



Weekly Assessment for Delta Operations on ESA and CESA-listed Salmonids and Osmerids including Current Delta Hydrologic Conditions

Last updated: Monday, May 04, 2026 at 3 PM

Executive Summary

ESA and CESA-listed Salmonids

- Entrainment management season is active.
- Annual Loss: 45 (0.43% of annual loss threshold) natural winter-run, 58 (4.45% of annual loss threshold) hatchery winter-run (Sac River), 251 natural steelhead (4.74%), 1887 (28.84% of annual loss threshold) hatchery steelhead, 1075 (48.90% of annual loss threshold) spring-run surrogate yearlings (Coleman Late-Fall), and 0 (0.00% of annual loss threshold) spring-run surrogate YOY (Feather River Spring-Run).
- Single-year Incidental Take Limit (ITL) Status: 45 (0.76% of 5,922 ITL) natural winter-run; 58 (4.46% of 1,301 ITL) hatchery winter-run (Sac River); 2 (3.85% of 52 ITL) hatchery winter-run (Battle Creek); 251 (4.74% of 5,294 ITL) natural steelhead.
- Spring-run surrogate ITL status (0.5% per release group, BiOp Table 184): YOY - Feather River Hatchery (2026-03-18): 0 (0% of 4,927 ITL); YOY - Feather River Hatchery (2026-03-19): 0 (0% of 5,245 ITL); YOY - Feather River Hatchery (2026-03-23): 0 (0% of 2,441 ITL); Yearling - Coleman NFH (2025-11-13): 9 (1.21% of 717 ITL); Yearling - Coleman NFH (2025-11-17): 0 (0% of 376 ITL); Yearling - Coleman NFH (2025-12-17): 774 (33.02% of 2,344 ITL); Yearling - Coleman NFH (2025-12-22): 257 (84.64% of 304 ITL); Yearling - Coleman NFH (2026-01-08): 35 (12.26% of 286 ITL).
- LAD winter-run presence in the Delta is decreasing based on historical Chipps Island Trawl monitoring.
- Steelhead presence in the Delta is decreasing based on historical Chipps Island Trawl monitoring.

ESA and CESA-listed Osmerids

- Delta smelt were most recently detected at Suisun Marsh.
- No longfin smelt salvage has been observed this water year.
- Turbidity in the central/south Delta is low.

Current Delta Hydrologic Conditions

Operational and Regulatory Conditions

The current controlling factor is D-1641, 1:1 ratio with Vernalis flows. See most recent weekly outlook for more information.

Current Conditions

Most recent inflow at Freeport in the Sacramento River and Vernalis in the San Joaquin River is 15,829 and 2,268 cfs respectively. Most recent Jersey Point Flow (JPF) is 3,116 cfs. Most recent 1-day, 5-day, and 14-day OMRI measurements were -1,314, -1,480, and -1,493 cfs, respectively, and most recent export data were 3,551 cfs for Jones Pumping Plant and 1,734 cfs for Henry O. Banks Pumping Plant.

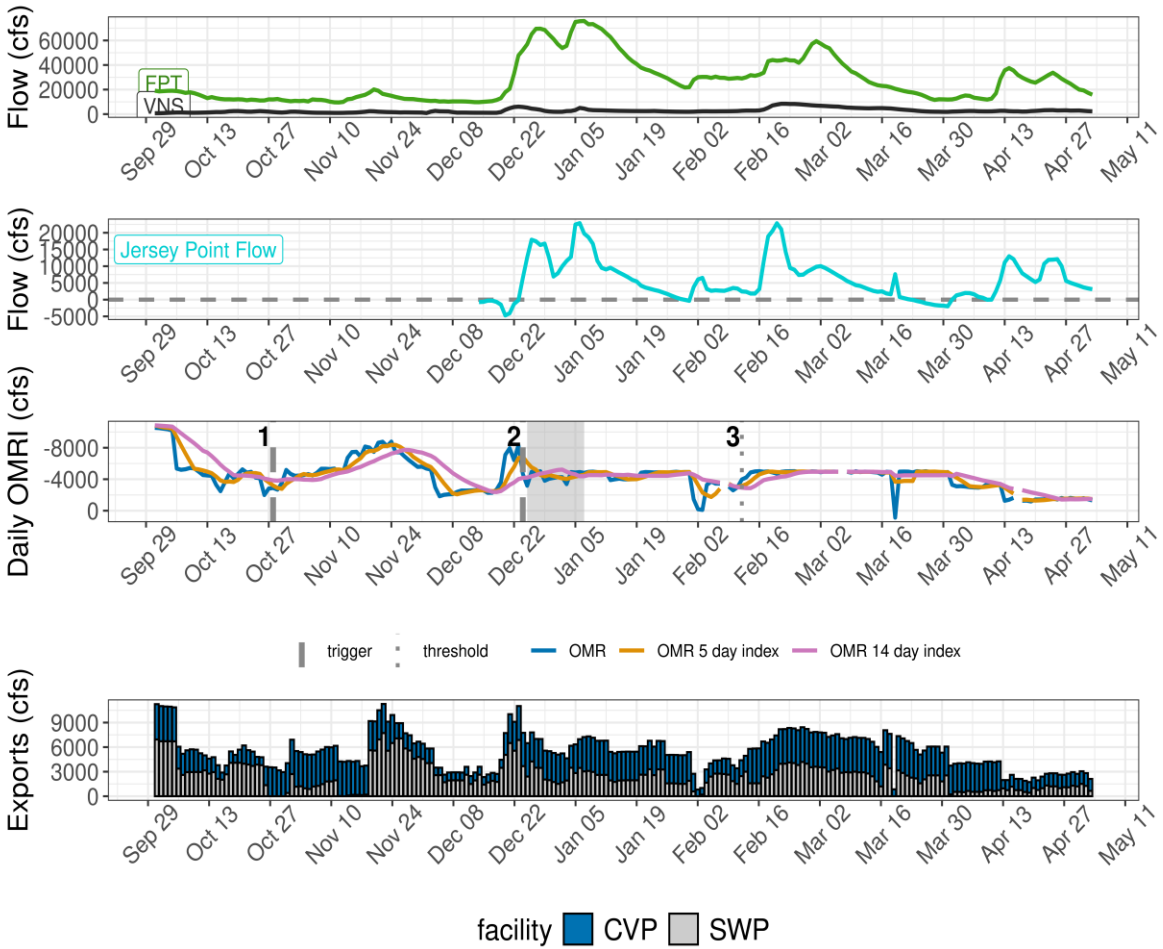


Figure 1: Operations and Action Summary, WY 2026. The numbers and lines in the OMRI plot indicate different triggers and thresholds (see Table 1), with shading representing specific action periods. Dashed and dotted vertical lines represent triggered actions and thresholds, respectively. OMRI data (colored lines) calculated by SacPAS, Freeport (FPT) and Vernalis (VNS) flow data from CDEC, Jersey Point Flow (JPF) from DWR, and CVP (TRP) and SWP (HRO) exports data from CDEC.

Figure 1 depicts four stacked graphs summarizing WY 2026 operations and hydrologic conditions. The first three are line graphs showing Freeport and Vernalis flow, Jersey Point Flow, and daily OMRI in cfs for OMR, OMR 5-day index, and OMR 14-day index. The last graph is a bar chart depicting exports in cfs through the Central Valley Project and State Water Project facilities. The x-axis for all four graphs spans late September 2025 through early May 2026.

Table 1: Summary of Actions and Triggers, WY 2026

Label	Action	Date Triggered	Date Implemented	Number Days Implemented	Regulation
1	DCC Gate Closure	10/28/2025	2025-10-30	Ongoing	DCC gates
2	First Flush	12/24/2025	2025-12-25	14 days	Entrainment Management
3	Offramp temperature threshold	2/12/2026	N/A	3 consecutive days	Delta Smelt Adult Entrainment, no action taken WY26

Zone of Influence

Zone of Influence (ZOI) analysis is discussed in detail in the December 22 assessment. Current conditions were queried from most recent Freeport flow data on the Sacramento River and Vernalis flow data on the San Joaquin river from [SacPAS](#). Forecasted flows were queried from short range deterministic flows provided by the [California Nevada River Forecast Center](#).

Current conditions at Freeport and Vernalis indicate that delta hydrology falls within the 'medmed' category. Forecasted conditions averaged across the next 7 days falls within the 'medlo' category.

The altered channel length for the current "medmed" hydrology is 26, 49, 101 and 163 kilometers (km) across OMR bins of -2000, -3500, -5000 and <-5500 respectively. The altered channel length for forecasted "medlo" hydrology is 17, 44, 112 and 168 kilometers (km) across OMR bins of -2000, -3500, -5000 and <-5500 respectively.

Change in altered channel length between OMR levels is 137 km for current conditions and 151 km for forecasted conditions indicating that ZOI impacts across OMR scenarios would increase between current and forecasted conditions. Across the nine hydrology bins, changes in altered channel length across OMR scenarios are high (>75th percentile) for both current and forecasted hydrology.

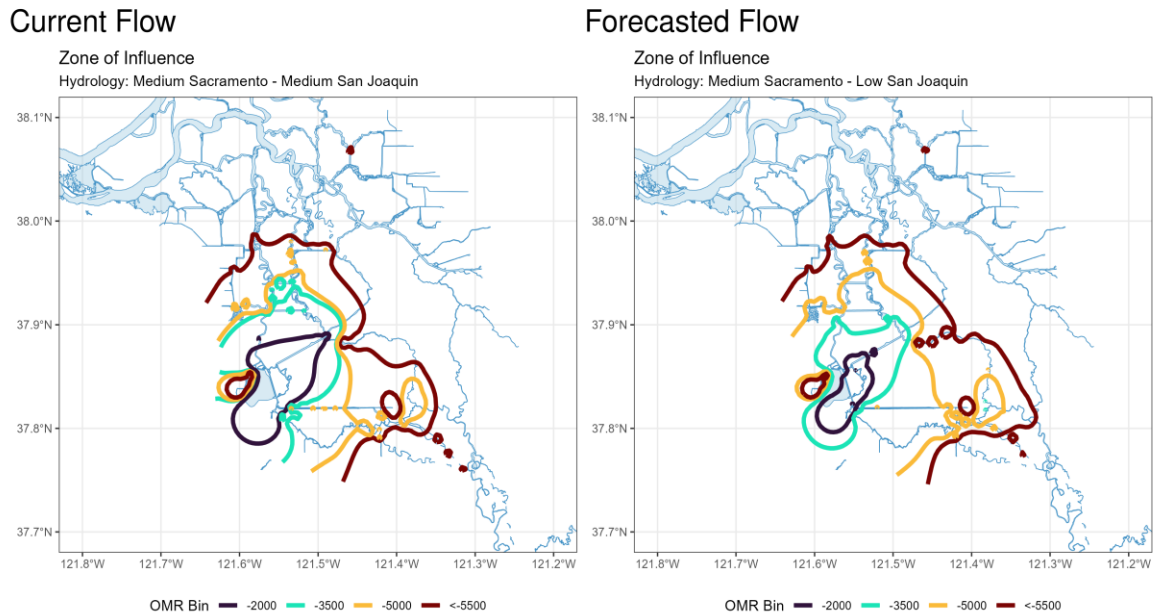


Figure 2: Modeled Zone of Influence at different OMR scenarios based on current inflow hydrology (left) and forecasted inflow hydrology (right) from the Sacramento River and San Joaquin River

Figure 2 contains two maps showing modeled Delta zones of influence under current flow conditions (left) and forecasted flow conditions (right). Each map displays colored contour lines representing different OMR flow scenarios, including -2,000, -3,500, -5,000, and less than -5,500 cfs, overlaid on Delta waterways and channels.

Assessment for Delta Operations on Salmonids

For more detailed data on salmonid conditions in the Delta see corresponding webpage on [SacPAS](#).

Natural Winter-run Chinook

Juvenile Production Estimate

The Juvenile Production Estimate for winter-run is 1,057,452 for the current water year.

Current Status

Delta Entry Timing - Historically, as of May 03, 100% of length-at-date (LAD) winter-run have entered the Delta based on Knights Landing RST catch, 100% have exited the Delta based on Chippis Island Trawl Catch, and 100% of DNA confirmed winter-run have been salvaged.

Table 2: Average percent of annual emigrating population for unclipped LAD winter-run captured at monitoring locations and salvaged at Delta facilities for the past 10 years.

Species	Red Bluff Diversion Dam	Tisdale RST	Knights Landing RST	Sac Trawl (Sherwood)	Chippis Island Trawl	Salvage
Chinook, LAD Winter-run, Unclipped	100%	100%	100%	100%	100%	100%
Chinook, DNA Winter-run, Unclipped (Water Year)	N/A	N/A	N/A	N/A	N/A	100%

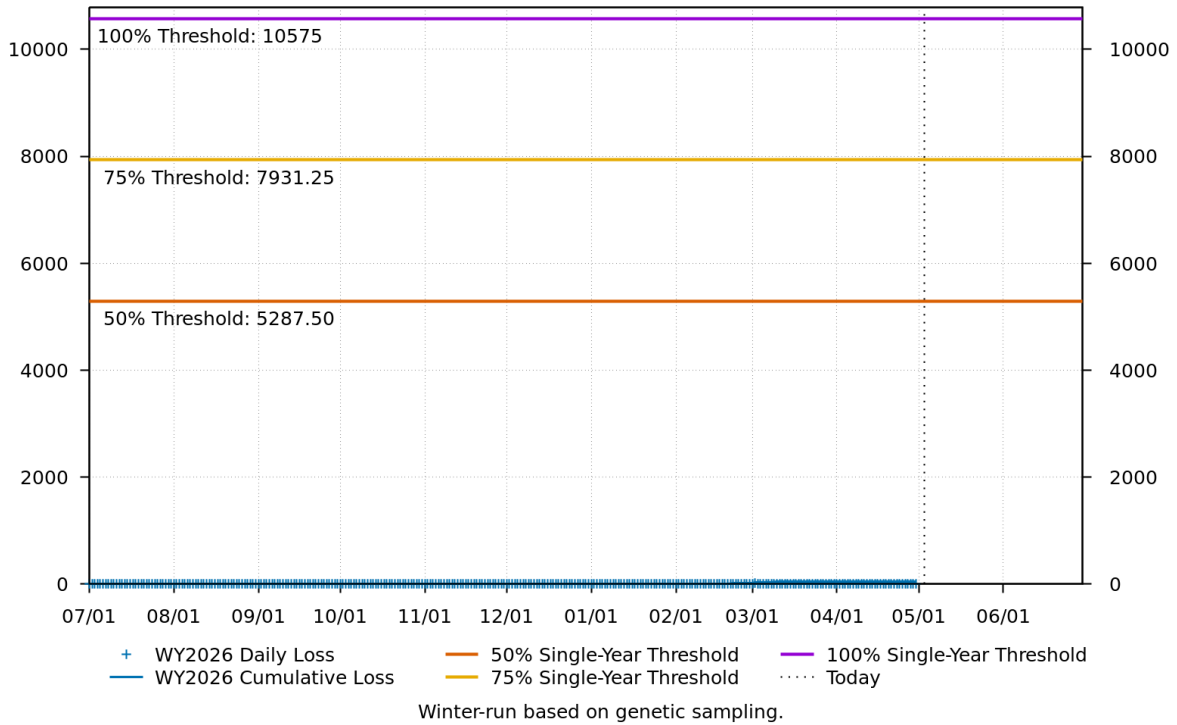
Red Bluff Diversion Dam Passage Estimate - As of Apr 15 estimated passage to date of LAD winter-run at Red Bluff Diversion is approximately 4.17 million fish. Note that outmigration timing overlaps with spring-run migrating fish, and true winter-run abundance likely differs from these estimates.

Delta Monitoring - Total catch of LAD winter-run at RSTs at Delta Entry (Tisdale, Knights Landing, Lower Sacramento River) between Apr 20 and Apr 27 is 0 individuals. Total catch at Sacramento Trawl and Beach Seines in the delta between Apr 20 and May 01 is 0 individuals. Total catch at Delta Exit at Chippis Island between Apr 20 and May 01 is 2 individuals.

Annual Loss

The annual loss threshold for natural winter-run is 1% of the JPE or 10,575 fish. The single-year incidental take limit (ITL) is 0.56% of the JPE (5,922 fish) or 0.36% on a 3-year rolling average (BiOp Table 184). As of May 03, cumulative loss of genetically confirmed winter-run is 45 or 0.43% of the annual loss threshold. Cumulative loss in the past 7 days has been 0.

WY2026 Natural DNA Winter-run Chinook Loss
Cumulative Loss to date: 45.42
Cumulative Loss percent of Threshold: 0.43%



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Figure 3: Cumulative loss of natural-origin winter-run for WY 2026. Cumulative loss is based on genetically confirmed winter-run captured in salvage or length-at-date winter-run in which genetic confirmation was unable to be obtained.

Figure 3 is a line graph showing cumulative loss of natural-origin winter-run Chinook for WY 2026 from July 2025 through June 2026. The graph displays daily loss and cumulative loss values compared against 50%, 75%, and 100% single-year threshold lines, with cumulative loss remaining well below all thresholds throughout the period. A vertical dotted line marks the current date in early May 2026.

STARS

The Delta STARS Model is an individual-based simulation model that predicts survival, travel time, and routing of juvenile salmon migrating through the Sacramento–San Joaquin River Delta. This model gives insight into survival and routing patterns of winter-run based on most current conditions.

