BUREAU OF RECLAMATION

Assessment for CVP and SWP Delta Operations on ESA and CESA-listed Species

April 14, 2025

CVP and SWP export modifications more positive than -5,000 are unlikely to reduce loss or change the population level effect of exports on winter-run Chinook salmon.

Executive Summary

No hatchery or natural Winter-run Chinook Salmon were observed at either facility in the past week. For Winter-run, observations suggest good through-Delta survival and historical trends suggest salvage has peaked and will continue to taper off in mid-April. Seasonal observation and historical trends suggest continued absence of loss; therefore, CVP and SWP export modifications more positive than -5,000 are unlikely to reduce loss or change the population level effect of exports on winter-run Chinook salmon.

Operational Conditions

Section 3.13.3.4.1 of the Proposed Action and Section 8.1.4. of the Incidental Take Permit provide that during Old and Middle River (OMR) Management, the California Department of Water Resources, in coordination with Reclamation, shall provide State Water Project (SWP) and Central Valley Project (CVP) operational outlooks and assessments on a weekly basis to Water Operations Management Team (WOMT).

- The winter-run Chinook salmon Weekly Distributed Loss Threshold was exceeded on 3/19/2025 and 3/24/2025.
- The Delta is in excess condition with restrictions for Old and Middle River flow.
- As of April 3, 7-day average Qwest was 6,387 cfs. Modeling shows the zone of influence by exports of -5,000 is restricted to the South Delta.

Winter-run Chinook Salmon

Loss of natural-origin winter-run Chinook Salmon has not occurred in the past week. The hatchery-origin winter-run Chinook salmon 100% annual loss threshold was exceeded on March 22. Over the next week, loss of natural winter-run Chinook Salmon is unlikely based on historical data, although any daily loss will exceed the weekly distributed loss threshold of 0.0. Similarly, loss of hatchery-origin winter-run Chinook salmon is unlikely. Neither the natural- or hatchery origin incidental take limits will not be exceeded by any loss that may occur.

Operational and Regulatory Conditions

See current Weekly Fish and Water Operation Outlook document.

Biology, Distribution, and Evaluation of Winter-run Chinook Salmon

Winter-run Chinook Salmon

- Delta Life Stages
    - Juveniles, Adults
- Brood Year 2025 Information
    - Adult winter run Chinook salmon are migrating through the Bay-Delta.
    - As of March 27, Livingston Stone National Fish Hatchery has collected 40 females (13 natural origin) and 38 male (2 natural origin) winter-run chinook salmon adults at the Keswick Fish Trap site. For the Battle Creek Reintroduction Program, 30 females and 12 males have been collected and are being held at Livingston Stone NFH.
    - As March 27, no winter-run adult carcasses have been observed.
- Brood Year 2024 Natural Winter-run
    - Catch of juvenile winter-run Chinook Salmon at Red Bluff Diversion Dam has slowed as most fish are exiting the Delta and entering the Bay and ocean. Mean cumulative weekly passage of winter-run Chinook Salmon through March 31 at Red Bluff Diversion Dam (RBDD) for the last 20 years of passage data is 100%. The biweekly estimate (90% CI) as of December 31, 2024, was 422,554 (310,893-534,214) compared to an estimate 894,452 on a comparable date in BY 2023.
    - The final winter-run Chinook salmon Juvenile Production Estimate, which estimates the abundance of fish entering the Delta, for Brood Year 2024 is 98,893.
    - Delta entry sampling (i.e. Knights Landing RST, Sacramento Trawl) have not observed winter-run sized Chinook in the past week suggesting that little to no winter-run Chinook Salmon are still migrating into the Delta. Historically, on average 100% of winter-run have been captured at delta entry rotary screw traps and over 84%, on average, have been captured exiting the delta at Chipps Island as of April 14 (see Table 1). Based on historical data, the week of April 15-21 is past the end of genetically identified winter-run Chinook presence in the Delta.

- The STARS model estimates of winter-run Chinook salmon through-Delta survival across all routes during March of AN water year types was 0.64, respectively, from the LTO Biological Assessment (USBR 2024). From February to April 11, the STARS model estimated overall survival between 0.61 (80% CI: 0.47-0.73) and 0.79 (80% CI: 0.66-0.85). Overall survival is expected to remain fairly constant in the next few days (Figure 1), indicating continued good migratory conditions in the Delta.
- Historically, on average 96% of natural winter-run have been lost at the facilities by April 14 (Table 1). If historical loss trends continue during water year 2025, individual captures of natural winter-run would be expected to be less than 15 individual fish (Figure 2).
- Cumulative loss of winter-run Chinook salmon remains far below cumulative loss thresholds and has been low this water year (Figures 3 & 4). Overall, seasonal loss has been less than predicted for winter-run Chinook salmon (Figure 5) and is 0.029% of the juvenile production estimate. A total of ten genetically confirmed winter-run Chinook salmon have been salvaged this season. In the last 7 days, no winter-run Chinook salmon has been salvaged leading to a weekly 7-day running loss of 0 as of April 13 (Table 2, Figure 3). Weekly 7-day running loss is 0 as of April 13.

