Salmon Monitoring Team (SaMT) Weekly Meeting
Conference call: 5/12/20 at 9:00 a.m.

Executive Summary:

- The assessment analyzed Old and Middle River (OMR) flows ranging from -500 cfs to -3,500 cfs during the period 5/12/20 to 5/18/20.
- No Delta performance measures have been exceeded.
    - The Delta Performance threshold with the highest potential for exceedance is the 50% of single year natural steelhead loss threshold for the period of April 1 through June 15.
        - Preliminary estimate indicates that current (5/10/20) steelhead loss (319 fish) is approximately 41% of the threshold (776 fish) set between April 1 and June 15.
- SaMT did not have any recommendations for Water Operations Management Team (WOMT) or any advice to change Delta Operations.
- SaMT considered potential changes that would be caused by shifting of Delta operations due to the 5/11/20 Court-issued Preliminary Injunction requiring the CVP to operate to the San Joaquin River inflow to export (I:E) ratio of 2:1 required in the 2009 NMFS Biological Opinion reasonable and prudent alternative action IV.2.1 for a dry water year type.

Objective: Provide information to the WOMT, the U.S. Bureau of Reclamation (Reclamation) and California Department of Water Resources (DWR) on measures to reduce adverse effects from Delta operations of the Central Valley Project (CVP) and the State Water Project (SWP) on salmonids and green sturgeon. SaMT notes will be posted to Reclamation's web page SaMT Weekly Notes.

- **California Department of Fish and Wildlife (CDFW):** Geir Aasen, Kristal Davis-Fadtke, Kyle Griffiths, Sheena Holley, Andrew Huneycutt, Brian Jones, Ken Kundargi, Duane Linander, Paige Uttley, Johnathan Williams
- **DWR**: Chris Cook, Bryant Giorgi, Farida Islam, Tracy Pettit, Kevin Reece, Reza Shahcheraghi, Ian Uecker
- **Kearns & West:** Matt Marvin
- **National Marine Fisheries Service (NMFS):** Kristin Begun, Jeff Stuart, Garwin Yip
- **Reclamation:** Towns Burgess, Elissa Buttermore, Josh Israel, Suzanne Manugian, Ben Nelson, Tom Patton
- **State Water Resources Control Board (SWRCB):** Chris Carr, Erin Foresman, Mike Macon, Stanley Mubako, Craig Williams, Alessia Siclari
- **US Fish and Wildlife Service (USFWS):** Geoff Steinhart, Katherine Sun, Craig Anderson

Agenda Items:

1. Introductions
   Purpose: Provide an accurate record of who is attending these calls

2. Relevant Actions and Triggers

Purpose: Review of relevant actions and triggers status and discuss any changes

3. Outlook, Current Operations, and Weather Forecast
   Purpose: Review operations and weather sections on Weekly Outlook. Discuss Delta operations to consider context for evaluating Assessment questions about Delta operation effects

4. Review of Environmental Data
   Purpose: Review environmental data to consider context for evaluating Assessment questions about Delta operations effects

5. Fish Abundance and Distribution
   Purpose: Review fish monitoring data to inform fish distribution estimates, fish exposure, and behaviour cues that is part of the next section
   a. Hatchery Releases
   b. Historical Fish Monitoring Data
   c. Fish Monitoring: RSTs/trawls/seines
   d. Fish Monitoring: Salvage
   e. Migration Status: Estimates of Fish Distribution

6. Fish Exposure and Behavioural Cues
   Purpose: Assist in assessing entrainment risk of Delta operations on salmonids and sturgeon. Complete Evaluation section questions of the Assessment. Review draft assessment.
   a. Historical Patterns (Comparison of abundance, timing, and loss to prior years)
   b. Current Conditions (DSM2, Entrainment Models)
   c. Sensitivity to Operational Actions - review assessment document

7. Other Topics
   Purpose: Identify additional topics that are not in the regular agenda

8. Additional Considerations for WOMT
   Purpose: Highlight information that SaMT would like WOMT to consider related to changes to Delta water operations

9. Next SaMT Meeting

Agenda Item 2.
Relevant Actions and Triggers Review

Delta Cross Channel (DCC) Gate Operations

- DCC gates are currently closed per operations described in the SWRCB's D-1641, and Reclamation's Proposed Action section 4.10.5.3 and are expected to remain closed until 5/22/20.