As of May 03, overall through delta STARS estimated survival probability (with 80% credible intervals) is 0.04 (0.01-0.09) placing it in the 70th percentile of historical STARS survival estimates for the month of May (WYs 2018-2025). STARS estimated routing and survival probabilities (with 80% credible intervals) into the interior delta are 0.13 (0.1-0.16) and 0.01 (0-0.04), respectively, corresponding to the 55th and 69th percentiles of historical May estimates (WYs 2018-2025).

Overall Survival: Median survival of daily cohorts for all routes combined
Delta STARS Model -
Predicted Natural Winter-run Chinook Daily Cohorts Passage, Knights Landing to Chipps Island

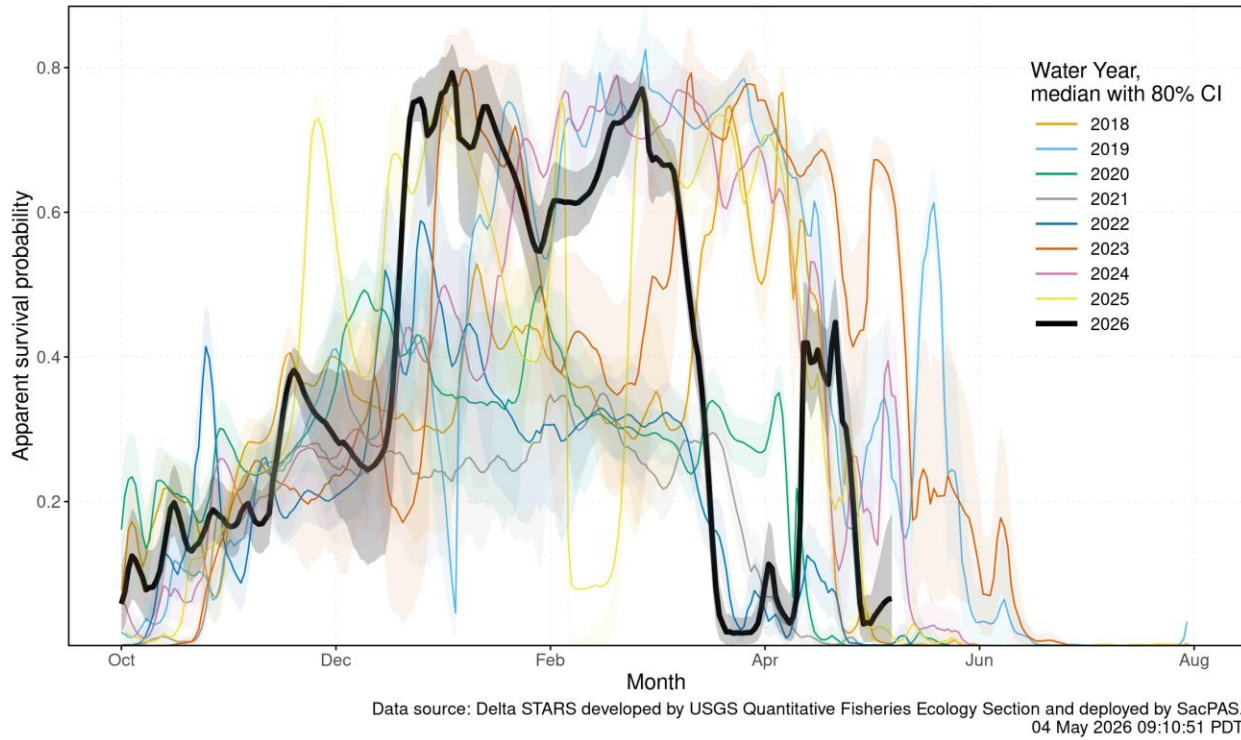


Figure 4: Estimated overall winter-run survival from Knights Landing to Chipps Island. Black line indicates the current water-year, and other colored lines correspond to past water years.

Figure 4 is a line graph showing estimated overall winter-run Chinook survival probability from Knights Landing to Chipps Island across multiple water years from 2018–2026. The black line represents WY 2026, while colored lines represent previous water years, with shaded bands indicating 80% confidence intervals. Survival probability generally increases through winter months before declining sharply in spring for most years.

Interior Delta Route-specific Survival Probability: Median survival of daily cohorts using the Interior Delta STARS Model - Predicted Natural Winter-run Chinook Daily Cohorts Passage, Knights Landing to Chipps Island

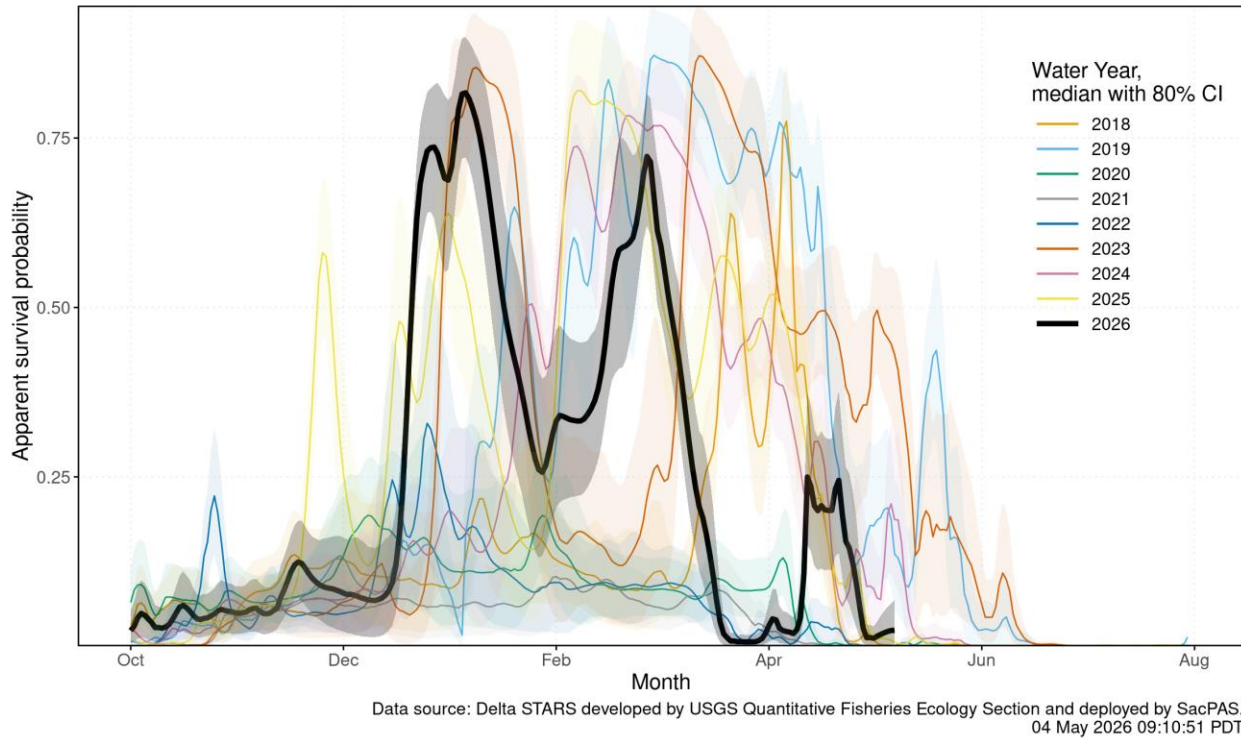


Figure 5: Estimated survival from Knights Landing to Chipps Island of simulated winter-run cohorts that route through the interior Delta. Black line indicates the current water-year, and other colored lines correspond to past water years.

Figure 5 is a line graph showing estimated survival probability of winter-run Chinook cohorts routing through the interior Delta from Knights Landing to Chipps Island across water years 2018–2026. The black line represents WY 2026, while colored lines represent previous water years, with shaded bands indicating 80% confidence intervals. Survival probability generally peaks during winter months before declining sharply by spring across most water years.

Interior Delta Route-specific Probability: Proportion of daily cohorts using the Interior Delta route
Delta STARS Model -
Predicted Natural Winter-run Chinook Daily Cohorts Passage, Knights Landing to Chipps Island

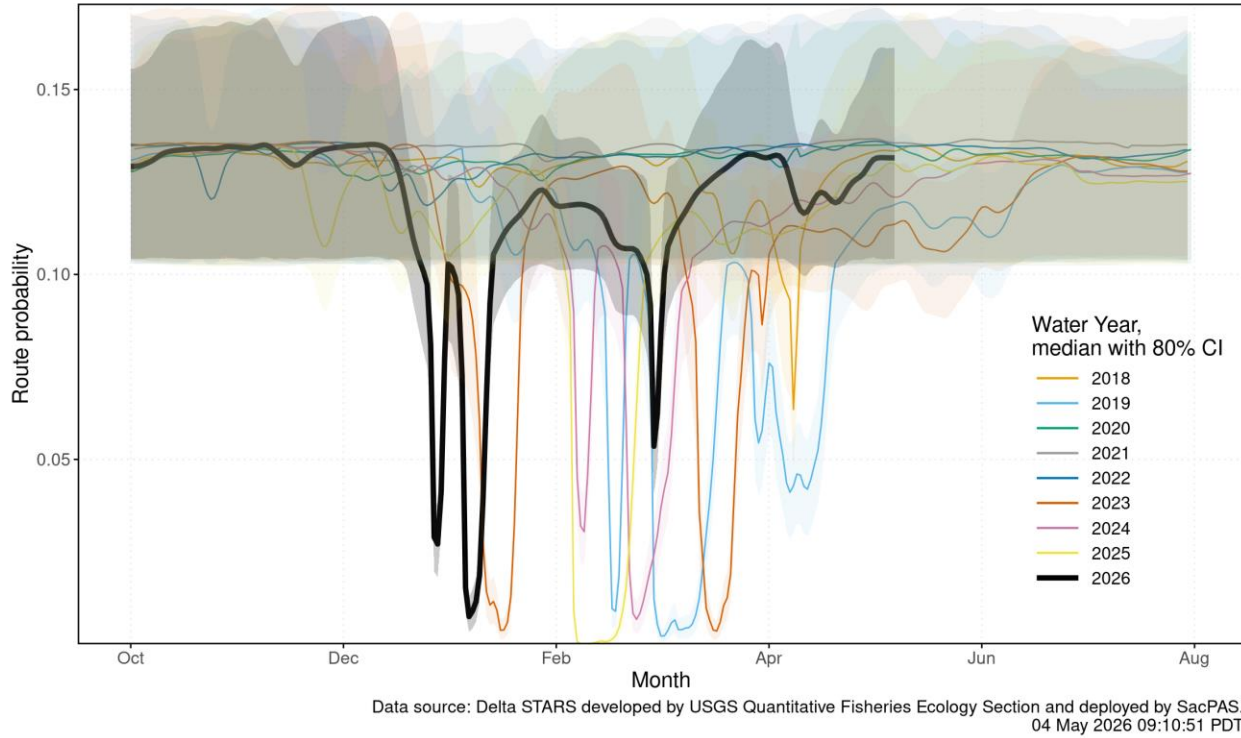


Figure 6: Estimated probability of winter-run routing into the interior Delta. Black line indicates the current water-year, and other colored lines correspond to past water years.

Figure 6 is a line graph showing the estimated probability of winter-run Chinook routing into the interior Delta across water years 2018–2026. The black line represents WY 2026, while colored lines represent previous water years, with shaded bands indicating 80% confidence intervals. Route probability generally remains near 0.13 for most years, with several water years showing temporary declines during winter and spring months.

Hatchery Winter-run Chinook – Sacramento River

Hatchery Releases

Livingston Stone National Fish Hatchery released a total of 466,344 winter-run Chinook salmon (February 18). All fish were 100% CWT-marked production fish released at the Sacramento River at John F. Reginato River Access. Release details are shown in the table below and available on SacPAS.

Table 3: Livingston Stone NFH winter-run Chinook salmon releases into the Sacramento River in Water Year 2026. Data sourced from SacPAS.

Release Date	Hatchery	Release Site	Release Type	Fish Released	% CWT Marked	CWT Tagcodes
February 18, 2026	Livingston Stone NFH	Sacramento River at John F. Reginato River Access	Production	466,344	100%	053800, 056770, 056788, 056789

Juvenile Production Estimate

The Juvenile Production Estimate for hatchery winter-run (Sacramento River releases) is 130,096 for Livingston Stone releases. The annual loss threshold is 1% of the JPE (1,301 fish), which is the same as the single-year ITL (BiOp Table 184).

Annual Loss

As of May 04, cumulative loss of Livingston Stone hatchery fish (Sacramento River releases) is 58 or 4.45% of the annual loss threshold (which equals the single-year ITL). Cumulative loss in the past 7 days has been 0.

Hatchery Winter-run Chinook – Battle Creek

Hatchery Releases

Livingston Stone National Fish Hatchery released a total of 207,067 winter-run Chinook salmon into Battle Creek (February 19). Release details are available on SacPAS.

Table 4: Livingston Stone NFH winter-run Chinook salmon releases into Battle Creek in Water Year 2026. Data sourced from SacPAS.

Release Date	Hatchery	Release Site	Release Type	Fish Released	% CWT Marked	CWT Tagcodes
February 19, 2026	Coleman NFH	North Fork Battle Creek Manton CA	Jumpstart	207,067	100%	056769

Juvenile Production Estimate

The Juvenile Production Estimate for hatchery winter-run released into Battle Creek is 5,186 based on 207,067 fish released. The single-year incidental take limit (ITL) is 1.0% of the JPE (52 fish) or 0.8% on a 3-year rolling average (BiOp Table 184).

Incidental Take

As of May 04, cumulative loss of Livingston Stone hatchery fish (Battle Creek releases) is 2 or 4.47% of the single-year ITL (52 fish). Cumulative loss in the past 7 days has been 0.

Natural-origin Central Valley Steelhead

Current Status

Delta Entry Timing - Historically, as of May 03, 78% of CCV steelhead have entered the Delta based on Knights Landing RST catch, 76% have exited the Delta based on Chipps Island Trawl Catch, and 80% have been salvaged.

Table 5: Average percent of annual emigrating population for unclipped CCV steelhead captured at monitoring locations and salvaged at Delta facilities for the past 10 years.

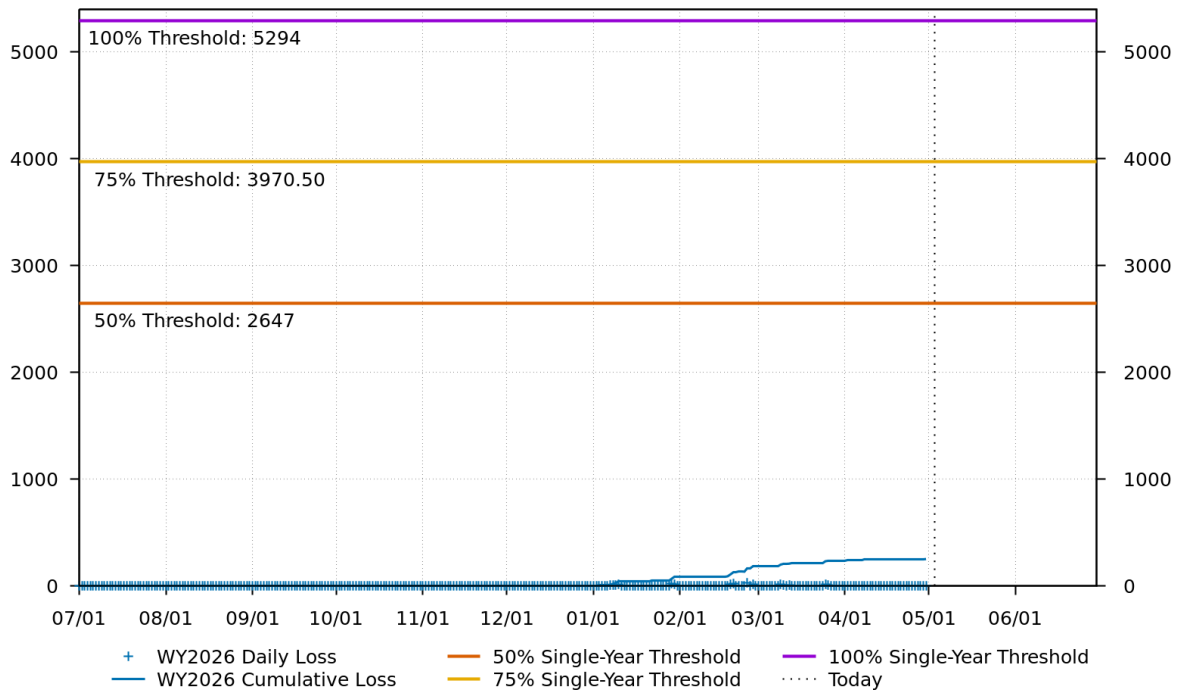
Species	Chipps Island Trawl	Knights Landing RST	Red Bluff Diversion Dam	Sac Trawl (Sherwood)	Salvage	Tisdale RST
Steelhead, Unclipped	76%	70%	16%	78%	80%	75%

Delta Monitoring - Total catch of unclipped steelhead at RSTs at Delta Entry (Tisdale, Knights Landing, Lower Sacramento River) between Apr 20 and Apr 27 is 0 individuals. Total catch at Sacramento Trawl and Beach Seines in the delta between Apr 20 and May 01 is 0 individuals. Total catch at Delta Exit at Chipps Island between Apr 20 and May 01 is 0 individuals.