- Brood Year 2024 Hatchery Winter-run
  - Livingston Stone National Fish Hatchery released approximately 240,404 brood year 2024 winter Chinook Salmon into the Sacramento River on February 1, 2025, and 261,222 were released into the Sacramento River on February 13, 2025. Of these 888 were released with telemetry tags. The hatchery winter-run Juvenile Production Estimate estimates a JPE of 135,342 for these releases. Battle Creek winter-run Chinook salmon hatchery fish have not been released.
  - As of April 14, 236 of the acoustically tagged hatchery fish were detected on real-time receivers in the Sacramento River near the city of Sacramento and 222 were detected exiting the delta at Benicia Bridge (CalFishTrack). Estimates for survival to Tower Bridge were 41% in 2025 compared to 37% in 2024. Routing probability into Georgianna Slough and the interior delta in 2025 was 17%, which is almost double the estimate routing probability in 2024 (9%). Through-Delta survival (from the City of Sacramento to Benicia) for the 2025 hatchery winter-run Chinook salmon acoustically tagged release groups was estimated to be 64% compared to 69% in 2024. This real-time data suggests two things. The first is that survival to delta entry was higher than survival estimates used for calculating the hatchery winter-run JPE. Secondly, that a significant proportion of fish that survived to delta entry likely exited the Delta at Benicia Bridge and a smaller proportion routed towards the Delta export facilities.

- A total of 42 hatchery winter-run Chinook salmon have been salvaged this year, with three of these fish being salvaged in the past 7 days. This has produced a cumulative loss of 216.58 fish, which is 133% of the 100% cumulative loss threshold (Figure 3).

Delta Hydrodynamics

QWest is an estimate of net flow at Jersey Point. It is anticipated QWest will be positive, ranging between 4,600 to 6,200 cfs the week of April 14. Rio Vista flows were 37,673 cfs as of April 13, with a predicted range of 25,000-37,000 cfs this week

Based on forecasted Sacramento and San Joaquin River inflows in the weekly fish and water operations outlook, the Delta hydrodynamics approximate those in a HiMed category (USBR 2024). In the HiMed condition, when the modeled proportion of the total DSM2 channel length experiencing medium hydrologic influence at -5,000 and -3,500 is measured, we see the proportion of channel length experiencing hydrologic influence is approximately twice as large at -5,000 from 188,818 feet to 392,039 feet. (USBR 2024 Figure I.3-121). When this is considered spatially, areas that reflect medium and high hydrologic alteration (0.0-0.75 proportional overlap of estimated velocities) at DSM2 nodes retreats from Rock Slough south to Railroad Cut when OMR are modified from - 5,000 to -3,500 (USBR 2024 Figure I.3-107).

Evaluation

Last week was past the peak in loss based on historic trends, modeling and this year's observations (Table 1, Figures 3 & 4), and no hatchery- or natural-origin Winter-run Chinook salmon (LAD) were salvaged. Absence of loss of hatchery- and natural-origin winter-run Chinook salmon is likely to continue, based on observations and historical trends. Median predicted loss is expected to continue at a higher rate in the –5000 OMRI scenario than the more positive OMRI scenarios (Figure 6; Table 3a, 3b) using the Tillotson et. al. model (2022) with a high amount of uncertainty in the predictions. River and through-Delta survival has been high this winter suggesting juvenile winter-run Chinook salmon are still exiting the Delta.

Hydrodynamics in the Delta suggest the export footprint does not extend into the Interior Delta and remains south of Frank's Tract. These conditions suggest a small risk on entrainment for migrating juvenile winter-run Chinook salmon.

Seasonal behavior rather than OMRI are likely driving observed loss at facilities. Therefore, absence of hatchery-origin winter-run Chinook salmon in salvage may continue this week with a low and declining probability of additional loss.

Table 1. Historic migration and salvage patterns for winter-run Chinook salmon. Average percentage and 95% confidence intervals in parentheses. Last updated 4/14/2025

Species	Red Bluff Diversion Dam	Knights Landing RST	Sac Trawl Sherwood Harbor	Chipps Island Trawl	Salvage
Chinook, LAD Winter-run, Unclipped	100% (100%,100%) BY: 2015 - 2023	100% (100%,100%) BY: 2015 - 2023	91% (81%,100%) BY: 2015 - 2023	84% (74%,95%) BY: 2015 - 2023	96% (94%,99%) WY: 2015 - 2024
Chinook, LAD Spring-run, Unclipped	81% (72%,90%) BY: 2015 - 2023	81% (68%,94%) BY: 2015 - 2023	63% (53%,73%) BY: 2015 - 2023	24% (135%,36%) BY: 2015 - 2023	25% (8%,42%) WY: 2015 - 2024
Steelhead, Unclipped (January-December)	5% (3%,7%) BY: 2015 - 2024	58% (38%,79%) BY: 2015 - 2024	68% (42%,94%) BY: 2015 - 2024	68% (55%,81%) BY: 2015 – 2024	N/A
Chinook, DNA Winter-run, Unclipped (Water Year)	N/A	N/A	N/A	N/A	98% (94%,100%) WY: 2020 - 2024
Steelhead, Unclipped (Water Year)	N/A	N/A	N/A	N/A	68% (58%,79%) WY: 2015 - 2024

