

Weekly Fish and Water Operations Outlook 12/22/2020 – 12/28/2020

Dry weather with occasional breezy north winds for most of week. Chances of rain and snow increase by 12/25/2020.

Tributary/ Division	Anticipated Weekly Ranges	Related Environmental and Fish Conditions
Clear Creek	<ul style="list-style-type: none"> • Current Release: 215 cfs • Anticipated weekly range: 215 cfs 	<ul style="list-style-type: none"> • Spring-run Chinook salmon fry and juveniles are rearing. • Fall-run Chinook salmon spawning is winding down. Most eggs incubating in gravel, some are hatching, earliest fry are emerging. • Steelhead juveniles rearing. Adults in Clear Ck, December is start of spawning.
Sacramento River	<ul style="list-style-type: none"> • Shasta Storage: 2.021 MAF • Current Release: 3,250 cfs • Anticipated Weekly Range of Releases to Sacramento: 3,250 cfs 	<ul style="list-style-type: none"> • Juvenile winter-run Chinook salmon passage at Red Bluff Diversion Dam (BY20 total through 12/16/2020: 1,881,286 fish; average historic passage (2010 – 2019) as of 12/20: 95.6%) • Juvenile spring-run Chinook salmon passage at Red Bluff Diversion Dam (BY20 total through 12/16/2020: 124,278 fish; average historic passage (2010 – 2019) as of 12/20: 22.5%) • Fall-run Chinook salmon spawning is winding down. Most eggs incubating in gravel, some are hatching, earliest fry are emerging. • Late fall-run Chinook salmon and steelhead juveniles rearing • Green sturgeon adults and juveniles present.
Feather River	<ul style="list-style-type: none"> • Oroville Storage: 1.252 MAF • Current Release: 1,550 cfs (with possible cuts to 1,250 cfs) • Anticipated Weekly Range of Releases to Feather: 1,550 – 1,250 cfs • Daily average temperature compliance targets: 55°F at Fish Hatchery gage 	<ul style="list-style-type: none"> • Spring-run Chinook salmon fry and juveniles are rearing in river • Fall-run Chinook salmon spawning is winding down. Most eggs incubating in gravel, some are hatching, earliest fry are emerging. • Juvenile steelhead rearing. Adults in the river, December is start of spawning. • Green sturgeon adults holding.
American River	<ul style="list-style-type: none"> • Folsom Storage: 0.300 MAF • Current Release: 1,250 cfs • Anticipated Weekly Range of Releases to American: 1,250 cfs 	<ul style="list-style-type: none"> • Juvenile steelhead rearing. Adults in the river, December is start of spawning. • Fall-run Chinook salmon spawning is still occurring. Most eggs incubating in gravel, some are hatching, earliest fry are emerging.

Tributary/ Division	Anticipated Weekly Ranges	Related Environmental and Fish Conditions
Stanislaus River	<ul style="list-style-type: none"> ● New Melones Storage: 1.536 MAF ● Current Release to Stanislaus: 200 cfs ● Anticipated Range of Weekly Releases to Stanislaus: 200 cfs 	<ul style="list-style-type: none"> ● Juvenile steelhead rearing through summer/fall. Adults in the river, December is start of spawning. ● As of 12/20/2020, 4 <i>O. mykiss</i> passed the weir this water year. 3 of those 4 fish were unclipped. ● Numbers of returning adult fall-run Chinook salmon are lower than historically observed and similar to last year. ● Fall-run Chinook salmon spawning is winding down. Most eggs incubating in gravel, some are hatching, earliest fry are emerging.
Delta	<ul style="list-style-type: none"> ● Freeport: 8,500 to 12,500 cfs ● Vernalis: 800 to 1100 cfs ● Delta Outflow index: 4,000 to 13,500 cfs ● Combined Exports: 2,800 to 5,800 cfs ● JPP: 800 to 1,800 cfs ● CCF: 2,000 to 4,000 cfs ● Expected OMR Index Values: -2,500 to -5,500 cfs ● DCC: Closed 	<ul style="list-style-type: none"> ● Green sturgeon adult and juveniles present. ● Adult fall-run Chinook salmon and steelhead immigrating through Delta ● Adult winter-run Chinook salmon historically begin to emigrate into the Delta system. ● 75-95% winter-run Chinook salmon juveniles yet to enter the Delta and 5-25% in Delta. ● 95-97% YOY spring-run Chinook salmon juveniles yet to enter the Delta and 3-5% in Delta. ● 97-98% steelhead juveniles yet to enter the Delta and 2-3% in Delta. ● Based on our understanding of life history and limited distribution data, Delta Smelt adults would be holding in Suisun Marsh and west of the Sacramento-San Joaquin confluence in anticipation of migration. ● Based on Chipps Island monitoring, adult Longfin Smelt have begun moving upstream to spawn. The detection of spent females in South Bay sampling indicates that spawning has likely begun in the Delta as well. No Longfin Smelt have been detected in the central and south Delta this year to date.