Annual Loss

As of May 03, cumulative loss of unclipped steelhead is 251 or 4.74% of the single-year incidental take limit (ITL). There is no annual loss threshold for natural steelhead. The single-year ITL is 5,294 juveniles or 2,319 juveniles as a 3-year rolling average (BiOp Table 184). Cumulative loss in the past 7 days has been 38.

WY2026 Natural Steelhead Loss
Cumulative Loss to date: 251.04
Cumulative Loss percent of Threshold: 4.74%



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Figure 7: Cumulative loss of natural-origin steelhead for WY 2026. The 5,294 line represents the single-year incidental take limit (ITL), not a loss threshold.

Figure 7 is a line graph showing cumulative loss of natural-origin steelhead for WY 2026 from July 2025 through June 2026. The graph displays daily loss and cumulative loss values compared against 50%, 75%, and 100% single-year incidental take limit lines, with cumulative loss remaining well below all thresholds throughout the period. A vertical dotted line marks the current date in early May 2026.

Hatchery-origin Central Valley Steelhead

Surrogate Releases

There have been a total of 10 releases totaling 1,618,274 steelhead in Water Year 2026. JPE for the hatchery releases as of today is 654,130 based on estimated survivals using forecasted water year types (see details in table below). The annual loss threshold, equal to 1% of the JPE, is currently 6,541, but is subject to change with additional steelhead releases.

Table 6: Summary of steelhead hatchery releases in Water Year 2026. JPE calculated using hatchery-specific survival estimates to Delta entry from release location.

Hatchery	Date of Release	Number Released	Estimated Survival	Juvenile Production Estimate
NIM	2025-11-10	233,109	72%	167,838
Coleman	2025-12-15	555,720	38%	211,174
Coleman	2025-12-17	90,019	38%	34,207
FRH	2026-01-06	376,640	36%	135,590
FRH	2026-01-09	117,715	36%	42,377
MOK	2026-02-17	39,130	25%	9,783
MOK	2026-02-18	39,131	25%	9,783
MOK	2026-03-18	41,550	27%	11,219
MOK	2026-03-19	42,150	27%	11,381
MOK	2026-04-16	83,110	25%	20,778

Table 7: Hatchery-specific survival estimates used for JPE calculations.

Hatchery	Survival Estimate	Source
Coleman NFH	0.205 – 0.433	Sandstrom et al. 2020
Feather River Hatchery	0.09 – 0.45	Kurth 2013
Nimbus Hatchery	0.62 – 0.83	Brodsky et al. 2020
Mokelumne River Hatchery	0.25 – 0.33	Del Real et al. 2012

Total loss of hatchery-origin steelhead is 1869 or 28.58% of the annual loss threshold. Note that hatchery origin of salvaged fish cannot be determined at this time and salvage is based on the assumption of similar routing and survival probabilities of individual hatchery releases.

WY2026 Hatchery Steelhead Loss
Cumulative Loss to date: 1869.49
Cumulative Loss percent of Threshold: 28.58%

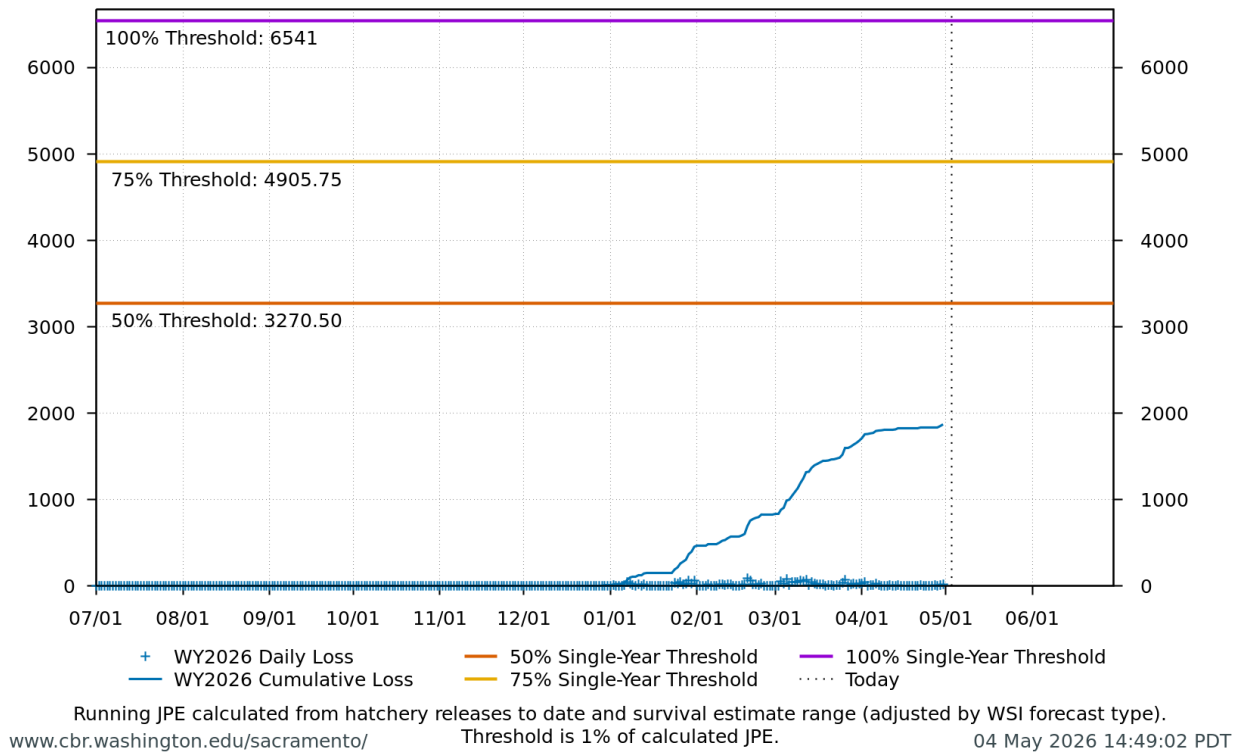


Figure 8: Cumulative loss of hatchery steelhead for WY 2026.

Figure 8 is a line graph showing cumulative loss of hatchery steelhead for WY 2026 from July 2025 through June 2026. The graph displays daily loss and cumulative loss values compared against 50%, 75%, and 100% single-year threshold lines, with cumulative loss increasing steadily through winter and spring while remaining below all thresholds. A vertical dotted line marks the current date in early May 2026.

Spring-run Chinook

Current Status

Delta Entry Timing - Historically, as of May 03, 96% of LAD spring-run have entered the Delta based on Knights Landing RST catch, 88% have exited the Delta based on Chipps Island Trawl Catch, and 69% have been salvaged.

Table 8: Average percent of annual emigrating population for LAD spring-run Chinook salmon captured at monitoring locations and salvaged at Delta facilities for the past 10 years.

Species	Red Bluff Diversion Dam	Tisdale RST	Knights Landing RST	Sac Trawl (Sherwood)	Chipps Island Trawl	Salvage
Chinook, LAD Spring-run, Unclipped	95%	100%	99%	96%	88%	69%

Red Bluff Diversion Dam Passage Estimate - As of Apr 15 estimated passage to date of LAD spring-run at Red Bluff Diversion is approximately 0.82 million fish. Note that outmigration timing overlaps with winter-run and fall-run outmigration, and true spring-run abundance likely differs from these estimates.

Delta Monitoring - Total catch of LAD spring-run at RSTs at Delta Entry (Tisdale, Knights Landing, Lower Sacramento River) between Apr 20 and Apr 27 is 0 individuals. Total catch at Sacramento Trawl and Beach Seines in the delta between Apr 20 and May 01 is 25 individuals. Total catch at Delta Exit at Chipps Island between Apr 20 and May 01 is 340 individuals.

Spring-run Surrogate Releases

A total of 3,327,812 spring-run surrogate fish have been released in Water Year 2026, with an estimated Juvenile Production Estimate (JPE) of 1,130,892 fish entering the Delta. This includes 805,323 Coleman Late-Fall Run Chinook yearlings (JPE: 219,852) released from Coleman National Fish Hatchery across 12 coded-wire tag groups, and 2,522,489 Feather River Hatchery Spring-Run young-of-year (JPE: 911,040) across 7 coded-wire tag groups. See details in table below.

Table 9: Spring-run Chinook salmon surrogate releases: Coleman Late-Fall yearlings and Feather River Spring-Run young-of-year (production and experimental). ITL is 0.5% of each release group (BiOp Table 184).

Hatchery	Release Date	Stock	Life Stage	Type	CWT Released	JPE	ITL (0.5%)	Loss	CWT Codes
Feather River Hatchery	2026-03-18	Spring-Run	YOY	Production	985,324	355,866	4,927	0	06322
Feather River Hatchery	2026-03-19	Spring-Run	YOY	Production	1,048,948	378,846	5,245	0	063036, 063236, 063239
Feather River Hatchery	2026-03-23	Spring-Run	YOY	Production	488,217	176,328	2,441	0	062858, 063234
Coleman NFH	2025-11-13	Late-Fall	Yearling	Production	143,346	39,134	717	9	056808, 056809
Coleman NFH	2025-11-17	Late-Fall	Yearling	Experimental	75,119	20,507	376	0	056810
Coleman NFH	2025-12-17	Late-Fall	Yearling	Production	468,876	128,002	2,344	774	053700, 056806, 056811, 056812, 056814, 056815,
Coleman NFH	2025-12-22	Late-Fall	Yearling	Experimental	60,873	16,618	304	257	056813
Coleman NFH	2026-01-08	Late-Fall	Yearling	Experimental	57,109	15,591	286	35	056816

Annual Loss

The annual loss threshold (Action 5) is 1% of the JPE entering the Delta, tracked cumulatively but separately for yearlings and young-of-year. Yearling surrogates (Coleman Late-Fall): the threshold is 2,199 fish; as of May 03, cumulative loss is 1,075 fish or 48.90% of the threshold. YOY surrogates (Feather River Spring-Run): the threshold is 9,110 fish; as of May 03, cumulative loss is 0 fish or 0.00% of the threshold. The single-year incidental take limit (ITL) is 0.5% of the estimated number of each surrogate release group (BiOp Table 184). ITL status by release group: YOY - Feather River Hatchery (2026-03-18, Production): 0 loss of 4,927 ITL (0%); YOY - Feather River Hatchery (2026-03-19, Production): 0 loss of 5,245 ITL (0%); YOY - Feather River Hatchery (2026-03-23, Production): 0 loss of 2,441 ITL (0%); Yearling - Coleman NFH (2025-11-13, Production): 9 loss of 717 ITL (1.21%); Yearling - Coleman NFH (2025-11-17, Experimental): 0 loss of 376 ITL (0%); Yearling - Coleman NFH (2025-12-17, Production): 774 loss of 2,344 ITL (33.02%); Yearling - Coleman NFH (2025-12-22, Experimental): 257 loss of 304 ITL (84.64%); Yearling - Coleman NFH (2026-01-08, Experimental): 35 loss of 286 ITL (12.26%)

Loss Prediction and Trajectories

The following figures display the current loss predictor model outputs for winter-run Chinook salmon and steelhead.

Winter Run Loss 2026-04-28 Water Year: 2026 & WY.week 30

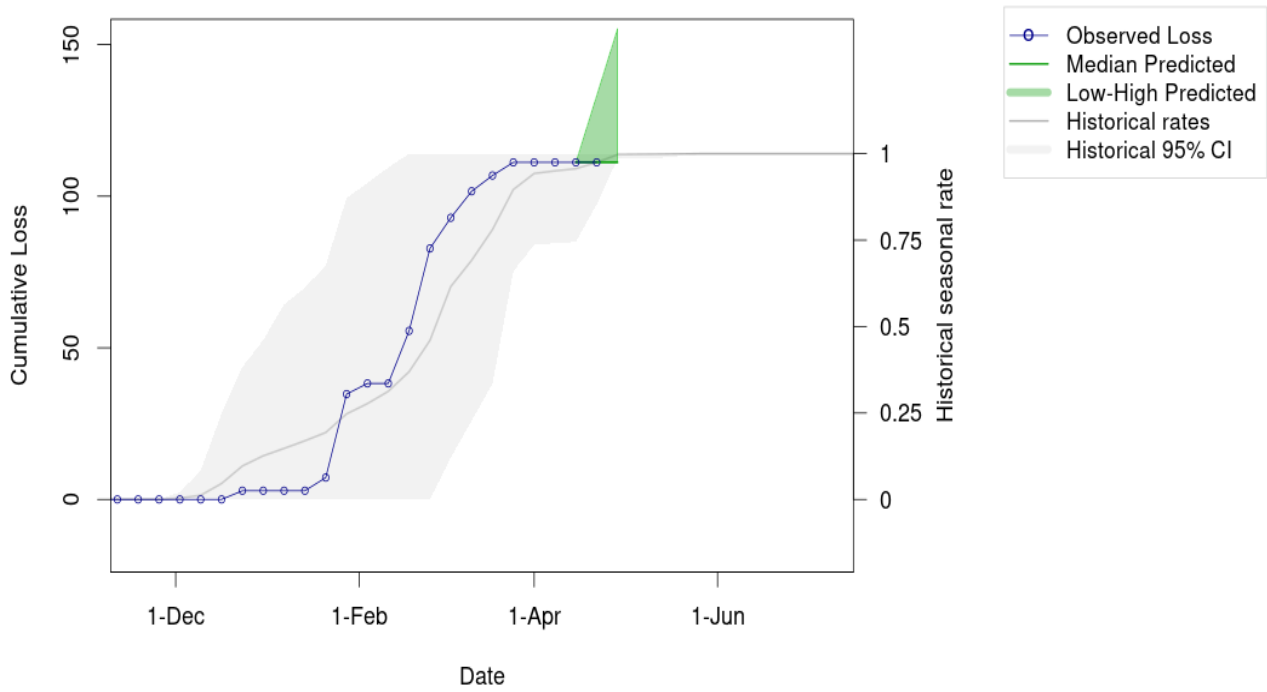


Figure 9: Estimates of winter-run Chinook loss generated by Loss and Salvage Predictor tool.

Figure 9 is a line graph showing observed and predicted winter-run Chinook cumulative loss for WY 2026 generated by the Loss and Salvage Predictor tool. The graph compares observed loss, median predicted loss, historical rates, and historical 95% confidence intervals from late 2025 through spring 2026, with projected loss ranges extending into May 2026.

Steelhead Loss 2026-04-28 Water Year: 2026 & WY.week 30

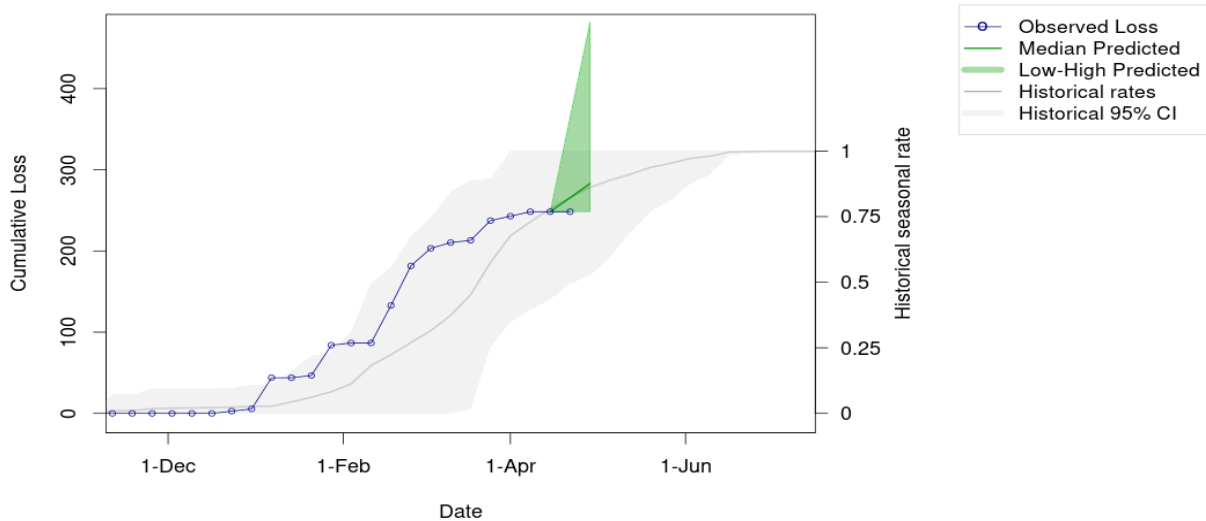


Figure 10: Estimates of steelhead loss generated by Loss and Salvage Predictor tool.

Figure 10 is a line graph showing observed and predicted steelhead cumulative loss for WY 2026 generated by the Loss and Salvage Predictor tool. The graph compares observed loss, median predicted loss, historical rates, and historical 95% confidence intervals from late 2025 through spring 2026, with projected loss ranges extending into May and June 2026.

Evaluation

1. What is the probability of exceeding natural or hatchery winter-run Chinook salmon loss thresholds in the upcoming week?
 - a. **LOW RISK:** Natural winter-run cumulative loss is currently 0.43% of the threshold. **LOW RISK:** Hatchery winter-run (Sac River) cumulative loss is currently 4.45% of the threshold. **LOW RISK:** Hatchery winter-run (Battle Creek) cumulative loss is currently 4.47% of the threshold.
2. What is the probability of exceeding spring-run Chinook salmon surrogate loss thresholds (yearling and YOY) in the upcoming week?
 - a. **LOW RISK:** Spring-run surrogate yearlings (Coleman Late-Fall) cumulative loss is currently 48.90% of the threshold. **LOW RISK:** Spring-run surrogate YOY (Feather River Spring-Run) cumulative loss is currently 0.00% of the threshold.
3. What is the probability of exceeding natural or hatchery steelhead loss thresholds in the upcoming week?
 - a. **LOW RISK:** Natural steelhead cumulative loss is currently 4.74% of the threshold.
 - b. **LOW RISK:** Hatchery steelhead cumulative loss is currently 28.84% of the threshold.