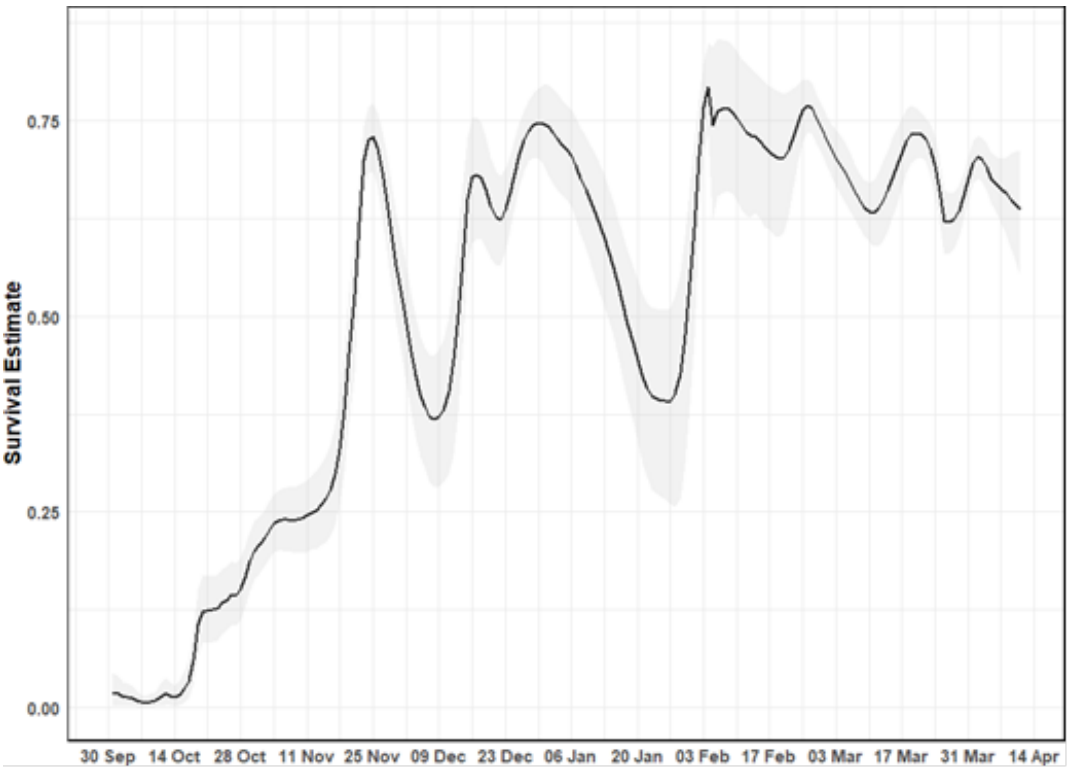

Figure 1. Temporal variation in overall survival estimates for outmigrating juvenile winter-run Chinook Salmon in the Delta with 80% credible intervals (shaded region) from October to April 11.

Figure 1 is a line graph depicting Survival Estimate (from 0%-75%) over the months October to March. The line starts slightly above 0.00% in October, reaches a peak above 75% in early February, and ends at about 63% in late March. There are significant dips in the line to 37.5% in early December, and to slightly above 37.5% at the end of January.

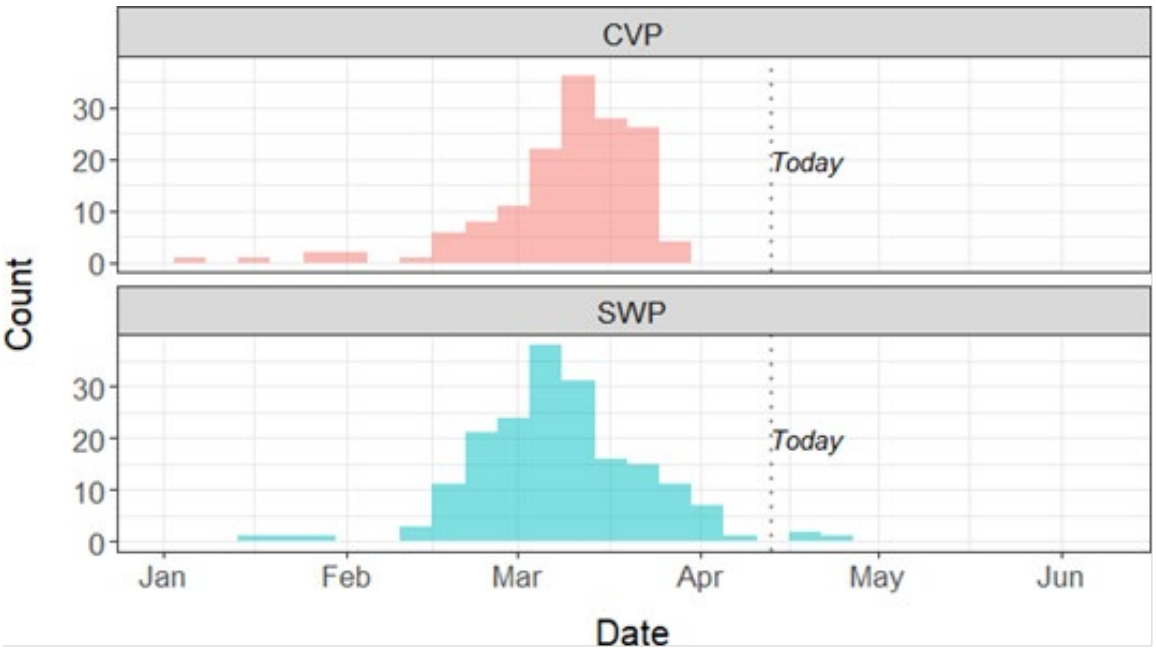

Figure 2. Distribution of genetically confirmed winter-run salvaged at the Central Valley Project (CVP) and State water Project (SWP) from 2011-2024.