OMR Flow Management

- Implementation of this action in water year (WY) 2020 began on 1/1/20 under the 2009 NMFS Long Term Operations (LTO) biological opinion and was superseded by Reclamation's Proposed Action section 4.10.5.10 (OMR Management) on 2/18/20 following the signing of the Record of Decision, and requires that OMR flow be no more negative than -5,000 cfs. OMR flows are reported weekly with the OMR index and the tidally filtered U.S. Geological Survey (USGS) gauges at the daily, 5-day and 14-day running averages.
- On 5/11/20, a preliminary injunction required the CVP to operate to the San Joaquin River inflow to export (I:E) ratio of 2:1 required in the 2009 NMFS Biological Opinion reasonable and prudent alternative action IV.2.1 for a dry water year type
- On 3/27/20, NMFS provided a revised winter-run Chinook salmon juvenile production estimate (JPE) letter (Revised JPE letter) to Reclamation reflecting updated hatchery information. The revised JPE letter provides the Reclamation with the revised JPE and incidental take limit (ITL) for hatchery origin juvenile Sacramento River winter-run Chinook salmon for WY 2020 based on the estimated number of hatchery fish released.
    - The revised incidental take for juveniles released from Livingston Stone National Fish Hatchery into the Sacramento River is **923 hatchery-produced (adipose fin clipped)** winter-run Chinook salmon.
    - The revised incidental take of juveniles released into Battle Creek is **622 hatchery produced (adipose fin clipped and left ventral fin clipped)** winter-run Chinook salmon.
- Refer to the weekly operations and fish outlook for more triggers relevant to the CDFW Incidental Take Permit (ITP) and the 2019 ROC Proposed Action (see Agenda Item 3).
- DWR's ITP was signed on 3/31/20 and can be found online here: Incidental Take Permit for Long Term Operations of the State Water Project

Agenda Item 3.

Weekly Fish and Water Operations Outlook 5/12/20 – 5/18/20

Cooler temperatures at start of week with precipitation and snow at the higher elevations in northern California and the Sierra Nevada's on Monday and Tuesday. Drier and warmer conditions are forecast for Wednesday through Friday. A return to cooler temperatures with more significant precipitation and snow in the Sacramento Valley approaches Saturday, with unsettled weather projected to continue through next Monday. Delta Outflow is being maintained to meet D-1641 X2 requirements and Emmaton EC for agriculture. The last day of the D-1641 San Joaquin River "pulse flow" period was on May 10. SWP exports are limited for the rest of May as per Section 8.17 of DFW's Long Term ITP for the SWP. The CVP exports are limited for the rest of May as per the Preliminary Injunction implementation of the 2009 NMFS RPA IV.2.1.

Tributary/Division	Projected Weekly Operational Range	Related Environmental and Fish Conditions
Clear Creek	Whiskeytown Release: 395-200 cfs (implementing spring pulse flow fluctuating between 150 cfs-800 cfs)	• Adult spring-run Chinook salmon immigration March – June. • Late-fall run Chinook salmon emergence from redds through May. • Majority of steelhead emergence from redds early May, fry have emerged.
Sacramento River	Shasta Storage: 3.61 MAF Current Release: 9,500 cfs Anticipated Weekly Range of Releases to Sacramento: 9,000 cfs to 9,500 cfs (As needed to support observed legal diversion demands on the Sacramento River in addition to Delta demands)	• End of winter-run Chinook salmon juvenile migration, adults migrating and holding. Spawning beginning to occur by early May. • Spring-run Chinook salmon juveniles rearing and emigrating. Earliest spring-run Chinook salmon adults present and holding. • Fall-run Chinook salmon fry emerged, juveniles rearing and emigrating. • End of late-fall run Chinook salmon spawning, eggs and fry in gravel. • Steelhead juvenile emigration occurring. • Green sturgeon adults present and possibly spawning, eggs are on substrate. Some green sturgeon juveniles rearing in the upper river.
Feather River	Oroville Storage: 2.46 MAF Current Release: 2,050 cfs Anticipated Weekly Range of Releases to Feather: 1,550 cfs to 3,000 cfs (Increase from 2,050 if needed for Delta WQ)	• Spring-run and fall-run Chinook salmon juveniles are rearing and emigrating. • Steelhead are emerging and rearing. Older steelhead smolts are leaving. • Late-fall-run Chinook salmon eggs in gravel, hatching, and emergence is continuing.