Weekly Assessment for Delta Operations on ESA and CESA-listed Osmerids

Operational and Regulatory Conditions

- See current Weekly Fish and Water Operations Outlook document.
- Additional information also available on the [SacPAS SMT page](#).

Delta smelt

Biological

- Delta smelt life stages detected in surveys:
- **Abundance estimate:** 2034 (95% CL: 162 to 8,959) as of the week of March 23–27, 2026

- **Releases:** A total of 163,349 cultured Delta smelt have been released for WY 2026. The most recent release of 24,606 fish occurred in Sacramento River at Rio Vista on Dec 16, 2025.
- **Delta smelt count:** 44 adult Delta smelt and 30 juvenile Delta smelt have been detected this water year. See Table 10 for recent detections, Figure 11 for spatial distribution, and Figure 12 for temporal distribution.
- **Delta smelt salvage:** 1 Delta smelt has been salvaged, and the cumulative seasonal salvage is 4.

Notes

- EDSM is currently in phase 2 (20-mm); detections are marked as *Hypomesus sp.* until genetic verification is returned, which may be 4-6 weeks delay. As a result, 'recent catch' in this assessment may be low until genetic verification has occurred.
- Since there are few recent detections of Delta smelt, estimation of distribution within the Delta is limited.
- As mentioned in EDSM reporting, fork length ranges reported for Delta smelt and longfin smelt life stages are defined by permit reporting purposes and are not intended to delineate cohorts or distinguish from hatchery or wild origin. See Table 10 caption for fork-length ranges for age groups of Delta smelt.
- See [SacPAS SMT Page](#) for additional details on releases and detection in surveys and salvage.
- Historical salvage trends can be found at: [SacPAS Salvage Timing](#)

Table 10: Delta smelt detections in the last 2 weeks. Fork Length > 58mm = Adult, Fork Length 20-58mm = Juvenile, Fork Length < 20mm = Larva.

Survey	Date	Region	Stratum	Life Stage	Catch
NA	NA	NA	NA	NA	NA

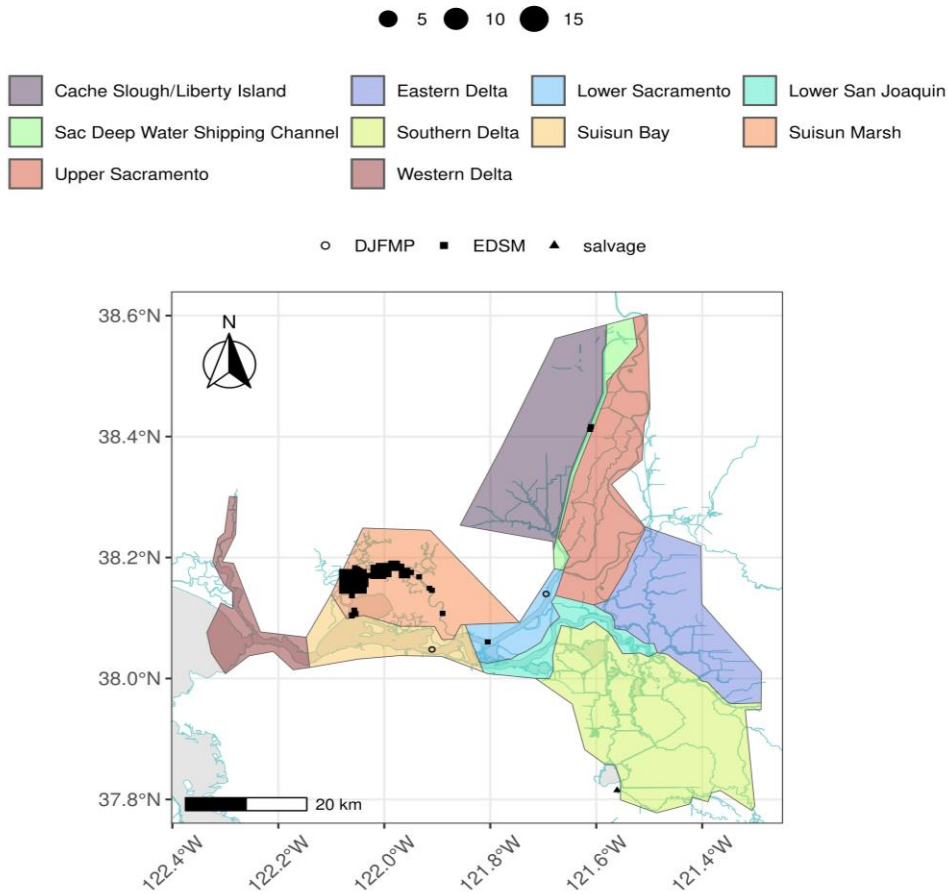


Figure 11: Delta smelt distribution for WY 2026

Figure 11 is a map of the Sacramento-San Joaquin Delta showing Delta smelt distribution for WY 2026 across multiple Delta regions distinguished by different colors. Survey locations and Delta smelt observations from DJFMP, EDSM, and salvage monitoring are displayed throughout the map using different symbols and marker sizes.

Table 11: Delta smelt water year totals by life stage

Survey	Region	Life Stage	Total
DJFMP	N/A	Adult	1
DJFMP	North	Juvenile	1
EDSM	North	Adult	2
EDSM	West	Adult	40
EDSM	West	Juvenile	29
salvage	South	Adult	1

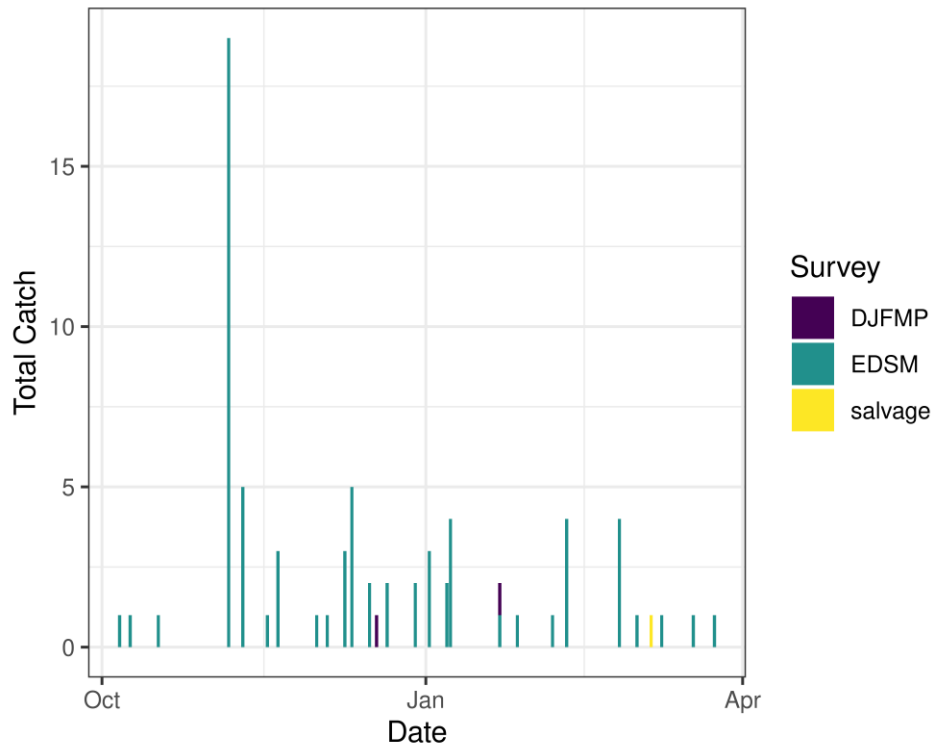


Figure 12: Time series of Delta smelt catch, WY 2026

Figure 12 is a bar graph showing the time series of Delta smelt catch for WY 2026 from October 2025 through April 2026. Colored bars represent total catch observed across DJFMP, EDSM, and salvage surveys, with the highest catches occurring during the winter months, particularly in EDSM sampling.

Environmental

First Flush

- Implemented 12/25/25-01/7/26

Real-time Assessment Thresholds

Adult Delta smelt

- Adult Delta smelt action offramped on 02/12/2026
- No adult Delta smelt action was taken in WY26
- See Bay-Delta Live for recent Delta-wide turbidity conditions.

Larval/juvenile Delta smelt

- **Threshold:** After the onset of spawning, if JPF < 0 cfs AND turbidity is ≥ 12 FNU in the south Delta AND PTM modeling indicates the action would avoid $\geq 5\%$ entrainment of Delta smelt population after 30 days
 - **12-station South Delta Turbidity:** The most recent average turbidity was 4.2 FNU as of Apr 29, 2026

Evaluation

Delta smelt:

1. After the start of entrainment management, is JPF < 0, is daily average turbidity ≥ 12 FNU in the OMR corridor (stations OBI, HOL, and OSJ)? Has the average water temperature at Jersey Point or Rio Vista not exceeded 53.6 ° F (12° C) for 3 consecutive days and/or has this action already been taken during WY 2026?
 - a. The adult Delta smelt entrainment action is not active and no action was taken in WY26. Temperature at Jersey Point exceeded the threshold on February 12th, 2025. Jersey Point 3-day average temperature was 12.05°C on February 10th, 12.09°C on February 11th, and 12.13°C on February 12th.
2. What is the evidence for the onset of Delta smelt spawning?
 - a. Upstream migration for Delta smelt occurs between December and March and in response to “first flush” conditions (Sommer et al., 2011; Grimaldo et al. 2009; 2021). Historically, detections of ripe Delta smelt began in January and peaked in February and March and the majority of Delta Smelt spawning occurs at 11-15 ° C (but can occur from 8-18 ° C) (Damon et al. 2016). Based on [historical monitoring data](#) from the past few years, first detection of larvae in the Central and South Delta has typically occurred by mid to late March. The large majority of Delta smelt recaptures continue to be from Suisun Marsh, close to where supplemental fish were released in the fall. Spawning is likely completed due to increased water temperatures.
3. After the onset of spawning, have the following conditions occurred: JPF < 0 cfs, average turbidity is ≥ 12 FNU in the south Delta, and PTM modeling indicates the action would avoid $\geq 5\%$ entrainment of the Delta smelt population at facilities after 30 days?
 - a. JPF is projected to remain positive for the week and the most recent 11-station average turbidity in the South Delta was 4.2 FNU on April 29, 2026 (station 918 could not be sampled due to bridge clearance issues). Because JPF is positive and turbidity conditions remain below the ≥ 12 FNU threshold, the conditions required to initiate the larval and juvenile Delta smelt entrainment action are not met.
 - b. Additionally, PTM modeling does not meet the criteria for initiating the action. No Delta smelt larvae have been captured in SLS or 20-mm surveys to date in WY2026 (pending genetic results from EDSM 20mm survey). PTM results for this week for neutrally buoyant particles injected at Chipps Island (using the most recent adult detections as a proxy for potential larval locations) showed 0% particle entrainment at both facilities for OMRI of -2,000 this week and next week. These

results indicate that, if Delta smelt larvae were present, the risk of entrainment would be low.

Longfin smelt

Biological

- Longfin smelt life stages detected in surveys: Larva, Juvenile
- **Longfin smelt count:** 475 adult, 1288 juvenile, and 8796 larval longfin smelt have been detected this water year. See [Table 12](#) for recent detections, [Figure 13](#) for spatial distribution, and [Figure 14](#) for temporal distribution.
- **Longfin smelt salvage:** 0 longfin smelt have been salvaged, and the cumulative seasonal salvage is 0.

Table 12: Longfin smelt detections in the last 2 weeks. Fork Length > 84mm = Adult, Fork Length 20-84mm = Juvenile, Fork Length < 20mm = Larva.

Survey	Date	Region	Stratum	Life Stage	Catch
EDSM 20-mm	2026-04-21	West	Suisun Marsh	Juvenile	15
EDSM 20-mm	2026-04-21	West	Suisun Marsh	Larva	33
EDSM 20-mm	2026-04-22	Far West	Suisun Bay	Juvenile	1
EDSM 20-mm	2026-04-22	Far West	Suisun Bay	Larva	2
EDSM 20-mm	2026-04-22	West	Suisun Bay	Juvenile	3
EDSM 20-mm	2026-04-22	West	Suisun Bay	Larva	6

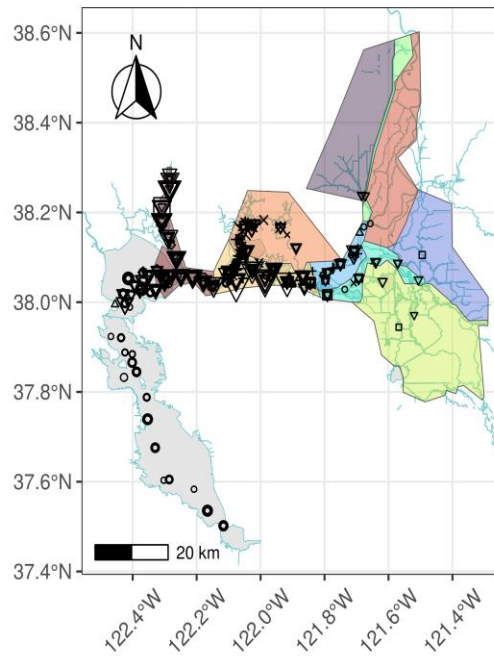
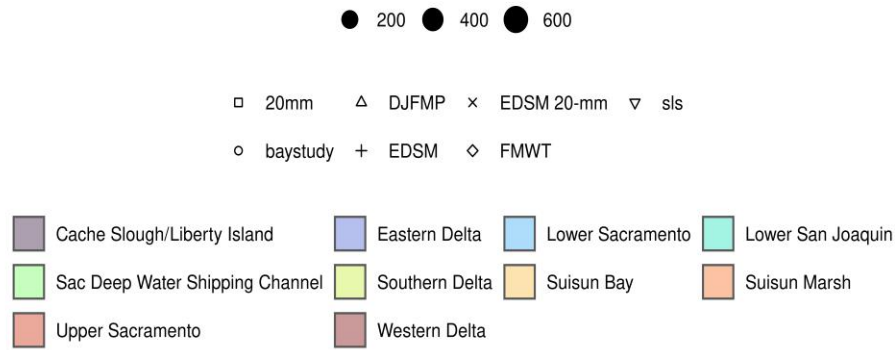


Figure 13: Longfin Smelt Distribution for WY 2026

Figure 13 is a map of the Sacramento-San Joaquin Delta showing Longfin Smelt distribution for WY 2026 across multiple Delta regions distinguished by different colors. Survey locations and Longfin Smelt observations from 20mm, baystudy, DJFMP, EDSM, FMWT, and SLS surveys are displayed throughout the Delta and Suisun Bay using different symbols and marker sizes.

Table 13: Longfin smelt water year totals by life stage

Survey	Region	Life Stage	Total
20mm	Far West	Larva	223
20mm	North	Larva	12
20mm	South	Larva	17
20mm	West	Larva	88
DJFMP	Bay	Juvenile	1
DJFMP	N/A	Adult	267
DJFMP	N/A	Juvenile	31
DJFMP	NA	Adult	1
EDSM	Far West	Adult	24
EDSM	Far West	Juvenile	100
EDSM	North	Adult	1
EDSM	North	Juvenile	1
EDSM	West	Adult	83
EDSM	West	Juvenile	204
EDSM 20-mm	Far West	Juvenile	1
EDSM 20-mm	Far West	Larva	2
EDSM 20-mm	North	Larva	1
EDSM 20-mm	South	Larva	1
EDSM 20-mm	West	Juvenile	113
EDSM 20-mm	West	Larva	663
FMWT	Bay	Adult	1
FMWT	Bay	Juvenile	14
FMWT	Far West	Adult	2
FMWT	Far West	Juvenile	14
FMWT	West	Adult	4
FMWT	West	Juvenile	18
FMWT	NA	Adult	2
FMWT	NA	Juvenile	28
baystudy	Bay	Adult	53
baystudy	Bay	Juvenile	624
baystudy	Far West	Adult	27
baystudy	Far West	Juvenile	111
baystudy	North	Adult	3
baystudy	North	Juvenile	1
baystudy	West	Adult	7
baystudy	West	Juvenile	24
sls	Bay	Larva	448
sls	Far West	Larva	4274
sls	North	Larva	91
sls	South	Larva	54
sls	West	Larva	2531
sls	NA	Juvenile	3
sls	NA	Larva	391

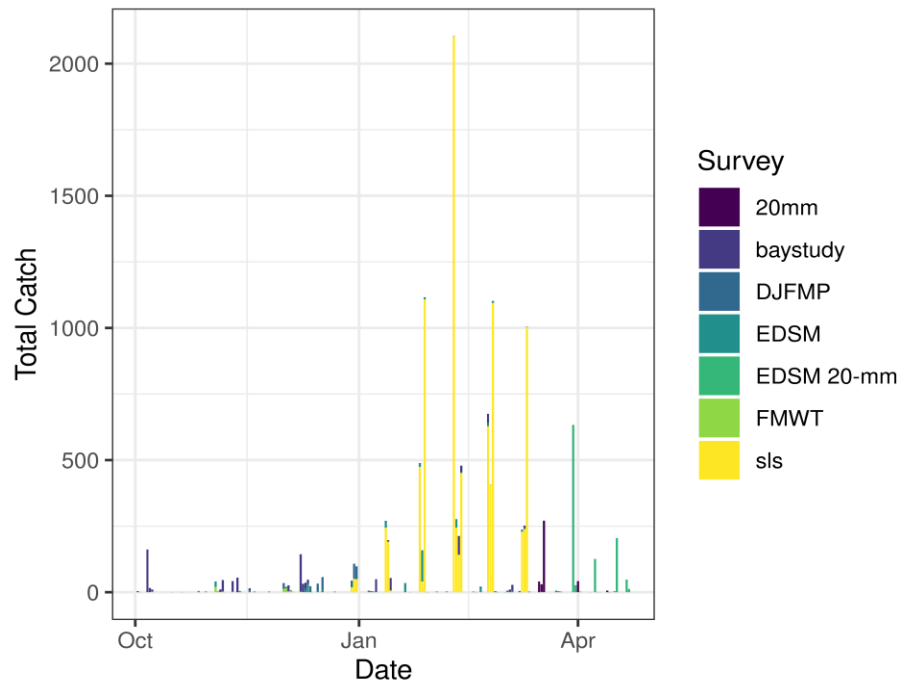


Figure 14: Time series of longfin smelt catch, WY 2026

Figure 14 is a bar graph showing the total longfin smelt catch over time for WY 2026 across multiple survey types, including 20mm, baystudy, DJFMP, EDSM, EDSM 20-mm, FMWT, and SLS. The highest catches occur during February and March, with SLS survey catches (yellow) peaking above 2,000 fish, while most other surveys remain below 700 throughout the period.

