over. Most eggs have hatched and fry have emerged from the gravel. Fry are beginning to migrate downstream. Juvenile fall-run Chinook salmon passage (BY20) at RBDD ~8.1 million through 2/25/2021. • Adult winter-run Chinook salmon migration into the upper river prior to spawning. • Earliest adult spring-run Chinook salmon are entering the Sacramento River system. • Late fall-run adults are in the system, spawning is occurring. • Steelhead juveniles are rearing and migrating downstream. Adults are in river, some spawning is occurring. • Green sturgeon adults holding prior to spawning and juveniles present.
Feather River	<ul style="list-style-type: none"> • • Oroville Storage: 1.338 MAF • Current Release:1,050 cfs • Anticipated Weekly Range of Releases to Feather: 1,050 cfs • Daily average temperature compliance targets: 55°F at Fish Hatchery gage 	<ul style="list-style-type: none"> • Spring-run Chinook juveniles are rearing in river. Juveniles initiating downstream migration. • Fall-run Chinook salmon spawning is over. Most eggs have hatched and fry have emerged from the gravel. Some fry are beginning to migrate downstream. • Juvenile steelhead rearing and migrating downriver. Adults in the river, some spawning is occurring. • Green sturgeon adults holding prior to spawning.

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American River	<ul style="list-style-type: none"> ● Folsom Storage: 0.346 MAF ● Current Release: 950 cfs ● Anticipated Weekly Range of Releases to American: 950 - 1,450 cfs 	<ul style="list-style-type: none"> ● Juvenile steelhead rearing. Adults in the river, some spawning is occurring. ● Fall-run Chinook salmon spawning is over for this water year. Most eggs have hatched and fry have emerged from the gravel. Fry are beginning to migrate downstream. ● Peak Chinook salmon carcass observation occurred during the week of 12/21/2020. Carcass surveys over for this water year.
Stanislaus River	<ul style="list-style-type: none"> ● New Melones Storage: 1.555 MAF ● Current Release to Stanislaus: 200 cfs ● Anticipated Range of Weekly Releases to Stanislaus: 200 cfs to 600 cfs 	<ul style="list-style-type: none"> ● Juvenile steelhead rearing. Adults in the river, some spawning is occurring. ● 8 <i>O. mykiss</i> passed the weir this water year. 1 of those 8 fish was 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. Most eggs have hatched and fry have emerged from the gravel. Fry are beginning to emigrate downstream.
Delta	<ul style="list-style-type: none"> ● Freeport: 7,000 to 9,500 cfs ● Vernalis: 700 to 1,200 cfs ● Delta Outflow index: 6,400 to 8,000 cfs ● Combined Exports: 700 to 2,500 cfs ● JPP: 400 to 1,000 cfs ● CCF: 300 to 1,500 cfs ● Expected OMR Index Values: -500 to -2,500 cfs ● DCC Gates: Closed and anticipated to remain closed 	<ul style="list-style-type: none"> ● 5-15% winter-run Chinook salmon juveniles yet to enter the Delta and 75-90% in Delta. 5-10% exited the Delta past Chipps Island. ● 40-45% YOY spring-run Chinook salmon juveniles yet to enter the Delta and 55-60% in Delta. 0% exited the Delta past Chipps Island. ● 40-50% steelhead juveniles yet to enter the Delta and 35-50% in Delta. 10-15% exited the Delta past Chipps Island. ● Adult winter-run Chinook salmon are moving through the Delta and towards their spawning grounds. ● Earliest adult spring-run Chinook salmon are entering the Delta and migrating upstream. ● Most adult late fall-run Chinook salmon and steelhead have finished immigrating through Delta. ● Green sturgeon adults and juveniles present. Adult green sturgeon are moving upriver to spawning grounds. ● Based on our understanding of life history and limited distribution data, Delta Smelt adults are present in Suisun Marsh and in the Sacramento River and north Delta. The Delta Smelt detected in the Sacramento Deep Water Ship Channel may be freshwater residents, and may not be representative of migratory movement. Temperature conditions are conducive for Delta Smelt spawning to commence. ● Adult and age-1 Longfin Smelt have been detected downstream of the confluence and in the Sacramento River. EDSM detected two adult Longfin Smelt in the lower San Joaquin River (one expressing eggs). Larval Longfin Smelt were detected in the Sacramento River, San Joaquin River, and the north Delta indicating spawning and hatching is continuing. Larvae have been detected in the OMR corridor and in the Tracy Fish Collection Facility's