American River	Folsom Storage: 0.73 MAF Current Release: 1,250 cfs Anticipated Weekly Range of Releases to American: 1,250 to 2,000 cfs (As needed to meet Delta water quality objectives)	• Peak emergence of fall-run Chinook salmon estimated to have occurred mid-March. Fall-run Chinook salmon are currently rearing and emigrating out of the lower American River. • Steelhead spawning has concluded. Preliminary steelhead spawning survey data indicate majority of juvenile steelhead are estimated to have emerged. Steelhead are currently rearing and emigrating out of the lower American River. • Length-at-date (LAD) spring-run Chinook salmon juveniles present (non-natal rearing).
Stanislaus River	New Melones Storage: 1.89 MAF Total Current Release to Stanislaus: 1,000 cfs Anticipated Weekly Range of Releases to Stanislaus: 1,000 cfs to 1,300 cfs (As needed to meet D-1641 flow requirements at Vernalis)	• Majority of Chinook salmon fry rearing and emigrating. • Historical timing indicates the majority of steelhead spawning has concluded. Eggs likely hatched by early May. Some fry may remain in the gravel, but historical data indicates most steelhead are emerging and rearing now.
Delta	Freeport: 7,000 to 11,000 cfs Vernalis: 1,500 to 2,000 cfs Delta Outflow index: 8,000 to 11,000 cfs Combined Exports: 800 to 1,500 cfs JPP: 800 to 1,500 cfs CC: 0 to 600 cfs Expected OMR Index Values: -500 to -1,500 cfs X2 position: > 81 km QWEST: +1,000 cfs to +2,500 cfs DCC: Closed	• 2-3% winter-run Chinook salmon juveniles in Delta and 96-98% exited past Chipps Island. • 28-38% spring-run Chinook salmon juveniles in Delta and 57-62% exited past Chipps Island. • Fall-run Chinook salmon juveniles rearing and emigrating. • Steelhead juvenile migration occurring. • Green sturgeon adult and juveniles present. • Delta smelt spawning presently; larval Delta smelt salvaged. • Longfin smelt finishing spawning; larval longfin smelt salvaged.

Table 2. Relevant Water Year 2020 Fish and Environmental Criteria and Status in 2019 Reclamation LTO Action and NMFS and USFWS Biological Opinions.

Species/run	Threshold	Current Status	Weekly Trend	Updated through
Natural winter-run Chinook salmon Loss	50% Single-year loss threshold = **5,001**. 50% of 1.17% of JPE = 5,001 WY2020 JPE: 854,941	Loss (LAD) = **197** (3.9% of 50% single-year loss threshold)	No change expected	5/11/20
Hatchery winter- run Chinook salmon loss	Single-year loss threshold = 110.8 50% of 0.12% of Sac. R releases JPE= 55.4 JPE of Sac. R releases: 92,291 152,000 (~60% of production) released on 3-10-2020 97,505 (~40% of production) released on 3-23-2020	Loss = **0**	No change expected	5/10/20
Natural steelhead loss	1) December 1 – March 31 (not active): 50% loss threshold = **707** 50% of 1,414 from December 1 – March 31 = 707 2) April 1 – June 15 (active): 50% loss threshold = **776** 50% of 1,552 from April – June 15= 776	1) Loss = 402 (not active) (56.9% of 50% December 1 – March 31 loss threshold) **2)** Loss = **319** (41% of 50% April 1 – June 15 loss threshold)	Increasing	5/10/20
Hatchery spring- run Chinook salmon surrogates	Loss > 0.5% of each release group: 1) 12-9-2019: 84,869 = **424.3** 2) 12-18-2019: 77,672 = **388.4** 3) 01-13-2020: 77,866 = **389.3**	**1) 20.2** **2) 25.0** **3) 0**	No change expected	5/10/20
Green sturgeon	Cumulative salvage = **74**	Salvage = **0**	No change expected	5/10/20
Delta Smelt	1) Daily Avg. < 12 NTU at OBI 2) March-June: OMR ≥ -5000 cfs 3) 3 days exceeding Clifton Court Daily Avg. T ≥ 77°F	1) OBI Daily Avg Turbidity = 3.4 FNU (5/10/20) 2) QWEST: Positive 3) ≥ 77 °F Days = 0	Expected to remain stable	5/11/20

Table 3: Relevant Water Year 2020 Fish Criteria and Status for Listed Fish under the SWP Long-Term Incidental Take Permit. *This table is draft and under revision by DWR.*