Real-time Assessment Thresholds

Start of Entrainment Management (Adult Longfin Smelt)

- This action was not taken in WY26

Adult longfin smelt

- **Threshold:** JPF < 0 cfs, annual loss is on a trajectory to exceed 5% of the adult population abundance, and reduced exports will reduce entrainment in the south Delta
 - Daily average JPF: 3,116 cfs as of May 03, 2026
 - Adult abundance (Age 1+ LFS index): 2479.2 fish
 - 5% of abundance + 1: 125.0
 - Water year total adult longfin smelt salvage = 0

Larval/juvenile longfin smelt

- **Threshold:** JPF < 0 cfs AND population model demonstrates need to reduce entrainment to avoid population decline
 - Daily average JPF: 3,116 cfs as of May 03, 2026

Evaluation

Longfin smelt:

1. If JPF < 0, what is the trajectory of annual loss of adult longfin smelt and is it likely to exceed 5% of the adult population estimate? Is South Delta entrainment expected to decrease due to a reduction in export pumping?
 - a. JPF is projected to remain positive throughout the week and no adult longfin smelt have been detected in salvage this water year.
2. For larval and juvenile longfin smelt, if JPF < 0 cfs, do particle tracking models show a moderate to high difference in particle fates across different OMRI scenarios? Does Zone of Influence modeling show moderate to high changes in hydrodynamic footprint across different OMRI scenarios? Are these effects anticipated to cause a population decline?
 - a. JPF is projected to remain positive throughout the week, so the condition of JPF < 0 cfs is not met. Additionally, PTM and Zone of Influence modeling indicate a low risk of entrainment for the larval and juvenile Longfin Smelt population. The Longfin smelt larval population and PTM analysis projects low entrainment relative to estimated abundance* for this week. The model shows the estimated entrainment for this week is estimated to be <0.1% for the -2,000 cfs OMRI scenario.

**Please note that due to processing/posting time for 20-mm survey data results, larval longfin smelt abundance for this model is being calculated from completed SLS survey data, and has not yet been updated to use 20-mm data. As a result, data from this model should be interpreted with caution.*

Zone of Influence modeling indicates high differences in the hydrodynamic footprint across OMRI scenarios; however, the Zone of Influence does not extend into the western or far western regions where the majority of Longfin Smelt larvae and juveniles have been detected. Therefore, these effects are not anticipated to result in a population decline.
3. Is there additional information or other analyses that should be considered in this evaluation?
 - a. Please see Appendix A for additional information.

End of smelt Entrainment Management

- Not relevant

References

- Brodsky, A., Zeug, S. C., Nelson, J., Hannon, J., Anders, P. J., & Cavallo, B. J. (2020). Does broodstock source affect post-release survival of steelhead? Implications of replacing a non-native hatchery stock for recovery. *Environmental Biology of Fishes*, 103(5), 437–453.
- Damon, L. J., Slater, S. B., Baxter, R. D., & Fujimura, R. W. (2016). Fecundity and reproductive potential of wild female delta smelt in the upper san francisco estuary, california. *California Fish and Game*, 102(4), 188–210.
- Del Real, S. C., Workman, M., & Merz, J. (2012). Migration characteristics of hatchery and natural-origin *oncorhynchus mykiss* from the lower mokelumne river, california. *Environmental Biology of Fishes*, 94(2), 363–375.
- Grimaldo, L. F., Smith, W. E., & Nobriga, M. L. (2021). Re-examining factors that affect delta smelt (*hypomesus transpacificus*) entrainment at the state water project and central valley project in the sacramento–san joaquin delta. *San Francisco Estuary and Watershed Science*, 19(1).
- Grimaldo, L. F., Sommer, T., Van Ark, N., Jones, G., Holland, E., Moyle, P. B., Herbold, B., & Smith, P. (2009). Factors affecting fish entrainment into massive water diversions in a tidal freshwater estuary: Can fish losses be managed? *North American Journal of Fisheries Management*, 29(5), 1253–1270.
- Kurth, R. (2013). Downstream migration success of feather river fish hatchery steelhead smolts under different release strategies.
- Sandstrom, P. T., Ammann, A. J., Michel, C., et al. (2020). Low river survival of juvenile steelhead in the sacramento river watershed. *Environmental Biology of Fishes*, 103(5), 531–541.
- Sommer, T., Mejia, F. H., Nobriga, M. L., Feyrer, F., & Grimaldo, L. (2011). The spawning migration of delta smelt in the upper san francisco estuary. *San Francisco Estuary and Watershed Science*, 9(2).

Appendix A. Delta Real-Time Forecast Summary

Date: 05/04/2026

Forecast Period: 04/28/2026 – 05/18/2026

Forecast Week 1: 04/28/2026 – 05/04/2026

Forecast Week 2: 05/05/2026 – 05/11/2026

Forecast Week 3: 05/12/2026 – 05/18/2026

Index

- Common Assumptions
- Reclamation Forecast Flow and Export Data
- Delta Export Zone of Influence
- PTM (Particle Tracking Model)
 - Neutrally Buoyant Particles (NP)
 - Surface Oriented Particles (PP)
- ECO-PTM (Ecological Particle Tracking Model)
- Longfin Smelt Larval Population and PTM Analysis

Common Assumptions

1. The model run results cover the period April 28, 2026 through May 18, 2026 and are based on the following assumptions established by DWR:
2. CCFB Gates are operating to Priority 1 until May 3, after which they will operate to Priority 2.
3. The Delta Cross Channel gates are closed.
4. Suisun Marsh Salinity Control flashboards are in. All three gates are in open position from March 2.
5. San Joaquin River flow at Vernalis is at 2872 cfs at the beginning of the forecast period and is estimated to decrease to 1800 cfs by the end of the forecast period.
6. San Joaquin River EC at Vernalis is at 260 umhos/cm at the beginning of the forecast period and is estimated to increase to 418 umhos/cm at the end of the forecast period.

7. Sacramento River flow at Freeport is at 24640 cfs at the beginning of the forecast period and is expected to decrease to 10150 cfs by the end of the forecast period.
8. CCFB inflow is at 1195 cfs at the beginning of the forecast period and is expected to decrease to 800 cfs by the end of the forecast period.
9. Export at Jones Pumping Plant is at 1676 cfs at the beginning of the forecast period and is expected to decrease to 1440 cfs to the end the forecast period.
10. The Middle River is scheduled to be closed on May 7. Intermediate culvert operations begin on May 15.

As shown in the next section, assumptions 4 and 6 are updated based on Reclamation forecast data, and assumption 8 and exports at Banks Pumping Plant have been modified to include four different forecast scenarios at an Old and Middle River (OMR) index of -6,500 cfs, -5,000 cfs, -3,500 cfs, and -2,000 cfs.

Reclamation Forecast Flow and Export Data

Table 1. Weekly Averaged Forecasted Flow Data and Flow Bins

Forecast Week	Sacramento River at Freeport (cfs)	Sac Flow Bin	San Joaquin River at Vernalis (cfs)	SJR Flow Bin	Delta Inflow Bin
Week 1: 04/28/2026 - 05/04/2026	21,241	med	2,854	med	medmed
Week 2: 05/05/2026 - 05/11/2026	14,817	med	2,057	med	medmed
Week 3: 05/12/2026 - 05/18/2026	13,000	lo	2,000	med	lomed

Key:

cfs = cubic feet per second Sac = Sacramento River SJR = San Joaquin River

Table 2. Weekly Averaged CVP and SWP Exports by OMR Bin

Week	OMR Bin (cfs)	CVP Exports (cfs)	SWP Exports (cfs)	Total Exports (cfs)	CVP Exports (% of total)	SWP Exports (% of total)
Week 1: 04/28/2026 - 05/04/2026	-6,500	N/A	N/A	N/A	N/A	N/A
Week 1: 04/28/2026 - 05/04/2026	-5,000	N/A	N/A	N/A	N/A	N/A

Week	OMR Bin (cfs)	CVP Exports (cfs)	SWP Exports (cfs)	Total Exports (cfs)	CVP Exports (% of total)	SWP Exports (% of total)
Week 1: 04/28/2026 - 05/04/2026	-3,500	N/A	N/A	N/A	N/A	N/A
Week 1: 04/28/2026 - 05/04/2026	-2,000	1,640	1,131	2,771	59%	41%
Week 2: 05/05/2026 - 05/11/2026	-6,500	N/A	N/A	N/A	N/A	N/A
Week 2: 05/05/2026 - 05/11/2026	-5,000	N/A	N/A	N/A	N/A	N/A
Week 2: 05/05/2026 - 05/11/2026	-3,500	N/A	N/A	N/A	N/A	N/A
Week 2: 05/05/2026 - 05/11/2026	-2,000	1,360	687	2,047	66%	34%
Week 3: 05/12/2026 - 05/18/2026	-6,500	N/A	N/A	N/A	N/A	N/A
Week 3: 05/12/2026 - 05/18/2026	-5,000	N/A	N/A	N/A	N/A	N/A
Week 3: 05/12/2026 - 05/18/2026	-3,500	N/A	N/A	N/A	N/A	N/A
Week 3: 05/12/2026 - 05/18/2026	-2,000	1,102	802	1,904	58%	42%

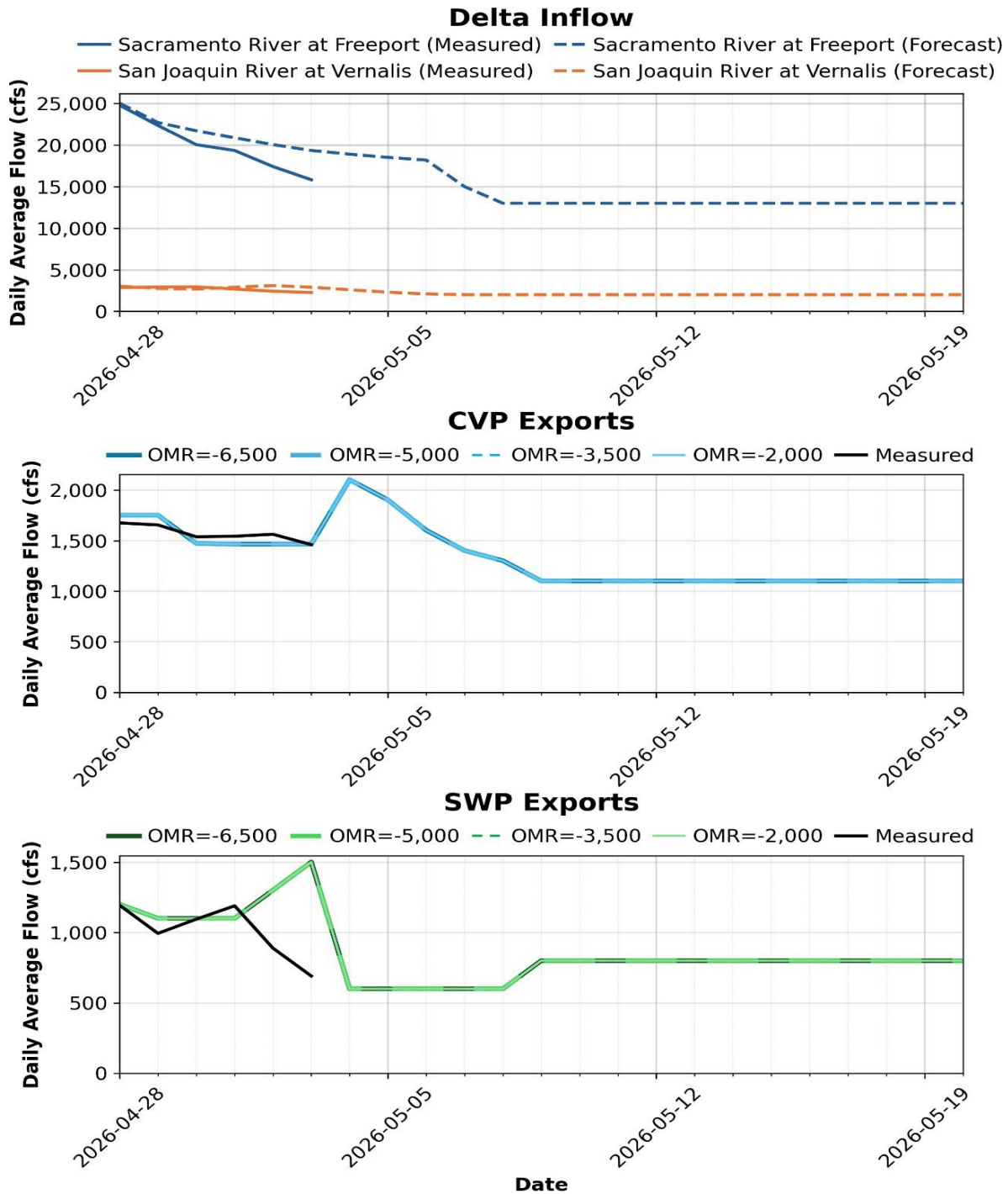
Key:

cfs = cubic feet per second CVP = Central Valley Project OMR = Old and Middle River SWP = State Water Project

Notes:

- One pumping unit is currently out of service at Jones Pumping Plant until August 2026. The current maximum pumping rate at Jones Pumping Plant (CVP Exports) is 4,200 cfs.
- Per the State Water Project (SWP) Incidental Take Permit (ITP) 8.12.1, the State is required to curtail exports April 1 through May 31. This change in exports is expected to persist for the two month period unless Vernalis flows change. This is reflected in the forecast SWP exports starting on April 1.

- From April 11 to mid-May CVP exports will be reduced to roughly 900 cfs due to D-1641.
- For this forecast week, only the OMRI -2,000 cfs scenario was performed due to current D-1641 constraints of 1:1 Vernalis flows which are not expected to increase to a level that would allow exports to higher OMRI levels during the forecast period. Because exports are limited by D-1641 and the SWP ITP, only one OMR scenario of -2,000 cfs is analyzed. The actual estimated OMR flow based on projected conditions is around -1,000 cfs.