Figure 2 is two line graphs depicting Count (0-30) over Date (January-June). Both CVP and SWP peak in earl March. A vertical dotted line represents the most current date (April 14).

Table 2. Summary of weekly loss of winter-run to inform weekly distributed loss thresholds. Winter-run thresholds are triggered when 7-day rolling sum of loss exceeds the daily threshold based on historic proportion of winter-run present in the delta.

*Indicates all or a portion of Winter-run loss has not been genetically confirmed

Date	Winter-run Daily Loss	Winter-run 7-day rolling sum loss	Winter-run Daily Threshold	Winter-run Daily Trigger
Apr 08	0	0	0	No
Apr 09	0	0	0	No
Apr 10	0	0	0	No
Apr 11	0	0	0	No
Apr 12	0	0	0	No
Apr 13	0	0	0	No
Apr 14	0	0	0	No

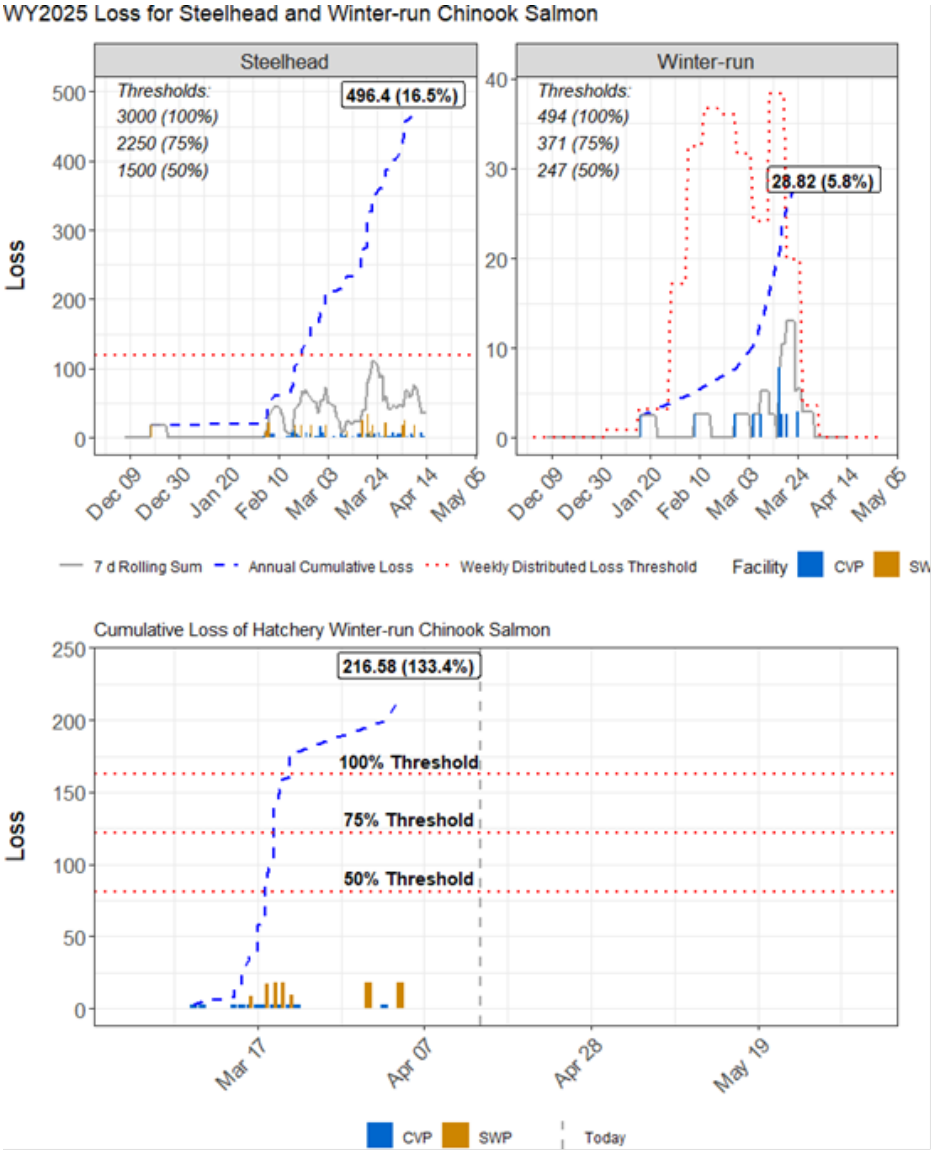

Figure 3. WY 2025 Loss for Steelhead and Winter-run Chinook Salmon

Figure 3 is 3 line graphs depicting annual cumulative loss (blue dashed line), 7-day rolling sum (grey line), weekly distributed loss threshold (red dotted line), and loss by day at the CVP (blue columns) and SWP (orange columns) for winter-run Chinook salmon and CCV steelhead in the top graphs. Cumulative loss of hatchery origin winter-run is depicted in the bottom graph. Bolded numbers indicate total cumulative loss for both species with percentages in parentheses representing the percentage of annual loss thresholds.