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		larval fish sampling. Last week, ITP condition 8.4.2 was triggered based on larvae detected at 4 of 12 criteria stations, and the SMT made a further recommendation of -2500 cfs for OMR based on distribution and hydrology data. Condition 8.12 was also triggered on 2/26 with the detection of 2 larvae at station 716.

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%)	No change expected	2/28/2021
Natural winter-run Chinook salmon	WY 2021 loss = 1,931 (50% of 3,862)	WY 2021 loss = 0 (0%)	Expected to increase	2/28/2021
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	Expected to increase	2/28/2021
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) 6.4 (2.2%) 3) 0 (0%)	Expected to increase	2/28/2021
Natural steelhead	Dec 1 – Mar 31 = 707 (50% of 1,414)	Dec 1 – Mar 31 = 22.8 (3.22%)	Expected to increase	2/28/2021
Delta smelt	Daily Average turbidity at Old River at Bacon Island > 12 NTU	Turbidity = 6.79 FNU	No change expected	2/22/2021

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%)	2/28/2021
Hatchery winter-run Chinook salmon	Loss = 5,356	Cumulative loss = 0 (0%)	2/28/2021
Natural steelhead	December 1 – March 30 Loss = 6,038 April 1 - June 15 Loss = 5,826	Cumulative loss Dec 1 – Mar 31 = 424.8 (7.04%) April 1 – Jun 15 = 325 (5.6%)	2/28/2021

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

<u>Action</u>	<u>Timeframe</u>	<u>Current Action Status</u>	<u>Threshold(s)</u>	<u>Current Relevant Data</u>	<u>Weekly Trend</u>	<u>Last Updated</u>	<u>Comments</u>
OMR Mgmt. triggered (8.3.2)	Jan. 1 - Jun. 30 <i>(when ≥ 5% of spring-run or winter-run in Delta)</i>	In effect	- 5% of the Winter-run or Spring-run population in Delta	75-94% of the Winter Juveniles are in the Delta	no change expected; Threshold previously met	3/1/21	Based on Action Assessment from 2/23/21 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) Winter-run Sacramento release [0.12% of JPE] = 117 Winter run Battle Creek release [0.12% of JPE] = 45	Current yearly loss = 0; 0 natural, 0 hatchery	There is potential for the first salvage to be observed this week	3/1/21	Based on 2/28/21 salvage data
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)	NA	NA	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)	3/1 - 3/31: 0.0146% = 48.20	max single daily loss from previous week = 0.00 fish (no older juveniles observed yet)	There is potential for the first salvage to be observed this week	3/1/21	Based on 2/28/21 salvage data
Spring-run surrogate protection (8.6.4)	Feb. 1 - Jun. 30	In effect	- Feather CWT Spring-run surrogates cum. loss >0.25% for any release group <u>OR</u> - Coleman or Nimbus Fall-run	N.A	N.A	N.A	No hatchery surrogate releases are scheduled to occur

<u>Action</u>	<u>Timeframe</u>	<u>Current Action Status</u>	<u>Threshold(s)</u>	<u>Current Relevant Data</u>	<u>Weekly Trend</u>	<u>Last Updated</u>	<u>Comments</u>
			cum. loss >0.25% for any release group				