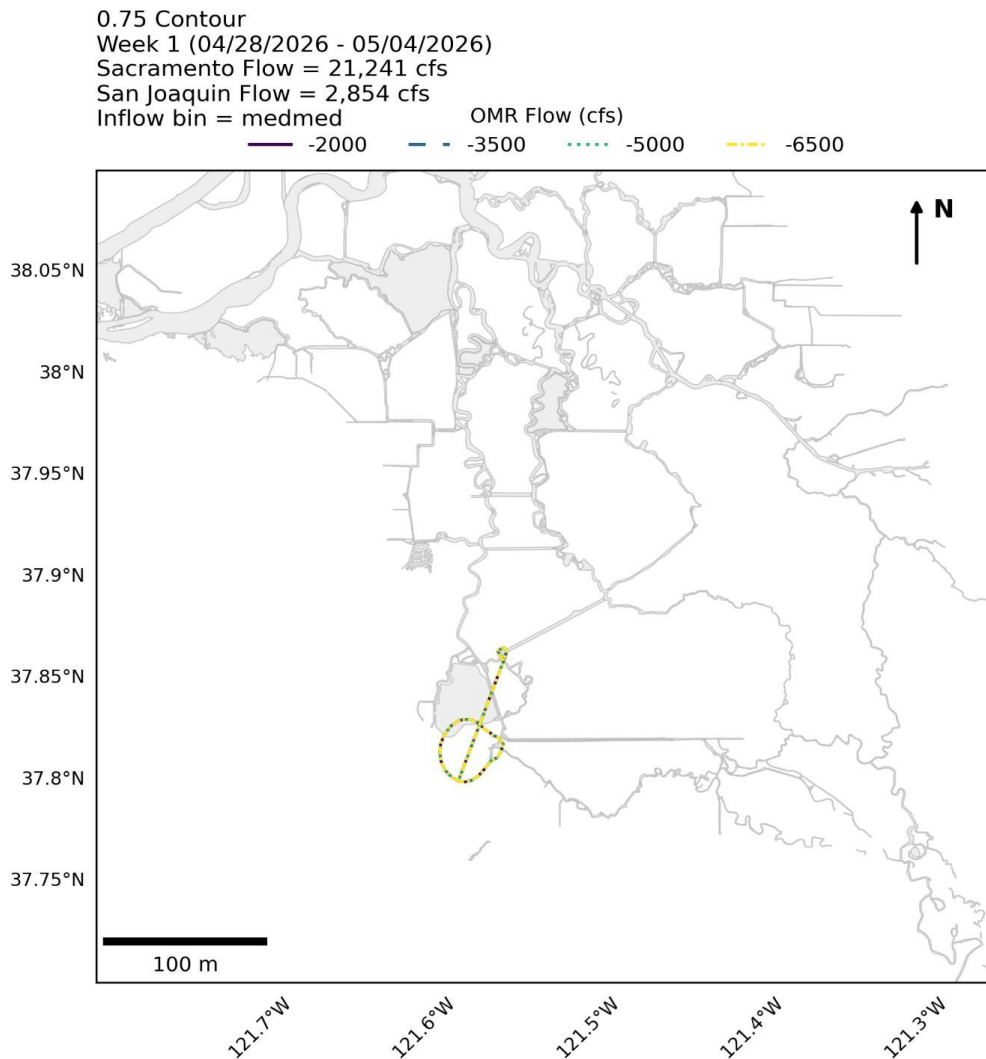


Key: CVP = Central Valley Project, OMR = Old and Middle River, SWP = State Water Project

Figure 1. Daily Average Flow for Measured and Forecasted Delta Inflow, CVP Exports, and SWP Exports

Figure 1 depicts three stacked line graphs showing measured and forecasted Delta inflow, CVP exports, and SWP exports in cubic feet per second (cfs) from late April through mid-May 2026. The top graph shows Sacramento River and San Joaquin River inflows steadily declining over time, while the lower two graphs show CVP and SWP export flows decreasing in early May before leveling off under different OMR flow scenarios.

Delta Export Zone of Influence



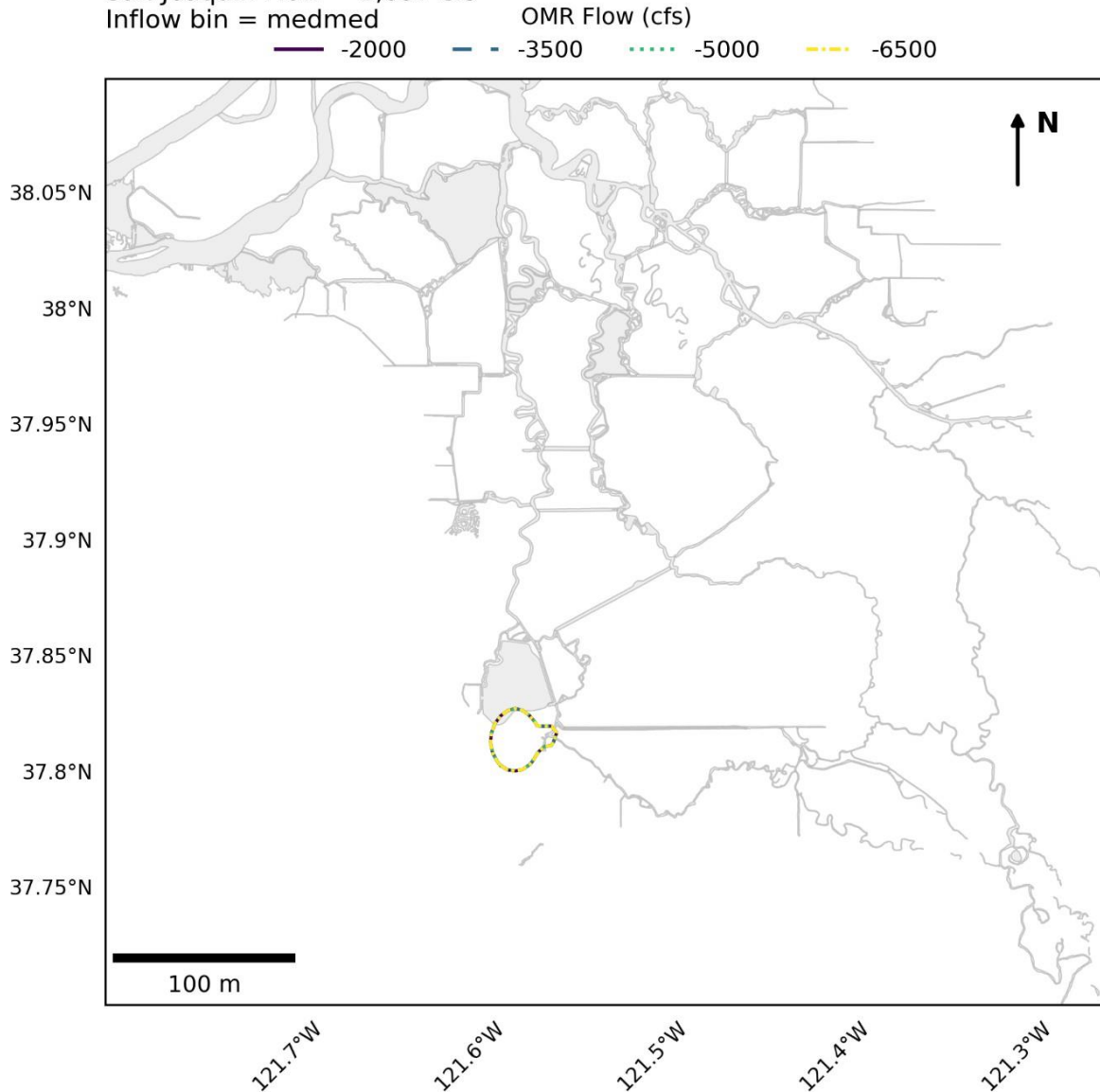
Note: Contours indicate the proportional overlap of hourly average velocity Gaussian KDEs for a 1-week period from DSM2 hydro simulations with and without Delta exports active. DSM2 nodes that were sufficiently different from neighboring nodes to create isolated contours at several OMR flows were removed (nodes 146, 147, 148, 206, 242, 246, 432, 433, 434).

Key: cfs = cubic feet per second, OMR = Old and Middle River

Figure 2. Delta Zone of Influence for Week 1

Figure 2 is a map of the Sacramento-San Joaquin Delta showing the modeled Zone of Influence for Week 1 (April 28, 2026 to May 4, 2026) under multiple OMR flow scenarios ranging from -2,000 to -6,500 cfs. The figure displays overlapping contour lines near the southern Delta, illustrating the extent of the zone of influence under medium Sacramento River inflow and medium San Joaquin River inflow conditions.

0.75 Contour
 Week 2 (05/05/2026 - 05/11/2026)
 Sacramento Flow = 14,817 cfs
 San Joaquin Flow = 2,057 cfs
 Inflow bin = medmed



Note: Contours indicate the proportional overlap of hourly average velocity Gaussian KDEs for a 1-week period from DSM2 hydro simulations with and without Delta exports active. DSM2 nodes that were sufficiently different from neighboring nodes to create isolated contours at several OMR flows were removed (nodes 146, 147, 148, 206, 242, 246, 432, 433, 434).

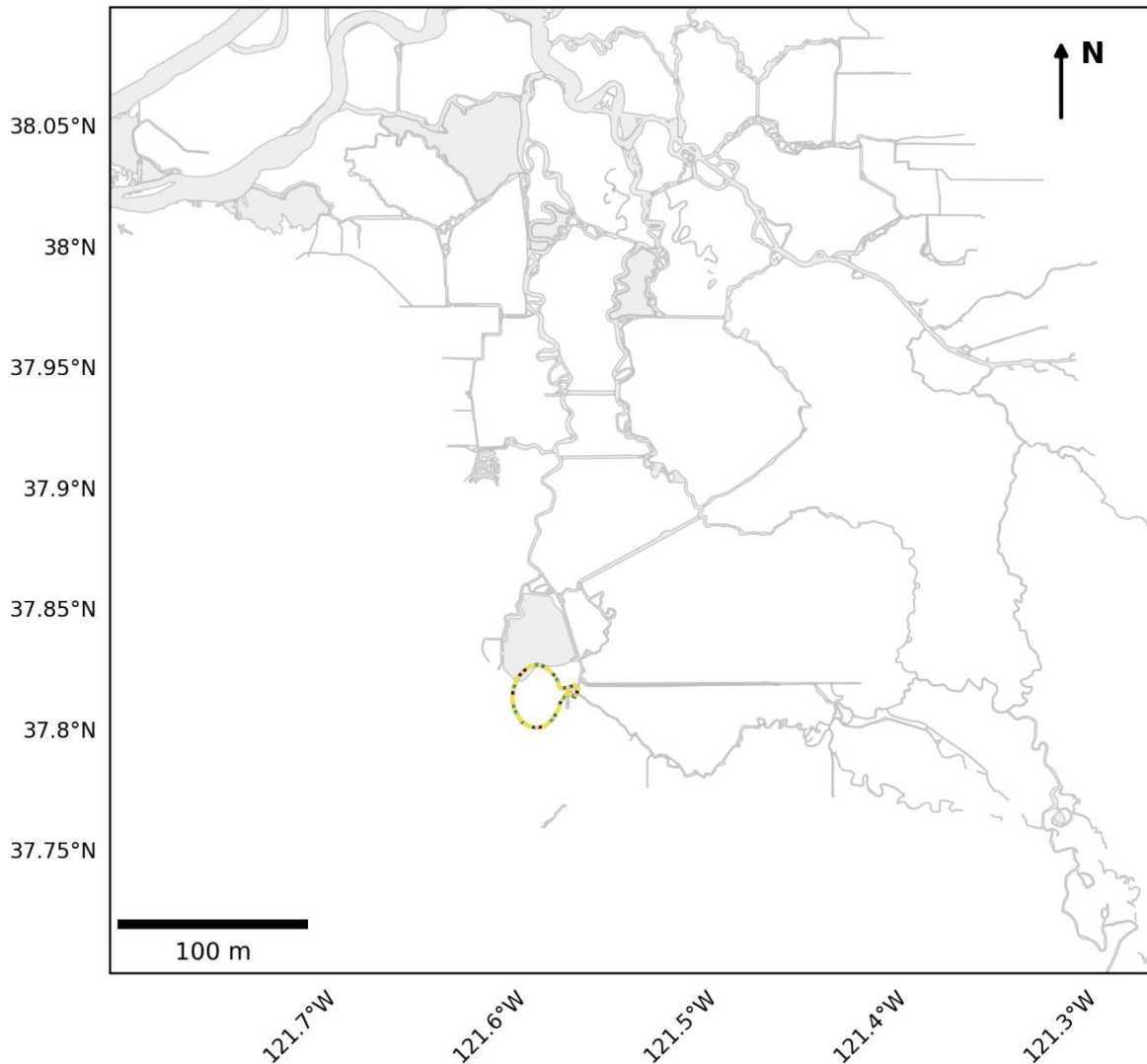
Key: cfs = cubic feet per second, OMR = Old and Middle River

Figure 3. Delta Zone of Influence for Week 2

Figure 3 is a map of the Sacramento-San Joaquin Delta showing the modeled Zone of Influence for Week 2 (May 5, 2026 to May 11, 2026) under multiple OMR flow scenarios ranging from -2,000 to -6,500 cfs. The figure displays overlapping contour lines concentrated in the southern Delta, illustrating the extent of the zone of influence under medium Sacramento River inflow and medium San Joaquin River inflow conditions.

0.75 Contour
 Week 3 (05/12/2026 - 05/18/2026)
 Sacramento Flow = 13,000 cfs
 San Joaquin Flow = 2,000 cfs
 Inflow bin = lomed

OMR Flow (cfs)
 -2000 -3500 -5000 -6500



Note: Contours indicate the proportional overlap of hourly average velocity Gaussian KDEs for a 1-week period from DSM2 hydro simulations with and without Delta exports active. DSM2 nodes that were sufficiently different from neighboring nodes to create isolated contours at several OMR flows were removed (nodes 146, 147, 148, 206, 242, 246, 432, 433, 434).

Key: cfs = cubic feet per second, OMR = Old and Middle River

Figure 4. Delta Zone of Influence for Week 3

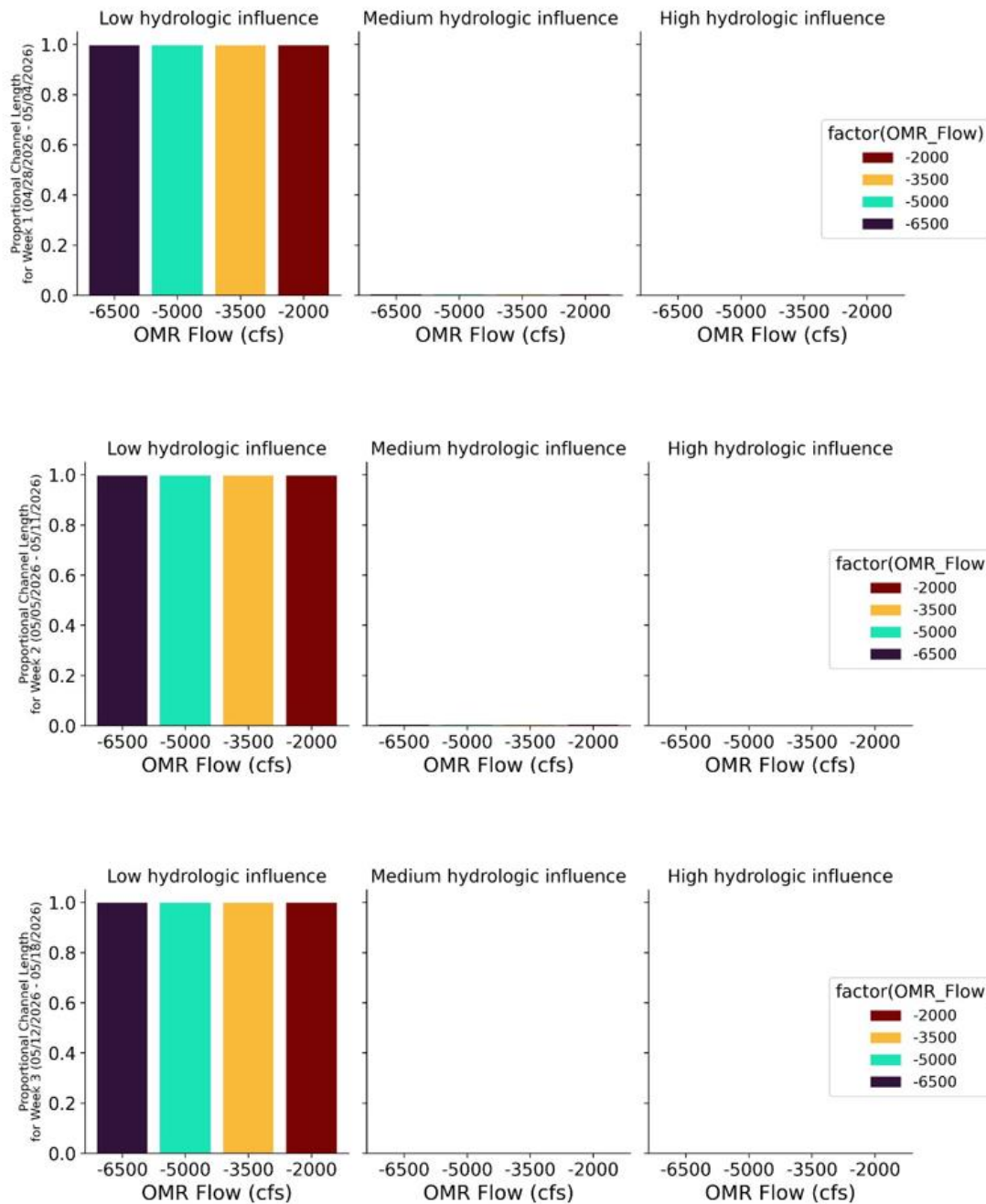
Figure 4 is a map of the Sacramento-San Joaquin Delta showing the modeled Zone of Influence for Week 3 (May 12, 2026 to May 18, 2026) under multiple OMR flow scenarios ranging from -2,000 to -6,500 cfs. The figure displays overlapping contour lines concentrated in the southern Delta, illustrating the extent of the zone of influence under low Sacramento River inflow and medium San Joaquin River inflow conditions.