Table 2. WY 2021 relevant Fish and Environmental Criteria and Status in 2019 Reclamation LTO Action and NMFS and USFWS Biological Opinions. Cumulative loss for the duration of 2019 Biological Opinion began upon signature of ROD, 2/19/2020.

Species/run	Threshold	Current Status	Trend	Updated through
Green sturgeon	WY 2021 salvage = 74	WY 2021 salvage = 0	No change expected	12/20/2020
Natural winter-run Chinook salmon	WY 2021 loss = TBD 10-year cumulative loss = 8,738	WY 2021 loss = 0 Cumulative loss = 183 (2.1%)	No change expected	12/20/2020
Hatchery winter-run Chinook salmon	WY 2021 loss = NA 10-year cumulative loss = 5,356	WY 2021 loss = NA Cumulative loss = 0 (0%)	No change expected	12/20/2020
Natural steelhead	WY 2021 loss Dec 1 – Mar 31 = 50% of 1,414 = 707 10-year cumulative loss December 1 – March = 6,038 April 1 - June 15 = 5,826	WY 2021 loss Dec 1 – Mar 31 loss = 0 (0%) Cumulative loss Dec 1 – Mar 31 = 402 (6.7%) April 1 – Jun 15 = 325 (5.6%)	No change expected	12/20/2020
Delta smelt	<ul style="list-style-type: none"> Running 3-day avg. flows at Freeport > 25,000 cfs Running 3-day avg. turbidity at Freeport => 50 FNU 	<ul style="list-style-type: none"> Freeport 3-day avg. flows =9941cfs turbidity =5.36 FNU 	No change expected	12/22/2020

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>	Not in effect	- 5% of the Winter-run or Spring-run population in Delta	N.A	N.A	N.A	N.A
Winter-run yearly loss (8.6.1)	Nov. 1 - Jun. 30	In effect	- cum. loss of unclipped (natural) Winter-run [1.17% of JPE] = TBD cum. loss of clipped (hatchery) Winter-run [0.12% of JPE] = TBD	Current yearly loss = 0 0 natural, 0 hatchery	no change expected	12/22/20	Based on 12/21/20 salvage data
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	12/22/20	Based on 12/21/20 salvage data
Winter-run relative daily loss (8.6.3)	Jan. 1 - May 31	Not in effect	2/1 - 2/28: 0.00991% = TBD 3/1 - 3/31: 0.0146% = TBD 4/1 - 4/30: 0.00507% = TBD 5/1 - 5/31: 0.0077% = TBD	N.A	N.A	N.A	N.A
Spring-run surrogate protection (8.6.4)	Feb. 1 - Jun. 30	Not in effect	- Feather CWT Spring-run surrogates cum. loss	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>
			>0.25% for any release group <u>OR</u> - Coleman or Nimbus Fall-run 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	In effect	- three-day Freeport daily flow running avg $\geq 25,000$ <u>AND</u> [three-day Freeport turbidity running avg ≥ 50 NTU <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	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	current 5-day salvage = 0	no change expected	12/21/20	Based on salvage data from 12/20/20

<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>
			FMWT index + 1] <u>OR</u> 3-day cum. salvage of juv. DS >11				

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] = 2 fish <u>OR</u> - Smelt Monitoring Team determines high likelihood of LFS movement into high-risk areas	Cumulative Salvage = 0	No change	12/21/20	
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, <u>OR</u> SJR at Vernalis >8,000	Rio Vista = 6,000 to 8,000 cfs SJ = 800 to 1,100 cfs		12/21/20	

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	<p>- >95% of the Winter-run and Spring- run populations have migrated past Chipps Island <u>AND</u></p> <p>- Current daily average water temperature at Mossdale 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>	N.A.	N.A.	N.A.	N.A.