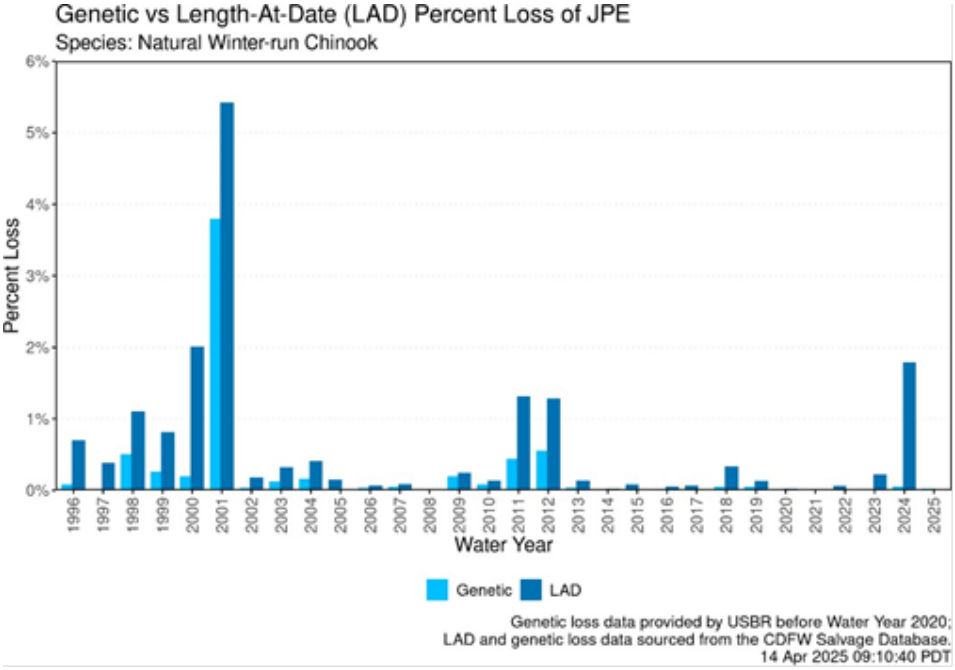

Figure 4. Genetic vs Length-At-Date (LAD) Percent Loss of JPE

Figure 4 is a bar graph depicting annual cumulative loss of genetic and length-at-date winter-run Chinook Salmon. Genetic loss is depicted in light blue, and LAD loss is depicted in dark blue. The peak loss year for both Genetic and LAD was 2001.

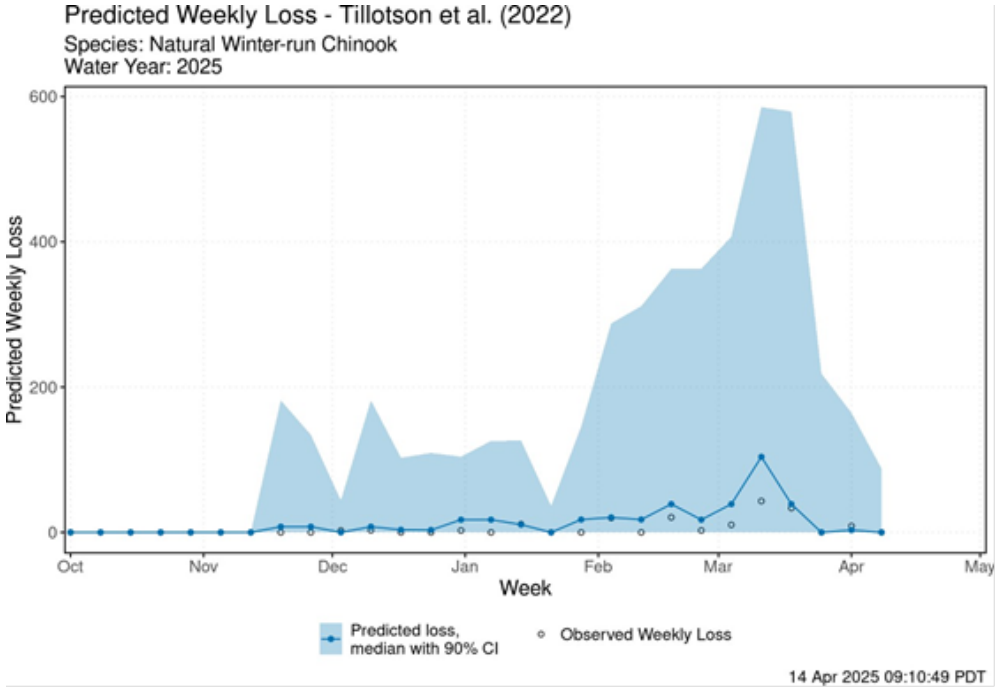

Figure 5. Predicted weekly winter-run Chinook salmon loss through the Tillotson et al (2022) model.