Table 3. Proportion of DSM2 Channel Length with Hydrologic Alteration from Pumping

Weekly Model Run	OMR Bin (cfs)	Sum Channel Length with Low HA (miles)	Channel Length with Low HA (%)	Sum Channel Length with Medium HA (miles)	Channel Length with Medium HA (%)	Sum Channel Length with High HA (miles)	Channel Length with High HA (%)
Week 1: 04/28/2026 - 05/04/2026	-6,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 1: 04/28/2026 - 05/04/2026	-5,000	N/A	N/A	N/A	N/A	N/A	N/A
Week 1: 04/28/2026 - 05/04/2026	-3,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 1: 04/28/2026 - 05/04/2026	-2,000	670.4	99.5%	2.4	0.3%	0.9	0.1%
Week 2: 05/05/2026 - 05/11/2026	-6,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 2: 05/05/2026 - 05/11/2026	-5,000	N/A	N/A	N/A	N/A	N/A	N/A
Week 2: 05/05/2026 - 05/11/2026	-3,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 2: 05/05/2026 - 05/11/2026	-2,000	672.1	99.6%	1.5	0.2%	0.9	0.1%
Week 3: 05/12/2026 - 05/18/2026	-6,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 3: 05/12/2026 - 05/18/2026	-5,000	N/A	N/A	N/A	N/A	N/A	N/A
Week 3: 05/12/2026 - 05/18/2026	-3,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 3: 05/12/2026 - 05/18/2026	-2,000	672.1	99.8%	0.7	0.1%	0.9	0.1%

Notes: Sum channel length includes the length of channels within the Delta that have a calculated hydrologic alteration level falling within each category

Key: HA = hydrologic alteration OMR = Old and Middle River



Key: cfs = cubic feet per second, OMR = Old and Middle River

Figure 5: Proportional DSM2 Channel Length Altered from Pumping by Hydrologic Influence Category, Weeks 1–3




Figure 5 consists of nine bar charts showing proportional channel length across low, medium, and high hydrologic influence conditions under OMR flow scenarios ranging from -2,000 to -6,500 cfs for Weeks 1–3. Only the low hydrologic influence panels contain bars, with all OMR scenarios showing proportional channel lengths near 1.0, while the medium and high hydrologic influence panels contain no displayed values.

PTM (Particle Tracking Model) Results

PTM Flux Evaluation Period: 04/28/2026 – 05/18/2026

Particles Injected: 04/28/2026

PTM Injection and Flux Locations

-  = Injection Point (DSM2 node)
-  = Flux Location
-  = Reference Flux Direction

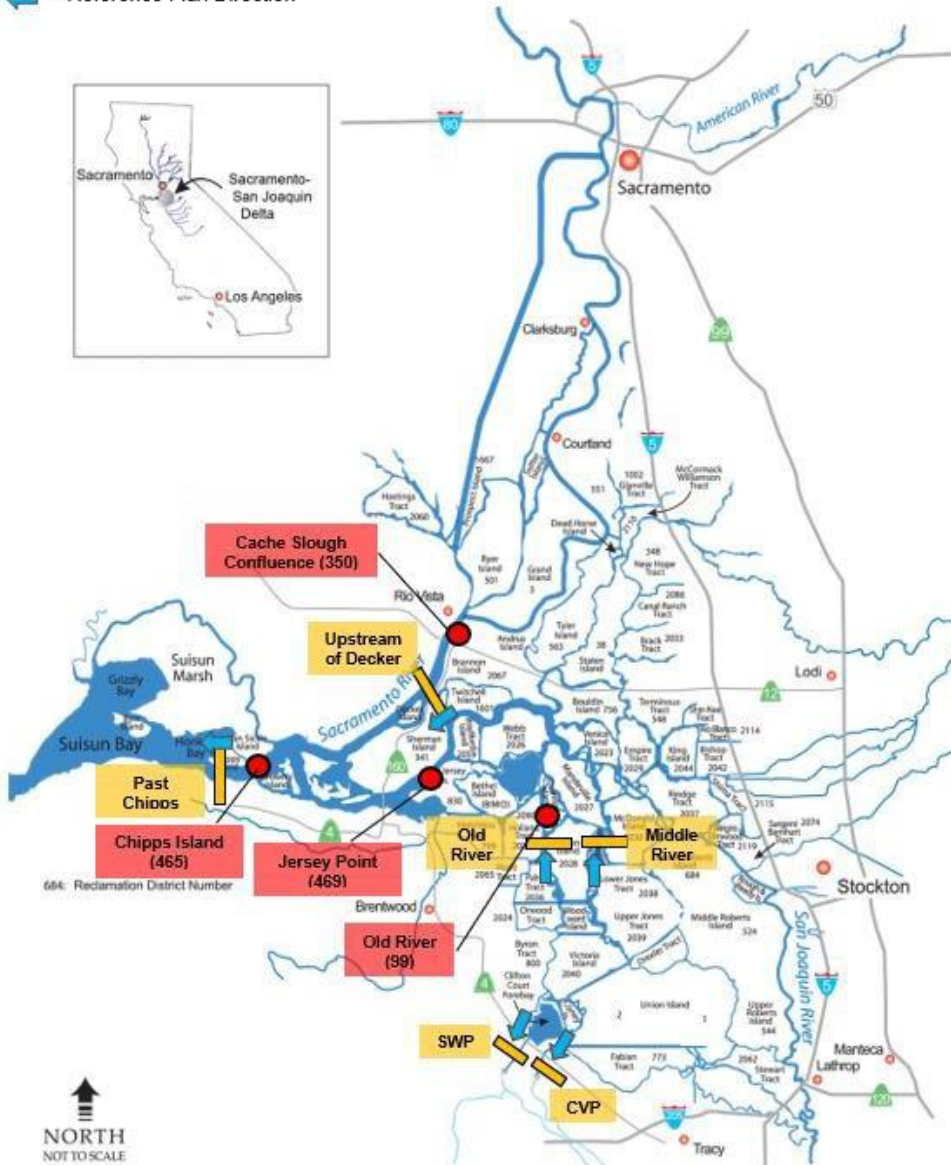


Figure 6. Map of PTM Injection and Flux Locations

Figure 6 is a map of the Sacramento-San Joaquin Delta showing PTM injection points, flux locations, and reference flux directions used in the particle tracking model analysis. The map identifies major DSM2 injection nodes, including Cache Slough Confluence, Chipps Island, Jersey Point, and Old River, along with key flux monitoring locations such as Upstream of Decker, Middle River, CVP, and SWP.

Neutrally Buoyant Particles (NP)

Table 4. Neutral Particle Fate (percent flux across boundary) for Particles Injected at Chipps (DSM2 Node 465)

Week	OMR Flow Bin	Past Chipps	Upstream of Decker	Unresolved in Central Delta	Unresolved in OMR corridor	CVP Entrainment	SWP Entrainment
Week 1: 04/28/2026 - 05/04/2026	-6,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 1: 04/28/2026 - 05/04/2026	-5,000	N/A	N/A	N/A	N/A	N/A	N/A
Week 1: 04/28/2026 - 05/04/2026	-3,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 1: 04/28/2026 - 05/04/2026	-2,000	93.8	0.0	6.2	0.0	0.0	0.0
Week 2: 05/05/2026 - 05/11/2026	-6,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 2: 05/05/2026 - 05/11/2026	-5,000	N/A	N/A	N/A	N/A	N/A	N/A
Week 2: 05/05/2026 - 05/11/2026	-3,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 2: 05/05/2026 - 05/11/2026	-2,000	96.1	0.0	3.9	0.0	0.0	0.0
Week 3: 05/12/2026 - 05/18/2026	-6,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 3: 05/12/2026 - 05/18/2026	-5,000	N/A	N/A	N/A	N/A	N/A	N/A
Week 3: 05/12/2026 - 05/18/2026	-3,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 3: 05/12/2026 - 05/18/2026	-2,000	97.3	0.0	2.8	0.0	0.0	0.0

Note: Values between 0.0 and 0.1 are indicated with <0.1.

Key: CVP = Central Valley Project, OMR = Old and Middle River, SWP = State Water Project

Table 5. Neutral Particle Fate (percent flux across boundary) for Particles Injected at Cache Slough (DSM2 Node 350)

Week	OMR Flow Bin	Past Chipps	Upstream of Decker	Unresolved in Central Delta	Unresolved in OMR corridor	CVP Entrainment	SWP Entrainment
Week 1: 04/28/2026 - 05/04/2026	-6,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 1: 04/28/2026 - 05/04/2026	-5,000	N/A	N/A	N/A	N/A	N/A	N/A
Week 1: 04/28/2026 - 05/04/2026	-3,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 1: 04/28/2026 - 05/04/2026	-2,000	30.8	80.8	69.2	0.0	0.0	0.0
Week 2: 05/05/2026 - 05/11/2026	-6,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 2: 05/05/2026 - 05/11/2026	-5,000	N/A	N/A	N/A	N/A	N/A	N/A
Week 2: 05/05/2026 - 05/11/2026	-3,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 2: 05/05/2026 - 05/11/2026	-2,000	68.1	84.1	31.9	0.0	0.0	0.0
Week 3: 05/12/2026 - 05/18/2026	-6,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 3: 05/12/2026 - 05/18/2026	-5,000	N/A	N/A	N/A	N/A	N/A	N/A
Week 3: 05/12/2026 - 05/18/2026	-3,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 3: 05/12/2026 - 05/18/2026	-2,000	80.6	86.0	19.7	0.3	0.0	0.0

Note: Values between 0.0 and 0.1 are indicated with <0.1.

Key: CVP = Central Valley Project, OMR = Old and Middle River, SWP = State Water Project

Table 6. Neutral Particle Fate (percent flux across boundary) for Particles Injected at Jersey Point (DSM2 Node 469)

Week	OMR Flow Bin	Past Chipps	Upstream of Decker	Unresolved in Central Delta	Unresolved in OMR corridor	CVP Entrainment	SWP Entrainment
Week 1: 04/28/2026 - 05/04/2026	-6,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 1: 04/28/2026 - 05/04/2026	-5,000	N/A	N/A	N/A	N/A	N/A	N/A
Week 1: 04/28/2026 - 05/04/2026	-3,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 1: 04/28/2026 - 05/04/2026	-2,000	11.1	15.6	88.9	0.0	0.0	0.0
Week 2: 05/05/2026 - 05/11/2026	-6,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 2: 05/05/2026 - 05/11/2026	-5,000	N/A	N/A	N/A	N/A	N/A	N/A
Week 2: 05/05/2026 - 05/11/2026	-3,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 2: 05/05/2026 - 05/11/2026	-2,000	46.4	19.9	53.7	0.1	0.0	0.0
Week 3: 05/12/2026 - 05/18/2026	-6,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 3: 05/12/2026 - 05/18/2026	-5,000	N/A	N/A	N/A	N/A	N/A	N/A
Week 3: 05/12/2026 - 05/18/2026	-3,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 3: 05/12/2026 - 05/18/2026	-2,000	70.1	22.1	30.2	0.3	0.0	0.0

Note: Values between 0.0 and 0.1 are indicated with <0.1.

Key: CVP = Central Valley Project, OMR = Old and Middle River, SWP = State Water Project

Table 7. Neutral Particle Fate (percent flux across boundary) for Particles Injected at Old River (DSM2 Node 99)

Week	OMR Flow Bin	Past Chipps	Upstream of Decker	Unresolved in Central Delta	Unresolved in OMR corridor	CVP Entrainment	SWP Entrainment
Week 1: 04/28/2026 - 05/04/2026	-6,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 1: 04/28/2026 - 05/04/2026	-5,000	N/A	N/A	N/A	N/A	N/A	N/A
Week 1: 04/28/2026 - 05/04/2026	-3,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 1: 04/28/2026 - 05/04/2026	-2,000	0.0	1.1	62.9	37.1	0.0	0.0
Week 2: 05/05/2026 - 05/11/2026	-6,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 2: 05/05/2026 - 05/11/2026	-5,000	N/A	N/A	N/A	N/A	N/A	N/A
Week 2: 05/05/2026 - 05/11/2026	-3,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 2: 05/05/2026 - 05/11/2026	-2,000	2.1	5.1	52.5	39.6	5.2	0.6
Week 3: 05/12/2026 - 05/18/2026	-6,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 3: 05/12/2026 - 05/18/2026	-5,000	N/A	N/A	N/A	N/A	N/A	N/A
Week 3: 05/12/2026 - 05/18/2026	-3,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 3: 05/12/2026 - 05/18/2026	-2,000	10.3	10.6	41.4	35.5	9.7	3.1

Note: Values between 0.0 and 0.1 are indicated with <0.1.

Key: CVP = Central Valley Project, OMR = Old and Middle River, SWP = State Water Project

**PTM Results for Neutral Particles. OMR Scenario = -2,000. Particles
Injected 4/28/2026 at DSM2 Node 465 (Chipps).**

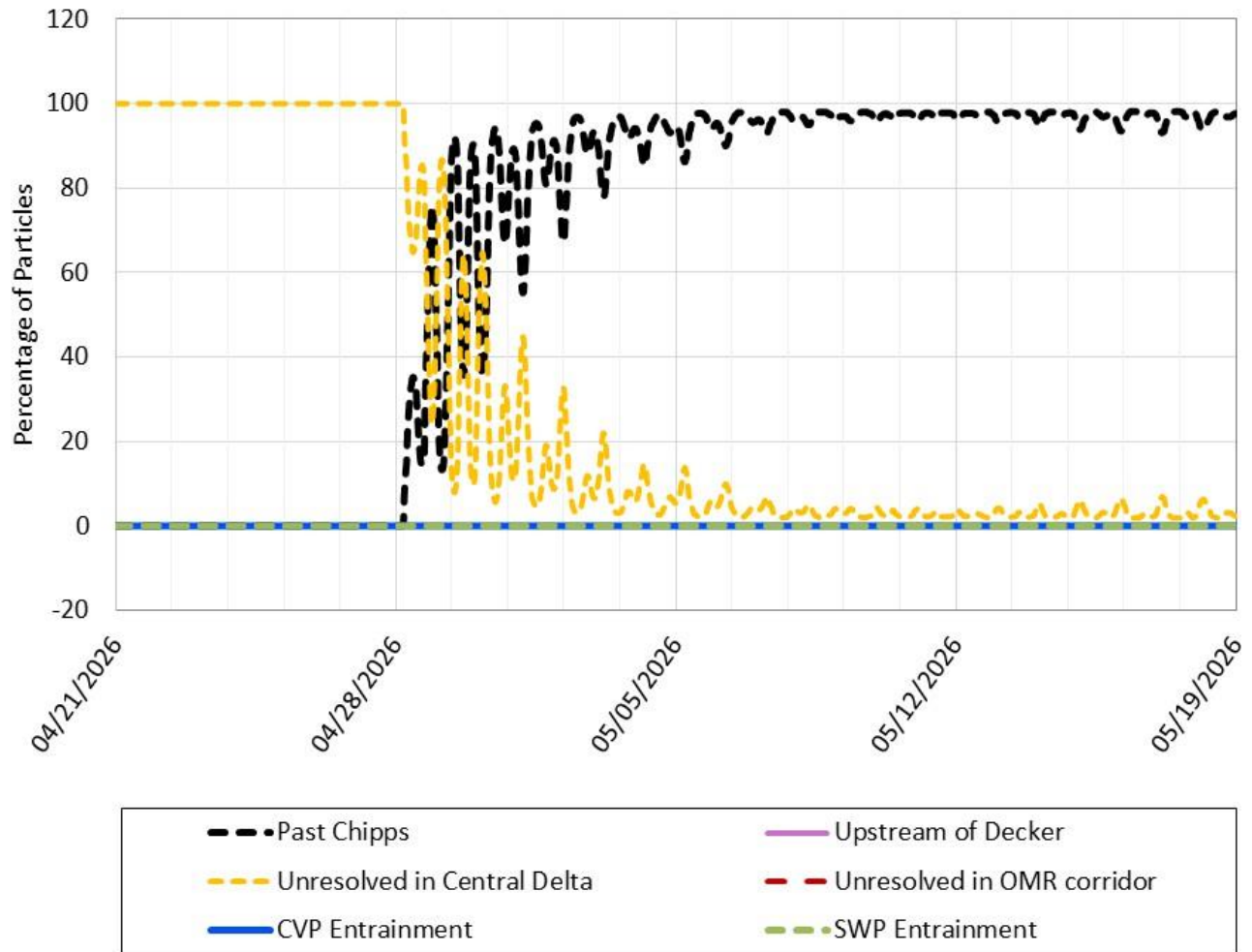


Figure 7. PTM Results for Neutral Particles. OMR Scenario -2,000 cfs. Particles Injected 04/28/2026 at DSM2 Node 465 (Chipps)

Figure 7 is a line graph showing the percentage of neutral particles over time from April 21 to May 19, 2026, injected on April 28, 2026 at DSM2 Node 465 (Chipps) under the OMR scenario of -2,000 cfs. Past Chipps (black) rapidly increases to approximately 95–100% by early May and remains dominant throughout the end of the period, while Unresolved in Central Delta (yellow) declines from 100% to near 0%. CVP entrainment, SWP entrainment, Upstream of Decker, and Unresolved in OMR corridor remain near 0% throughout the simulation.

PTM Results for Neutral Particles. OMR Scenario = -2,000. Particles Injected 4/28/2026 at DSM2 Node 350 (Cache Slough).