Species	Action	Timeframe	Current Action Status	Threshold(s)	**Current Relevant Data**	**Weekly Trend**	**Last Updated**	**Comments**
Chinook salmon	OMR Mgmt. triggered (8.3.2)	Jan. 1 - Jun. 30	In effect	When >= 5% of the winter-run or spring-run population in Delta	**2-3% winter-run estimated in-Delta, 28-38% spring-run estimated in-Delta**	**Ongoing**	**5/12/20**	**96-98% of winter-run estimated to have exited Delta, 57-62% of spring-run estimated to have exited Delta**
	Winter-run yearly loss (8.6.1)	Nov. 1 - Jun. 30	In effect	- 1.17% loss of unclipped (natural) winter-run JPE = 10,002 fish - 0.12% loss of clipped (hatchery) winter-run = 110 fish	**current yearly loss = 196.71 (1.97%) natural, 0 hatchery**	**salvage likely to continue**	**5/11/20**	**Based on 5/10/20 Salvage data**
	Winter-run discrete daily loss (8.6.2)	Nov. 1 - Dec. 31	N.A.	11/1-11/30: loss of 6/day unclipped older juvenile winter-run 12/1-12/31: loss of 26/day clipped older juvenile winter-run	**N.A.**		**N.A.**	
	Winter-run relative daily loss (8.6.3)	Jan. 1 - May 31	In effect	1/1 - 1/31: 0.00635% loss of winter-run JPE = 54.29 fish 2/1 - 2/28: 0.00991% = 84.72 fish 3/1 - 3/31: 0.0146% = 124.82 fish 4/1 - 4/30: 0.00507% = 43.35 fish **5/1 - 5/31: 0.0077% = 65.83 fish**	**max single daily loss from prev. week = 0**	**No change – salvage below "trigger" levels**	**5/11/20**	**Based on 5/10/20 Salvage data. (winter-run sized last observed on 4/30/20)**
	Spring-run surrogate protection (8.6.4)	Feb. 1 - Jun. 30	In effect	- Feather CWT spring-run surrogates cumulative loss >0.25% for any release group OR - Coleman or Nimbus fall-run >0.25% for any release group	**max. loss for any group = 0%**	**none expected**	**5/11/20**	***CDFW not implementing 8.6.4 in this WY**

Species	Action	Timeframe	Current Action Status	Threshold(s)	**Current Relevant Data**	**Weekly Trend**	**Last Updated**	**Comments**
Delta smelt	Integrated Early Winter Pulse Protection ('First Flush') (8.3.1)	Dec. 1 - Jan. 31	N.A.	- Three-day Freeport daily flow running avg >= 25,000 AND - [Three-day Freeport turbidity running avg >=50 NTU OR Smelt Monitoring Team recommendation]	**avg flow = -- cfs avg turbidity = -- NTU**	**N.A.**	**N.A.**	
	Turbidity Bridge Avoidance (8.5.1)	Dec. 15 - Apr. 1	N.A.	- avg. OBI turbidity > 12 NTU	**OBI = 3.4 NTU**	**none expected**	**5/11/20**	
	Larval and/Juvenile Delta smelt Protection (8.5.2)	ongoing	In effect	- 5-day cum. salvage of juv. DS >= [average 3-yr FMWT index + 1] = 1.67	**current 5-day salvage = 0 fish**	**none expected**	**5/11/20**	**One 12mm DSM detected at CVP 4/13/20**
Longfin smelt	Early Adult Protection (8.3.3)	Dec. 1 - Feb. 28	N.A.	- Cum. salvage > [most recent FMWT/10] = 1.2 fish OR - Smelt Monitoring Team determines high likelihood of LFS movement into high-risk areas	**Cum. Salvage = 0 adults**	**none expected**	**N.A.**	
	OMR Mgt. for Adults (8.4.1)	Dec. 1 - Feb. 28	N.A.	- Smelt Monitoring Team recommendation		**none expected**	**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, OR - LFS catch/tow >5 larvae or juveniles in >=2 stations	**LFS at 1 (20mm#4) stations LFS catch/tow >5 at 0 (20mm#4) stations**	**Not triggered - no OMR recommendation expected**	**5/11/20**	**1338 (SWP) and 1307 (CVP) LFS salvaged through 5/7/20**
	High Flow OMR Off-Ramp for longfin smelt (8.4.3)	ongoing	In effect	- Sac. R. at Rio Vista >55,000 OR - SJR at Vernalis >8,000	**Rio Vista = 6,000 - 7,500 cfs SJ = 1,600 – 2,000 cfs**	**No change**	**5/11/20**	**Forecasted Values**

Operations

Operations Category	Location	Operations on 5/5/20	Operations on 5/12/20
Clifton Court Inflow	Clifton Court Forebay	1,300 cfs, to capture the mini pulse in San Joaquin River. Decreasing in coming days to 500 cfs. Will hold between 500 cfs-600 cfs through 5/31/20.	600 cfs and will hold through 5/17/20 or 5/18/20, at which time an outage will occur at the Banks facility for annual maintenance, which will last no longer than 5/23/20. Water may be taken into Clifton Court Forebay during the maintenance period but will not be exported.
SWP Reservoir Releases	Feather – Oroville	1,550 cfs and holding. Can increase if needed for outflows and water quality.	Increased on 5/11/20 from 1,550 cfs to 2,050 cfs and will likely hold for the immediate future. Potential increases in releases for Delta water quality over the coming weeks.
SWP Reservoir Storage	San Luis (SWP)	948 TAF	934 TAF
SWP Reservoir Storage	Oroville	2,479 TAF	2,454 TAF
Environmental Parameters	Sacramento River at Freeport	8,070 cfs	8,260 cfs. May increase to 9,000 cfs – 10,000 cfs over coming days.
Environmental Parameters	San Joaquin River at Vernalis	2,400 cfs	1,730 cfs, may increase by upwards of 200 cfs to meet water quality requirements.
Environmental Parameters	Delta Outflow Index	7,850 cfs	6,900 cfs, will likely increase over coming days
Environmental Parameters	E:I (14-day)	13% (14-day avg.)	13% (14-day avg.)