Table 3b: Delta Smelt

<u>Action</u>	<u>Timeframe</u>	<u>Current Action Status</u>	<u>Threshold(s)</u>	<u>Current Relevant Data</u>	<u>Weekly Trend</u>	<u>Last Updated</u>	<u>Comments</u>
Integrated Early Winter Pulse Protection ('First Flush') (8.3.1)	Dec. 1 - Jan. 31	Not in effect, Offramped	- three-day Freeport daily flow running avg \geq 25,000 <u>AND</u> [three-day Freeport turbidity running avg \geq 50 FNU <u>OR</u> Smelt Monitoring Team recommendation]	N/A	N/A	N/A	N/A
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: 10.55 FNU	Increase due to last week's wind event	3/1/21	Data from 2/28/21
Larval and/Juvenile Delta smelt Protection (8.5.2)	ongoing	In effect	- 5-day cum. salvage of juv. DS \geq 1 [average 3-yr FMWT index + 1] <u>OR</u> , 3-day cum. salvage of juv. DS $>$ 11	current 5-day salvage = 0	No change from last week	3/1/21	Based on salvage data from 2/28/21

Table 3c: Longfin Smelt

<u>Action</u>	<u>Timeframe</u>	<u>Current Action Status</u>	<u>Threshold(s)</u>	<u>Current Relevant Data</u>	<u>Weekly Trend</u>	<u>Last Updated</u>	<u>Comments</u>
Early Adult Protection (8.3.3)	Dec. 1 - Feb. 28	In effect, but not triggered	- Cum. salvage > [most recent FMWT/10] = 3 fish <u>OR</u> - Smelt Monitoring Team determines high likelihood of LFS movement into high-risk areas	Cumulative Salvage = 0	No change from last week	3/1/21	Based on salvage data from 2/28/21
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.
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, <u>OR</u> - LFS catch/tow >5 larvae or juveniles in >=2 stations	SLS #4: Detections at 4/12 central and south Delta stations, detection at station 716, 14.6mm larvae detected at TFCF during larval monitoring on 2/28	Next larval monitoring will start 3/8	3/1/21	SLS #4 results triggered both 8.4.2 and 8.12 thresholds, -2500 OMR recommendation from 2/23 meeting
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, <u>OR</u> SJ at Vernalis >8,000	Rio Vista = 5,000 to 7,500 cfs SJ = 700 to 1,200 cfs		3/1/21	

Table 3d: OMR

<u>Action</u>	<u>Timeframe</u>	<u>Current Action Status</u>	<u>Threshold(s)</u>	<u>Current Relevant Data</u>	<u>Weekly Trend</u>	<u>Last Updated</u>	<u>Comments</u>
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 <u>AND</u> - Current daily average water temperature at	N.A.	N.A.	N.A.	N.A.

<u>Action</u>	<u>Timeframe</u>	<u>Current Action Status</u>	<u>Threshold(s)</u>	<u>Current Relevant Data</u>	<u>Weekly Trend</u>	<u>Last Updated</u>	<u>Comments</u>
			<p>Mosssdale exceeds 22.2°C for 7 non-consecutive days in June <u>AND</u></p> <p>- Current daily average water temperature at Prisoners Point exceeds 22.2°C for 7 non consecutive days in June.</p> <p>Current daily mean water temperature at CCF is greater than 25°C for three consecutive days</p>				

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

Monitoring Survey	Status (as of 3/2/2021)
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	Ongoing
20mm Survey	Begins in March
Spring Kodiak Trawl	Ongoing
Bay Study	Back on the Water as of 2/4/2021
DJFMP- Chipps and Sacramento Trawls	Chipps Island trawl ongoing 5 days a week, resumed 12/27/2020; Sacramento Trawls ongoing, sampling 3 days a week (this week and next)
DJFMP- Seines	Ongoing (w/the exception of SF Bay sites)
EDSM	Ongoing
EMP	December surveys canceled; January discrete survey canceled
Mossdale	Suspended
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