Figure 5 is a line graph depicting Predicted weekly Loss (0-600) over Week (months October-April). A blue shaded area represents predicted loss, and median with 90% CI, and hollow circles depict the observed weekly loss. The observed median shows a peak in early-mid March, and the predicted median shows peaks in late November, early December and early-mid March.

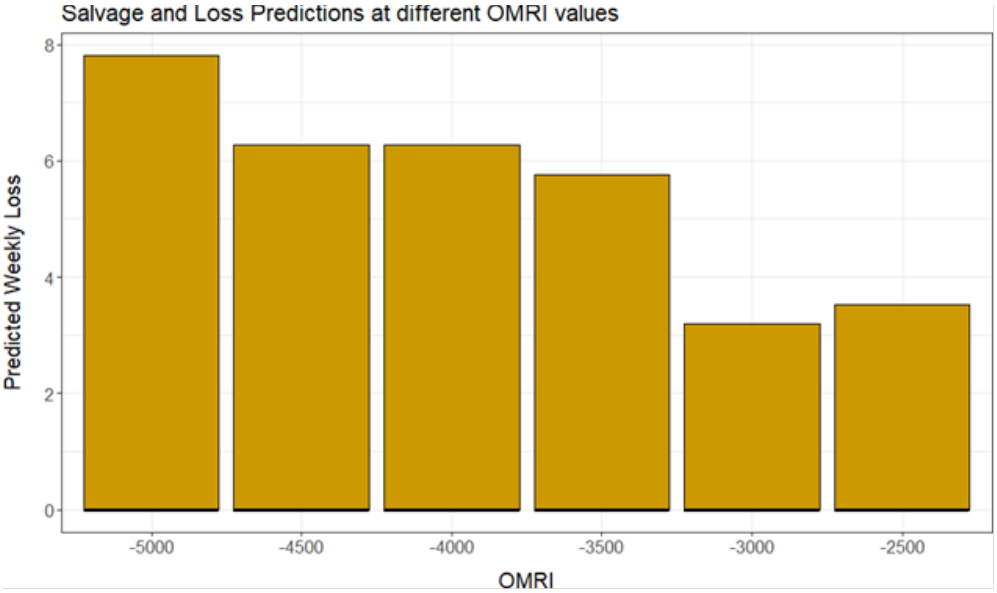

Figure 6. Salvage and Loss Predictions at Different OMRI Values

Figure 6 is a bar graph depicting Predicted Weekly Loss (0-8) over OMRI (-5000 to -2500). Bar extents represent 25th and 75th percentile of predicted weekly loss and a horizontal solid line represents median predicted weekly loss. Updated 4/14/25.

Table 3a. WY 2025 loss and salvage predictor data: Predicted weekly loss of LAD winter-run Chinook salmon at CVP and SWP facilities. Updated 4/7/25.

Output	Modeled Current Week	Projected -5000 OMRI	Projected -3500 OMRI
Predicted Chinook Winter Run, Median %	35	17	13
Predicted Chinook Winter Run, High %	297	114	84

Table 3b. Environmental and operational details for current, projected -5000, and -3500 scenarios. Only OMR flows were changed to evaluate potential changes in loss.

Parameter	Current Condition (~-5,000 OMRI)	Projected -3500
Temperature (Mallard Island, C)	14.3	14.3
Precipitation (5-d running sum, inches)	0.04	0.04
Old and Middle River Flows (cfs)	-4957	-3500
Sacramento River Flow (Freeport, cfs)	46233	46233
DCC Gates	closed	closed
San Joaquin River Flow (Vernalis, cfs)	3505	3505
Export	5226	5226

References

U.S. Bureau of Reclamation. 2024. Attachment 1.5 Survival, Travel Time, and Routing Simulation Model. Environmental Impact Statement for the Long-term Operation of Central Valley Project and State Water Project. 33 p.

Attachment A: Relevant Proposed Action and Incidental Take Permit Sections

Incidental Take Permit 8.4.3 & Proposed Action 3.7.4.5.3 Winter-Run Chinook Salmon Annual Loss Threshold

Threshold Reclamation and DWR will manage OMR to avoid exceeding the following annual loss thresholds:

- Natural winter-run Chinook salmon (loss = 0.5% of JPE)
- Hatchery winter-run Chinook salmon (loss = 0.12% of JPE)

JPEs and annual loss thresholds will be calculated for natural winter-run Chinook and for each of the hatchery winter-run Chinook Salmon populations from LSNFH and Battle Creek. The JPE for natural and hatchery winter-run Chinook salmon will be calculated at least annually by the JPE SubTeam, as described in Appendix- Winter-Run Juvenile Production Estimate, and transmitted to WOMT and SHOT. Hatchery releases of winter-run Chinook salmon will be tracked individually, and cumulative loss will be summed across release groups with the same JPE and annual loss threshold. Loss shall be calculated for the export facilities using the 2018 CDFW loss equation (Attachment R).

Annual loss of natural and hatchery winter-run Chinook salmon at the CVP and SWP salvage facilities will be counted for each Brood Year, starting July 1 of the calendar year through June 30 of the following calendar year. If cumulative loss of natural or hatchery winter-run Chinook salmon in a brood year exceeds 50% of the annual loss thresholds, then DWR and Reclamation will adjust south Delta exports to maintain a 7-day average of the OMR value no more negative than -3,500 cfs for 7 consecutive days, to be assess on the seventh day of the averaging period after initiating operational changes in response to the OMR trigger. Once exceeded, each winter-run observed in salvage would trigger another operation to an OMR limit of -3,500 cfs for 7 days.