Operations Category	Location	Operations on 5/5/20	Operations on 5/12/20
Environmental Parameters	X2	74 km	>81 km
CVP Exports	Jones Pumping Plant	1,000 cfs and holding	1,000 cfs and scheduled to reduce to 900 cfs on 5/12/20 at 1700 hours to comply with Court issued Preliminary Injunction. Exports will comply with the 2:1 I:E ratio through the end of May.
CVP Reservoir Releases	American – Nimbus	1,250 cfs and holding	1,250 cfs, ramping up to 1,750 cfs on 5/13/20
CVP Reservoir Releases	Sacramento – Keswick	9,750 cfs and holding	9,500 cfs and holding
CVP Reservoir Releases	Stanislaus - Goodwin	400 cfs, scheduled to increase to 800 cfs on 5/6/20 in order to meet Vernalis flows starting on 5/11/20.	1,000 cfs currently. Potential for small increases should Vernalis flows decrease
CVP Reservoir Releases	Trinity - Lewiston	1,400 cfs, continuing pulse flows	1,100 cfs, continuing with pulse flow
CVP Reservoir Storage	San Luis (CVP)	547 TAF and decreasing storage	514 TAF and decreasing storage
CVP Reservoir Storage	Shasta	3,660 TAF and decreasing storage	3,600 TAF and decreasing storage
CVP Reservoir Storage	Folsom	714 TAF and increasing storage	734 TAF and increasing storage
CVP Reservoir Storage	New Melones	1,900 TAF and decreasing storage	1,892 TAF and decreasing storage

Operations Category	Location	Operations on 5/5/20	Operations on 5/12/20
CVP	DCC Gates	Closed	Closed (Scheduled to open on the Friday before Memorial Day weekend (5/22/20) and remain open for the 3-day weekend, then close). Anticipate gates will be open on weekends through 6/15/20.

cfs = cubic feet per second
MAF = million acre feet
TAF = thousand acre feet
km = kilometer
Location of X2 measured from the Golden Gate

Factors controlling Delta exports: Controlling factor for 5/6/20 – 5/8/20 for both the CVP and SWP was the 1:1 San Joaquin River inflow to combined exports ratio. Between 5/8/20 to 5/10/20, SWP shifted to 2:1 ratio due to San Joaquin water year classification shift to a dry year type, while CVP operated at 1:1 ratio. Additional controlling factors include Delta water quality criteria that may limit project operations [i.e., Emmaton electrical conductivity (EC), Delta outflow, Collinsville EC]. On 5/11/20 Court's Preliminary Injunction limited combined exports to 1,500 cfs (health and safety) through the end of May due to 2:1 San Joaquin I:E ratio.

Agenda Item 4.
Review of Environmental Data
OMR Index and USGS Tidally Filtered Values are displayed on SacPAS.
http://www.cbr.washington.edu/sacramento/data/delta_loss.html

Approximate OMR gauge data as of 5/9/20

	USGS gauges (cfs)	**Index (cfs)**
Daily	-2,200 cfs	-1,100 cfs
5-day	-2,100 cfs	-1,200 cfs
14-day	-1,400 cfs	-1,300 cfs

Approximate OMRs as of 5/11/20:

	Index (cfs)
Daily	-1,100 cfs
5-day	-1,200 cfs
14-day	-1,300 cfs

Agenda Item 5.

Fish Abundance and Distribution

Hatchery Releases

On 5/7/20, 5/8/20, and 5/9/20, CDFW released approximately 1,027,263 brood year 2019 fall-run Chinook salmon from Feather River Fish Hatchery into San Pablo Bay at the Mare Island net pen site. This release included 25% adipose fin clip and Coded Wire Tagged (CWT) fish.

On 5/11/20 and 5/12/20, CDFW released approximately 900,000 brood year 2019 fall-run Chinook salmon from Mokelumne River Hatchery into the San Joaquin River at the Sherman Island Net Pen site. This release included 25% adipose fin clip and CWT fish.

Fish Monitoring

Historical Fish Monitoring Data
Because of challenges with limited data and interpretation of real-time steelhead catch data, SaMT reviews historical catch data on SacPAS's Migration Timing and Conditions page and the Salvage Timing page.

Migration Timing: SacPAS Migration Timing Website

Average percent of annual emigrating population for each species of interest (based on LAD) captured at the following locations by 5/10 for the years 2005 to 2018.

Species	Red Bluff Diversion Dam	Tisdale RST	Knights Landing RST	Sac Trawl (Sherwood)	Chipps Island Trawl	Average Percent Salvaged at SWP and CVP Delta Facilities
Winter-run Chinook salmon	100%	100%	100%	100%	99.9%	99.9%
Spring-run Chinook salmon	98.7%	100%	100%	99.5%	94.3%	82.1%
Steelhead	15.9%	88.4%	90.5%	97.9%	96.1%	87.3%

Current Fish Monitoring Data

Fish monitoring data summarized over the past week are found on Bay Delta Live. Unless otherwise noted, reported races are based on fork length (LAD).

Location	Feather River RST Eye Channel[A]	Feather River RST Herringer[B]	GCID RST[C]	Tisdale RST[D]	Knights Landing RST[E]	LAR RST[G]	Sacramento Trawls[F]	Chipps Island Midwater Trawl[F]	Caswell RST[H]
Sample Dates	5/4 – 5/10	5/4 – 5/10	5/5 – 5/9	5/4-5/11	5/4 – 5/11	5/5 – 5/6	5/3 – 5/5, 5/7 – 5/8	5/3 – 5/5, 5/7 – 5/8	5/5 – 5/8
Chinook									4 unmarked juveniles
FR Chinook	4,384	463	1,152 juv	15	27	828 juv.	141	92	
SR Chinook	8	2	52 juv 18 smolt		1		3	107	
WR Chinook									
LFR Chinook	13	4		2					
Chinook (ad-clip)					1 FR		32	41	
Steelhead (natural)	5		2 juv		2	1 fry	2	2	
Steelhead (ad-clip)									
Green Sturgeon									
Flows (avg. cfs)	650	1,550	1,163	6,992	5,629				
W. Temp. (avg. °F)	56.3	63.5	59.4	64.9	65.6				
Turbidity (avg. NTU)	1.4	1.9	6.6	6.1	7.6				

[A] Feather River RST data from Eye Side Channel sampling period was from 5/4/20 11:01 to 5/10/20 at 11:14.

[B] Feather River RST data at Herringer sampling period was from 5/4/20 13:48 to 5/10/20 at 9:14.

[C] GCID RST sampling period was from 5/5/20 to 5/9/20. RST operating at half cone.

[D] Tisdale RST sampling period was from 5/4/20 at 10:00 to 5/11/20 at 9:45. RST operating at full cone.

[E] Knights Landing RST sampling period was from 5/4/20 at 10:15 to 5/11/20 at 10:45. RST operating at half cone.

[E] DatCall sampling data period was from 5/3/20 to 5/9/20.

[G] Lower American River RST sampling period was from 5/5/20 to 5/6/20.

[H] Caswell RST sampling period was from 5/5/20 to 5/8/20.

[I and J] Butte Creek Okie Diversion Trap and Okie Screw Trap data were not available.

Fish Monitoring Gear Efficiency/Disruptions: COVID-19 impacts.

Monitoring Survey	Status (5/12/20)
Delta	
SWP regular counts, CWT reading, and larval sampling	Ongoing through modified staffing
CVP regular counts, CWT reading, and larval sampling	Ongoing through modified staffing.
Smelt Larval Survey	Suspended temporarily. Completed data analysis ongoing.
20mm Survey	Starting 4/13/20, modified (prioritizing South/Central Delta). Starting on 5/11/20, increased to predominantly an entire survey with 44 stations representing all strata.
Bay Study	Suspended temporarily
DJFMP - Chipps and Sacrament Trawls	Occurring
DJFMP- Seines	Suspended since 3/17/20
EDSM	Occurring
EMP Continuous	Occurring
EMP Discrete	Suspended temporarily
Mossdale	Suspended since 3/16/20
USGS Flow monitoring	Occurring
Sacramento River	
Acoustic tagging - Battle Creek "Jumpstart" hatchery winter run Chinook	Tagged ~ 250 fish
Acoustic tagging - Offsite Release study of fall run Chinook	Postponed until 2021
Acoustic tagging - Spring run Chinook	Cancelled
Acoustic tagging - Pulse Flow experiment	One group will be tagged the week of 5/11/20, with future groups possible if pulse flow occurs, or there is interest in late May survival with no Sacramento River pulse
Red Bluff Diversion Dam screw trap	Suspended on 3/26/20 until further notice
Knights Landing screw trap	Ongoing through modified staffing
Tisdale screw trap	Ongoing through modified staffing
Redd dewatering and stranding surveys	Suspended March and April of 2020. Resumed May 2020
Sacramento Carcass and Redd Surveys	Carcass surveys continuing. Redd surveys suspended March and April but resumed in May 2020 (aerial redd surveys suspended until further notice)
San Joaquin River	
SJRRP CDFW and USFWS Field Monitoring	On hold until further notice
SJRRP USBR Field Monitoring	Ongoing with modified staffing
San Joaquin River Steelhead (Mokelumne Hatchery) acoustic tagging	Cancelled