If the cumulative loss of natural or hatchery winter-run Chinook salmon in a brood year exceeds 75% of the annual loss thresholds, then DWR and Reclamation will adjust south Delta exports to maintain a 7-day average of the OMR value no more negative than the -2,500 cfs for seven consecutive days, to be assess on the seventh day of the averaging period after initiating operational changes in response to the OMR trigger, when the Winter-Run Chinook Salmon Machine Learning Model and associated OMR Conversion Tool predict that the change to -2,500 cfs will shift the model output to a classification of absence with a minimum probability of absence prediction of 0.559 for 1 of 30 sub-models for any of the 7 most recent prediction days. These prediction values are calculated based on length-at-date and will be updated once genetic analysis is fully adopted.

If the cumulative loss of either natural or hatchery-origin winter-run Chinook Salmon in a brood year exceeds 100 percent of the annual loss thresholds, then DWR and Reclamation will immediately convene the Salmon Monitoring Team (SaMT) to review recent fish distribution

information and operations and provide advice regarding future planned SWP and CVP operations to minimize subsequent loss during that year. The SaMT will report the results of this review and advice to the WOMT. Operational decisions will be made following the process described in Section 3.3.18, Governance. If either annual loss threshold is exceeded, DWR and Reclamation will also convene an independent peer review panel to review SWP and CVP operations and the annual loss thresholds prior to November 1. The purpose of the independent peer review is to review the actions and decisions contributing to the loss trajectory that led to an exceedance of an annual loss threshold and make recommendations on modifications to SWP and CVP operations, or additional actions to be conducted to stay within the annual loss thresholds in subsequent years.

Reclamation and DWR will restrict exports in response to meeting the above thresholds based on the initial length-at-date identification of natural older juvenile Chinook salmon and the thresholds described above. If genetic analysis of natural older juvenile Chinook salmon observed in salvage at the SWP or CVP indicates that any given Chinook salmon is not genetically winter-run Chinook salmon, these fish will not count towards annual the loss threshold exceedance, and continued export adjustments pursuant to the OMR limit may not be required. Given that SHERLOCK is a new methodology currently undergoing peer review and field testing, both methodologies will be used to determine the final identification. In the event that SHERLOCK and GT-seq provide different run assignments, the results from the GT-seq method will be used to determine the final run assignment for the purposes of implementing this early season migration action. If a fish is not genetically identifiable or if genetic identification is pending, then the Delta model length-at-date criteria shall be used to classify the race of the juvenile Chinook Salmon in salvage.

Incidental Take Permit 8.4.4 & Proposed Action 3.7.4.5.4 Natural-origin Winter-run Chinook Salmon Weekly Distributed Loss Thresholds

To minimize the potential for a disproportionate impact of entrainment and loss on any single week of natural-origin juvenile CHNWR present in the Delta, Permittee shall, in coordination with Reclamation, manage the OMR index based on a natural-origin CHNWR weekly distributed loss threshold. The natural-origin CHNWR weekly loss threshold is a product of the weekly percentage of natural-origin CHNWR present in the Delta, scaled to 100% (Table 4, Column E), and 50% of the natural-origin CHNWR annual loss threshold (Condition of Approval 8.4.3).

If the weekly distributed loss threshold is exceeded on any single day by the 7-day rolling sum of natural-origin CHNWR loss, then Permittee shall, in coordination with Reclamation, adjust south Delta exports to achieve a 7-day average of the OMR index no more negative than -3,500 cfs for seven consecutive days until seven days after the most recent exceedance. Permittee shall calculate loss for the south Delta export facilities using the 2018 CDFW loss equation (Attachment 8).

If the natural-origin CHNWR JPE is not available at the start of OMR Management season (Condition of Approval 8.3), then the Red Bluff Diversion Dam brood year total from the most recent bi-weekly period shall be used and applied as described for early season management

(Condition of Approval 8.2.1) to the annual loss threshold until the final natural-origin CHNWR JPE is available. The CHNWR JPE surrogate is calculated using the following formula:

- Natural-origin CHNWR JPE Surrogate = Red Bluff Diversion Dam juvenile CHNWR brood year passage total estimated from the most recent biweekly period x SurvivalFry-to-Smolt x SurvivalSmolt

Permittee shall, in coordination with Reclamation, adjust south Delta exports in response to meeting the below natural-origin CHNWR weekly thresholds based on the initial length-at-date identification of natural-origin older juvenile Chinook Salmon and the thresholds described below. If genetic analysis of natural-origin older juvenile Chinook Salmon observed in salvage at the SWP or CVP subsequently confirms that any given Chinook Salmon is not genetically identified as a CHNWR, that fish will not count towards the loss threshold exceedance, and continued export restrictions pursuant to the OMR index limit may not be required. While the new rapid genetic method, SHERLOCK, undergoes field testing, both it and the current GT-seq method shall be used to determine the final identification. In the event that SHERLOCK and GT-seq provide different run assignments, the results from the GT-seq method shall be used to determine the final run assignment for purposes of implementing Condition of Approval 8.4.4. If a fish is not genetically identifiable or if genetic identification is pending, then the length-at-date identification shall be used to classify the race of the juvenile Chinook Salmon in salvage for the purposes of implementing Condition of Approval 8.4.4.