Green Sturgeon

4 juvenile green sturgeon were detected on the Sacramento River, north of Sherman Lake on 5/5/20 and 5/7/20: 5/5/20 (1) and 5/7/20 (3). One juvenile green sturgeon was tagged on 5/7/20.

DOSS Weekly Salvage Update

Reporting Period: May 4-May 11, 2020

Prepared by Kyle Griffiths on May 12, 2020 7:30

Preliminary Results -Subject to Revision

Criteria	4-May	5-May	6-May	7-May	8-May	9-May	10-May	Trend	
Loss Densities									
Wild older juvenile CS	0	0	0	0	0	0	0	↘	0.00
Wild steelhead	4.48	6.45	3.08	0.86	0	1.47	0.86	↗	2.46
Exports									
SWP daily export	1,202	2,503	2,272	1,214	781	981	1,211	→	1,452
CVP daily export	1,946	1,948	1,951	1,949	1,953	1,959	1,962	↘	1,953
SWP reduced counts	0	0	0	0	0	0	0		
CVP reduced counts	8%	0	0	0	0	0	0		

Loss Density = fish lost/TAF; water export = AF; Trend = compared to previous week; wild = adipose fin present
Loss = estimated number of fish lost at the CVP and SWP Delta export facilities based on estimated salvage (see below)
Reduced counts = percentage of time that routine salvage sample time were less than 30 min per 2 hours of salvage and export operations
Yellow highlighted dates indicate TFCF salvage outage occurred

Chinook Salmon Weekly/Season Salvage and Loss

Combined salvage and loss for both CVP and SWP fish facilities

Race determined by size at date of capture; hatchery = adipose fin missing;

		Weekly Total			Season Total		Season Total - LAD	
Category		Salvage	Loss	Trend	Salvage	Loss	Salvage	Loss
Wild								
	Winter Run	0	0	↘	47	88	107	197
	Spring Run	87	248	↘	836	2,447	2259	4156
	Late Fall Run	0	0	→	12	8	12	8
	Fall Run	230	473	↘	2,344	3,209	861	1393
	Unclassified	0	0	→	0	0	0	0
	Total	**317**	**721**		**3,239**	**5,753**	**3,239**	**5,754**
Hatchery								
	Winter Run	1	4	↗	18	16	80	94
	Spring Run	2	9	↘	1,177	1,595	1048	1473
	Late Fall Run	0	0	→	195	153	186	144
	Fall Run	0	0	↘	49	35	125	88
	Unclassified	0	0	→	0	0	0	0
	Total	**3**	**13**		**1,439**	**1,799**	**1,439**	**1,799**

Trend = weekly loss per race; Salvage = estimated number of fish collected by the CVP and SWP fish protective facilities per unit of time
NC = cannot be calculated; hatchery salmon salvage and loss estimates have been corrected using CWT readings when available

Steelhead Weekly/Season Salvage and Loss

Combined salvage and loss for both CVP and SWP fish facilities

	Weekly Total			Season Total		Season Total since 4/1/2020	
Category	Salvage	Loss	Trend	Salvage	Loss	Salvage	Loss
Wild	32	66	↗	292	721	141	319
Hatchery	1	4	↘	428	659	394	684
Total	**33**	**70**		**720**	**1,380**	**535**	**1,003**

State Water Project loss = salvage x 4.33; Central Valley Project loss = salvage x 0.68

- Confirmed loss based on CWT is reported in Agenda Item 3 – the Outlook document.
- Salvage is greater than loss when more salmonids are observed at the CVP than the SWP.
- Additional salvage figures are found in the Assessment (Figures 1-3; pages 18 - 20).

SaMT Estimates of Fish Distribution
SaMT estimates of the current distribution of listed Chinook salmon, as a percentage of the population, are based on recent monitoring data and historical migration timing patterns.

Location	Yet to Enter Delta (Upstream of Knights Landing)	In the Delta	Exited the Delta (Past Chipps Island)
Young-of-year (YOY) winter-run Chinook salmon	0-1% Last week: 0-1%	2-3% Last week: 4-5%	96-98% Last week: 94-96%
YOY spring-run Chinook salmon	5-10% Last week: 5-10%	28-38% Last week: 43-53%	57-62% Last week: 42-47%
YOY hatchery winter-run Chinook salmon	0-1% Last week: 0-2%	4-20% Last week: 23-30%	80-95% Last week: 70-75%
Natural origin steelhead	0-10% Last week: 10-20%	35-55% Last week: 35-55%	45-55% Last week: 35-45%

Rationale for changes in distribution
Described in the Salmon Monitoring Team's Assessment document in abundance and distribution sections.

Agenda Item 6.
Fish Exposure and Behavioral Cues:

Historical Patterns

Described in the Salmon Monitoring Team's Assessment document in abundance and distribution sections (Figures 2, 6, 7; Pages 19, 21-22)

Current Conditions
Entrainment into the Interior Delta:
Described in the Salmon Monitoring Team's Assessment document.

DSM2
DSM2 – Results are provided in the Assessment documents weekly on Mondays and Fridays. SaMT reviewed the latest DSM2 results in Attachment A of the Assessment.

Sensitivity to Operational Actions - SaMT Feedback on Entrainment Risk
SaMT was provided a draft assessment on the previous Friday. Input that was received on Monday was incorporated into the draft assessment document that SaMT reviewed during the call on Tuesday morning.

Agenda Item 7.
Other Topics

SaMT discussed DWR's ITP categorization for entrainment, exposure, export, and overall risk.

8.1.5.1.C. Assessment of risk of entrainment into the central Delta and CVP/SWP facilities for winter-run Chinook salmon and spring-run Chinook salmon in the Sacramento River:

8.1.5.1.C.ii. Exposure Risk:	Winter-run Chinook salmon: Low Spring-run Chinook salmon: Medium
8.1.5.1.C.iii. Routing risk:	Winter-run Chinook salmon: Low Spring-run Chinook salmon: Low
8.1.5.1.C.iv. Overall Risk:	Winter-run Chinook salmon: Low-medium Spring-run Chinook salmon: Medium

8.1.5.1.D. CVP/SWP facilities entrainment risk for winter-run Chinook salmon and spring-run Chinook in the central Delta over the next week:

8.1.5.1.D.iii. Exposure risk assessments:	Winter-run Chinook salmon: Low Spring-run Chinook salmon: Medium
8.1.5.1.D.iv. Reporting OMR/export risk:	
OMR -500 cfs:	Winter-run Chinook salmon: Low Spring-run Chinook salmon: Low
OMR -1,100 cfs:	Winter-run Chinook salmon: Low Spring-run Chinook salmon: Low
OMR -3,500 cfs:	Winter-run Chinook salmon: Low Spring-run Chinook salmon: Low-Medium
8.1.5.1.D.v. Overall entrainment risk:	
OMR -500 cfs:	Winter-run Chinook salmon: Low Spring-run Chinook salmon: Low-Medium
OMR -1,100 cfs:	Winter-run Chinook salmon: Low Spring-run Chinook salmon: Low-Medium
OMR -3,500 cfs:	Winter-run Chinook salmon: Low-Medium Spring-run Chinook salmon: Medium

Several categories for entrainment risk were amended after the SaMT draft notes were distributed to more accurately reflect the discussion that occurred during the meeting:

- **8.1.5.1.C.iv. Overall Risk**: The overall entrainment risk for winter-run Chinook salmon which originally read Low-Medium, was changed to Low to be consistent with the categories determined in the exposure risk (8.1.5.1.C.ii) and routing risk. (8.1.5.1.C.iv). The overall entrainment risk for spring-run Chinook salmon, which originally read Medium, was changed to Low-Medium to also be consistent with the categories determined in the exposure risk (8.1.5.1.C.ii) and routing risk. (8.1.5.1.C.iv).

- **8.1.5.1.D.v. Overall entrainment risk**: The overall entrainment risk for winter-run and spring-run Chinook salmon was reformatted to more accurately describe the combination of overall risk based on a combination of exposure risk (8.1.5.1.D.iii) and categories determined in the reporting OMR/export risk (8.1.5.1.D.iv) based on the OMR levels forecasted to occur over the following week and consistent with the values evaluated in the DSM2 model runs for this week.

Agenda Item 8.
Additional Considerations for WOMT

- SaMT did not provide any recommendations to WOMT to change Delta operations.
- When evaluating risk to salmonids and sturgeon, SaMT considered potential changes to Delta operations resulting from the 5/11/20 Court issued Preliminary Injunction which requires the CVP to operate to the San Joaquin River I:E (2:1) ratio to the end of May.

Agenda Item 9.
Next SaMT Meeting is scheduled for Tuesday, 5/19/20 at 9:00 a.m.