Weekly thresholds shall be based on historical distribution (Table 4, Column E) of genetically identified CHNWR from water years 2017 through 2021 and will change every week (e.g., January 1-7, January 8-15). After the conclusion of the OMR Management season each summer, Permittee and Reclamation, through SaMT, shall compare weekly Delta entry and exit information to determine if the presence data were distributed similarly to the historical distribution data. The results of this review will be utilized as a part of the AMP to implement the Winter-run Old and Middle River Flows Management Adaptive Management Action (Attachment 4 and Condition of Approval 7.9.2)

To minimize the potential for a disproportionate impact of entrainment on any single week of natural winter-run Chinook salmon present in the Delta, Reclamation and DWR will manage the OMR index based on a weekly distributed loss threshold. There is no weekly distributed loss for hatchery winter-run Chinook salmon as they generally move through the Delta quickly.

The weekly loss threshold is a product of the weekly percentage of natural winter-run Chinook salmon present in the Delta, scaled to 100% (Table 3-10, Column E), and 50% of the natural winter-run annual loss threshold.

If the weekly distributed loss threshold is exceeded on any single day by the 7-day rolling sum of winter-run loss, then DWR and Reclamation will adjust exports to achieve a 7-day average of the OMR no more negative than -3,500 cfs for seven consecutive days. Loss shall be calculated for the export facilities using the 2018 CDFW loss equation (Attachment R).

The averaging period for OMR will begin within 3 days of a criterion being exceeded.

If a JPE is not available at the start of OMR management, then the RBDD Brood Year Total from the most recent bi-weekly period will be used and applied, as described for early season management. If a fish is not genetically identifiable or if genetic identification is pending, then the length-at-date identification will be used to classify the race of the juvenile Chinook salmon in salvage.

DWR and Reclamation, initially, will restrict exports in response to meeting the above thresholds based on the initial length-at-date identification of natural-origin older juvenile Chinook Salmon and the thresholds described above. If genetic analysis of natural-origin older juvenile Chinook Salmon observed in salvage at the SWP or CVP subsequently indicates that any given Chinook Salmon is not genetically identified as a winter-run Chinook Salmon, these fish will not count towards the loss threshold exceedance, and continued export adjustments pursuant to the OMR index limit may not be required. While the new method, SHERLOCK, undergoes field testing, both it and the current GT-seq method will be used to determine the final identification. In the event that SHERLOCK and GT-seq provide different run assignments, the results from the GTseq method will be used to determine the final run assignment. If a fish is not genetically identifiable or if genetic identification is pending, then the Delta model length-at-date criteria shall be used to classify the race of the juvenile Chinook Salmon in salvage.

Table 4. Historical (Water Years 2017–2021) Presence of Winter-run Chinook Salmon Entering the Delta (Column B), Exiting the Delta (Column C), in the Delta (Column D = Column B–Column C) and in the Delta Scaled to 100% (Column E).

Week (starting January 1) (A)	**Historical Cumulative entering the Delta (Sherwood Harbor) (B)**	**Historical Cumulative exiting the Delta (Chipps Island) (C)**	**Historical Present in Delta (D)**	**Historical Present in Delta (Scaled to 100%) (E)**
1/1–1/7	2.47%	1.65%	0.82%	0.32%
1/8–1/14	2.47%	1.65%	0.82%	0.32%
1/15–1/21	4.94	1.65%	3.29%	1.30%
1/22–1/28	4.94%	1.65%	3.29%	1.30%
1/29–2/4	19.75%	2.20%	17.55%	6.91%
2/5–2/11	38.27%	4.95%	33.32%	13.13%
2/12–2/18	43.21%	5.49%	37.72%	14.86%
2/19–2/25	46.91%	9.89%	37.02%	14.59%
2/26–3/4*	50.62%	18.13%	32.49%	12.80%
3/5–3/11	55.56%	30.77%	24.79%	9.77%
3/12–3/18	77.78%	38.46%	39.32%	15.49%
3/19–3/25	85.19%	64.84%	20.35%	8.02%
3/26–4/1	93.83%	90.11%	3.72%	1.47%
4/2–4/8	98.77%	99.45%	0%	0%

Week (starting January 1) (A)	Historical Cumulative entering the Delta (Sherwood Harbor) (B)	Historical Cumulative exiting the Delta (Chipps Island) (C)	Historical Present in Delta (D)	Historical Present in Delta (Scaled to 100%) (E)
4/9–4/15	100.00%	100.00%	0.00%	0.00%
4/16-End of Winter–run OMR Season	100.00%	100.00%	0.00%	0.00%

Notes: Data from genetically identified winter-run Chinook salmon entering the Delta (Sherwood Harbor Trawl) and exiting the Delta (Chipps Island Trawl) are used to estimate the percentage of winter-run Chinook salmon present in the Delta each week. Presence prior to January 1 each year is included in the first week of presence. OMR = old and middle river.

[a]The week of February 26–March 4 includes 8 days during leap years