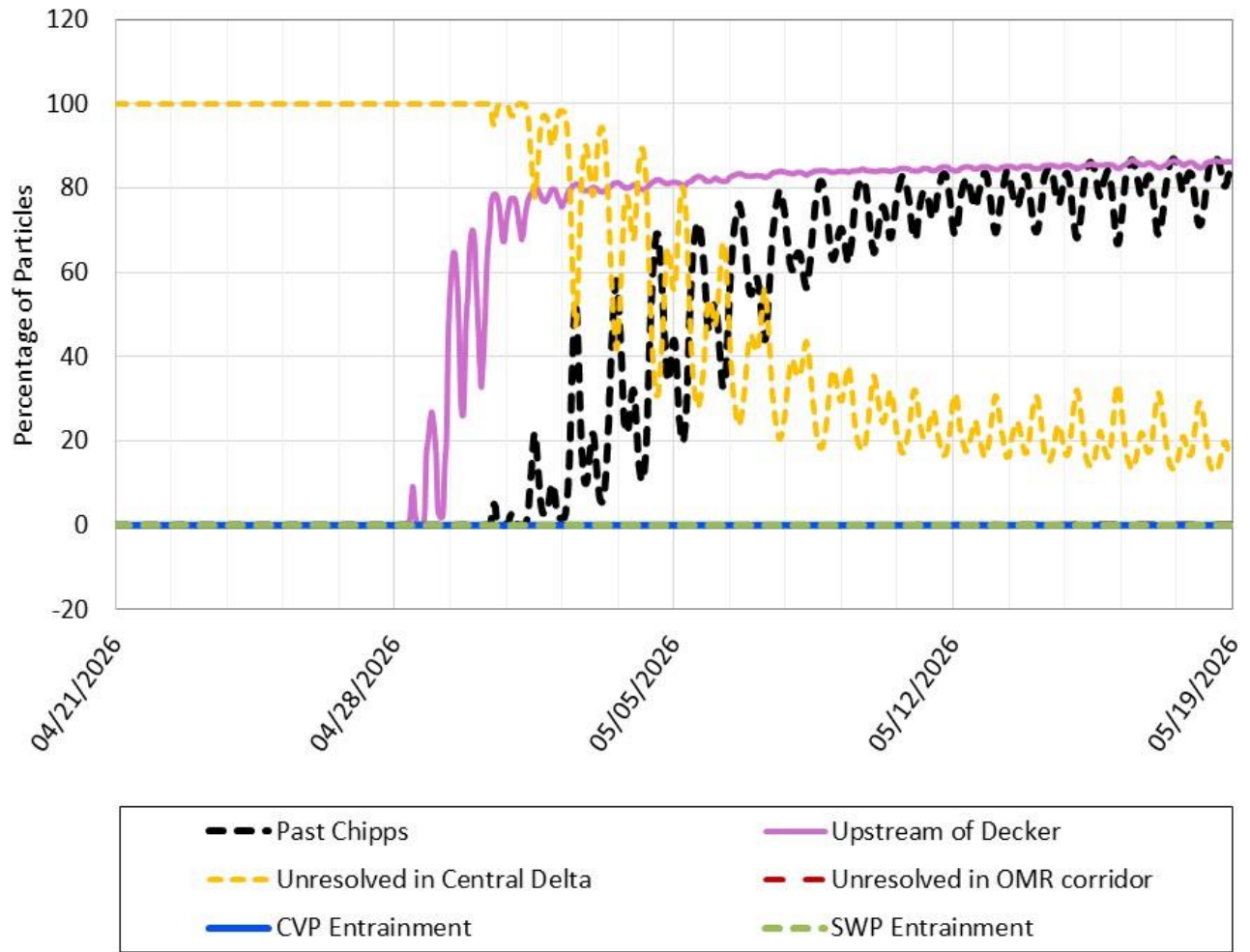


Figure 8. PTM Results for Neutral Particles. OMR Scenario -2,000 cfs. Particles Injected 04/28/2026 at DSM2 Node 350 (Cache Slough)

Figure 8 is a line graph showing the percentage of neutral particles over time from April 21 to May 19, 2026, injected on April 28, 2026 at DSM2 Node 350 (Cache Slough). Six flux locations are represented by different colored dashed lines, with Upstream of Decker (purple), Past Chipps (black), and Unresolved in Central Delta (yellow) showing the most notable particle percentages across the evaluation period.

**PTM Results for Neutral Particles. OMR Scenario = -2,000. Particles
Injected 4/28/2026 at DSM2 Node 469 (Jersey Point).**

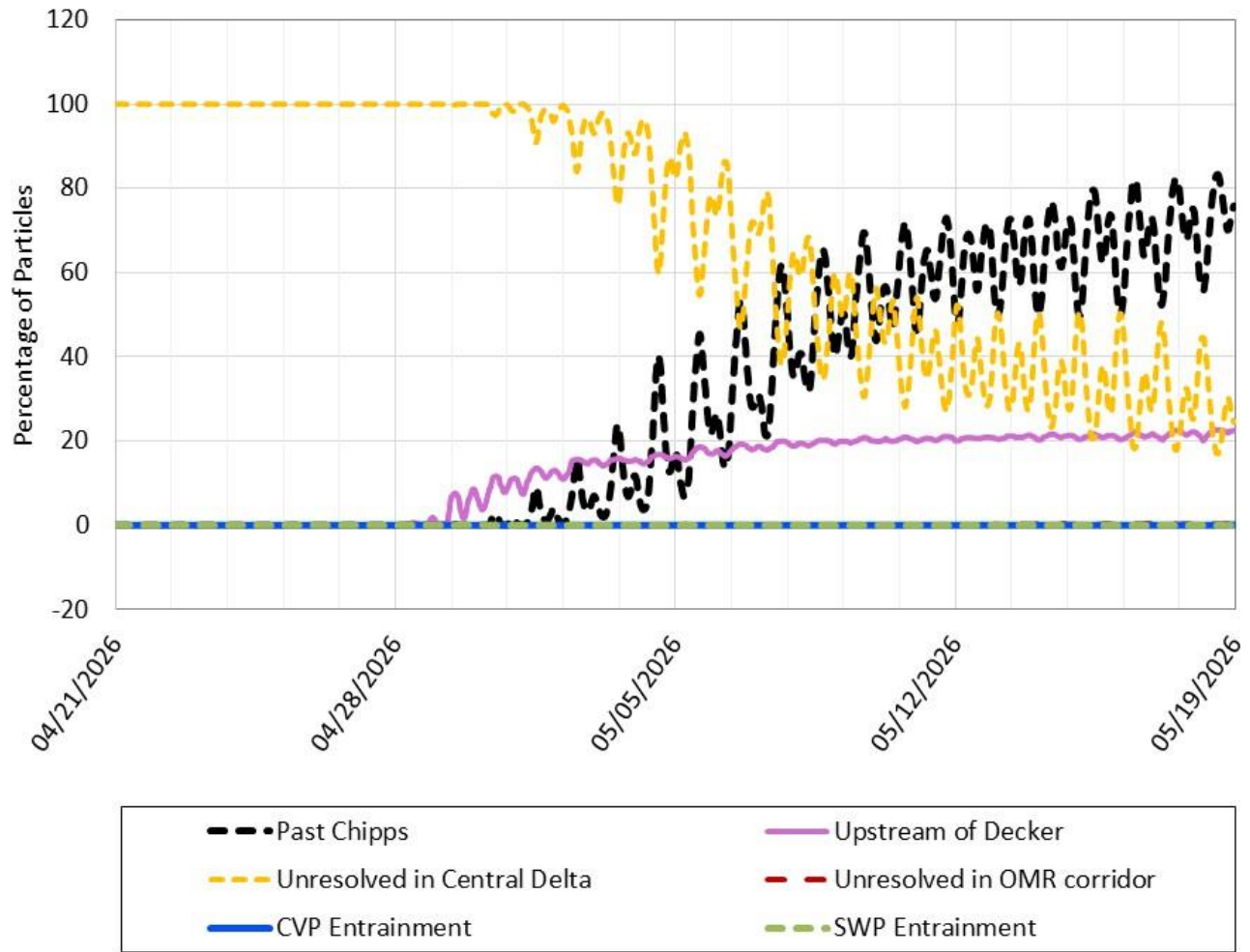


Figure 9. PTM Results for Neutral Particles. OMR Scenario -2,000 cfs. Particles Injected 04/28/2026 at DSM2 Node 469 (Jersey Point)

Figure 9 is a line graph showing the percentage of neutral particles over time from April 21 to May 19, 2026, injected on April 28, 2026 at DSM2 Node 469 (Jersey Point). Six flux locations are represented by different colored dashed lines, with Past Chipps (black), Unresolved in Central Delta (yellow), and Upstream of Decker (purple) showing the most notable particle percentages across the evaluation period.

**PTM Results for Neutral Particles. OMR Scenario = -2,000. Particles
Injected 4/28/2026 at DSM2 Node 99 (Old River).**

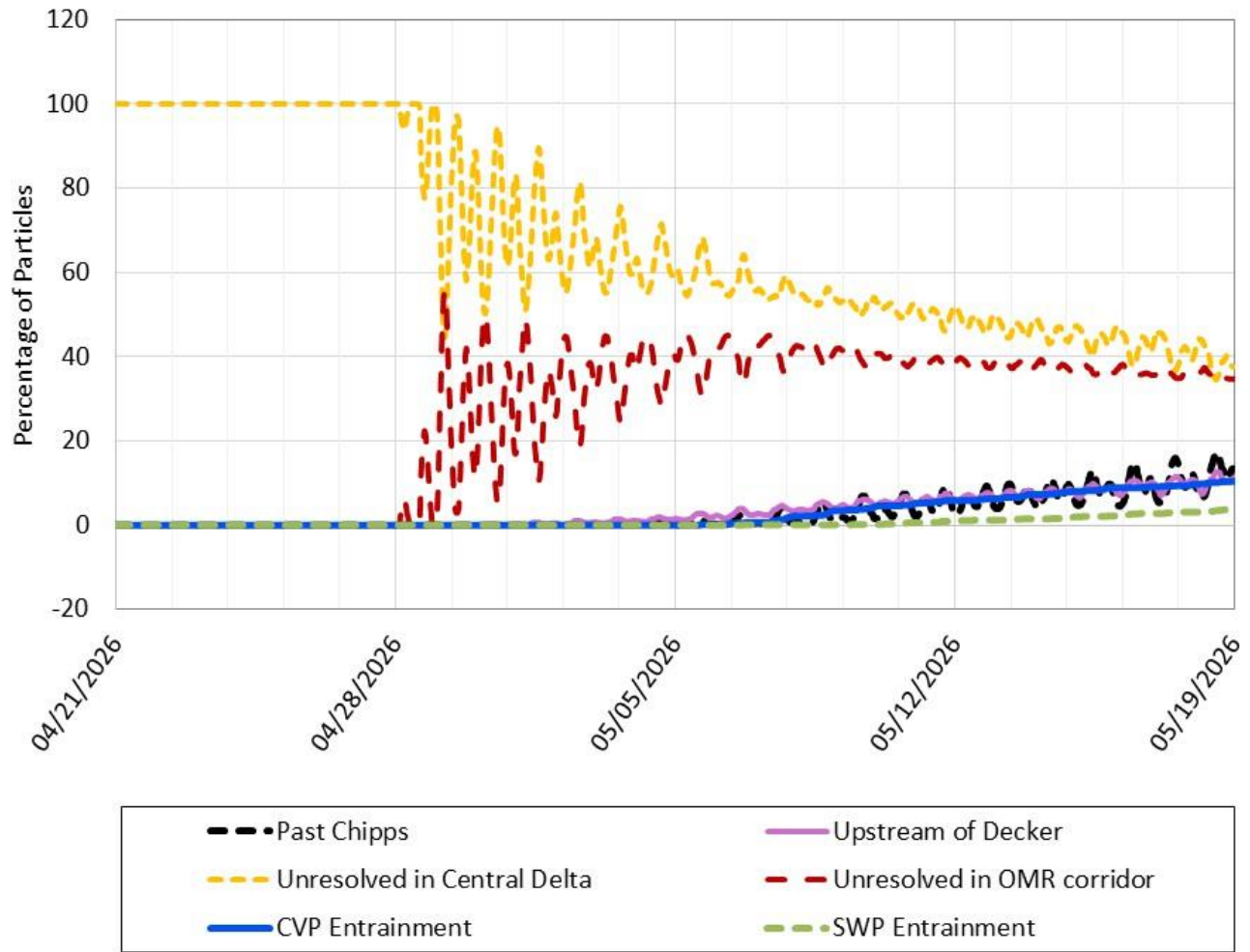


Figure 10. PTM Results for Neutral Particles. OMR Scenario -2,000 cfs. Particles Injected 04/28/2026 at DSM2 Node 99 (Old River)

Figure 10 is a line graph showing the percentage of neutral particles over time from April 21 to May 19, 2026, injected on April 28, 2026 at DSM2 Node 99 (Old River). Six flux locations are represented by different colored dashed lines, with Unresolved in Central Delta (yellow) and Unresolved in OMR corridor (red) showing the highest particle percentages across the evaluation period, while Past Chipps (black), CVP entrainment (blue), SWP entrainment (green), and Upstream of Decker (purple) remain comparatively lower.

Surface Oriented Particles (PP)

Table 8. Surface Oriented Particle Fate (percent flux across boundary) for Particles Injected at Chipps (DSM2 Node 465)

Week	OMR Flow Bin	Past Chipps	Upstream of Decker	Unresolved in Central Delta	Unresolved in OMR corridor	CVP Entrainment	SWP Entrainment
Week 1: 04/28/2026 - 05/04/2026	-6,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 1: 04/28/2026 - 05/04/2026	-5,000	N/A	N/A	N/A	N/A	N/A	N/A
Week 1: 04/28/2026 - 05/04/2026	-3,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 1: 04/28/2026 - 05/04/2026	-2,000	95.5	0.0	4.5	0.0	0.0	0.0
Week 2: 05/05/2026 - 05/11/2026	-6,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 2: 05/05/2026 - 05/11/2026	-5,000	N/A	N/A	N/A	N/A	N/A	N/A
Week 2: 05/05/2026 - 05/11/2026	-3,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 2: 05/05/2026 - 05/11/2026	-2,000	98.4	0.0	1.6	0.0	0.0	0.0
Week 3: 05/12/2026 - 05/18/2026	-6,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 3: 05/12/2026 - 05/18/2026	-5,000	N/A	N/A	N/A	N/A	N/A	N/A
Week 3: 05/12/2026 - 05/18/2026	-3,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 3: 05/12/2026 - 05/18/2026	-2,000	98.6	0.0	1.4	0.0	0.0	0.0

Note: Values between 0.0 and 0.1 are indicated with <0.1.

Key: CVP = Central Valley Project, OMR = Old and Middle River, SWP = State Water Project

Table 9. Surface Oriented Particle Fate (percent flux across boundary) for Particles Injected at Cache Slough (DSM2 Node 350)

Week	OMR Flow Bin	Past Chipps	Upstream of Decker	Unresolved in Central Delta	Unresolved in OMR corridor	CVP Entrainment	SWP Entrainment
Week 1: 04/28/2026 - 05/04/2026	-6,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 1: 04/28/2026 - 05/04/2026	-5,000	N/A	N/A	N/A	N/A	N/A	N/A
Week 1: 04/28/2026 - 05/04/2026	-3,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 1: 04/28/2026 - 05/04/2026	-2,000	45.4	73.8	54.6	0.0	0.0	0.0
Week 2: 05/05/2026 - 05/11/2026	-6,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 2: 05/05/2026 - 05/11/2026	-5,000	N/A	N/A	N/A	N/A	N/A	N/A
Week 2: 05/05/2026 - 05/11/2026	-3,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 2: 05/05/2026 - 05/11/2026	-2,000	77.3	78.6	22.9	0.1	0.0	0.0
Week 3: 05/12/2026 - 05/18/2026	-6,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 3: 05/12/2026 - 05/18/2026	-5,000	N/A	N/A	N/A	N/A	N/A	N/A
Week 3: 05/12/2026 - 05/18/2026	-3,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 3: 05/12/2026 - 05/18/2026	-2,000	86.7	80.8	13.6	0.3	0.0	0.0

Note: Values between 0.0 and 0.1 are indicated with <0.1.

Key: CVP = Central Valley Project, OMR = Old and Middle River, SWP = State Water Project

Table 10. Surface Oriented Particle Fate (percent flux across boundary) for Particles Injected at Jersey Point (DSM2 Node 469)

Week	OMR Flow Bin	Past Chipps	Upstream of Decker	Unresolved in Central Delta	Unresolved in OMR corridor	CVP Entrainment	SWP Entrainment
Week 1: 04/28/2026 - 05/04/2026	-6,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 1: 04/28/2026 - 05/04/2026	-5,000	N/A	N/A	N/A	N/A	N/A	N/A
Week 1: 04/28/2026 - 05/04/2026	-3,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 1: 04/28/2026 - 05/04/2026	-2,000	27.4	17.9	72.7	0.1	0.0	0.0
Week 2: 05/05/2026 - 05/11/2026	-6,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 2: 05/05/2026 - 05/11/2026	-5,000	N/A	N/A	N/A	N/A	N/A	N/A
Week 2: 05/05/2026 - 05/11/2026	-3,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 2: 05/05/2026 - 05/11/2026	-2,000	73.0	21.6	27.2	0.2	0.0	0.0
Week 3: 05/12/2026 - 05/18/2026	-6,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 3: 05/12/2026 - 05/18/2026	-5,000	N/A	N/A	N/A	N/A	N/A	N/A
Week 3: 05/12/2026 - 05/18/2026	-3,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 3: 05/12/2026 - 05/18/2026	-2,000	85.8	23.1	14.6	0.3	0.1	0.0

Note: Values between 0.0 and 0.1 are indicated with <0.1.

Key: CVP = Central Valley Project, OMR = Old and Middle River, SWP = State Water Project

Table 11. Surface Oriented Particle Fate (percent flux across boundary) for Particles Injected at Old River (DSM2 Node 99)

Week	OMR Flow Bin	Past Chipps	Upstream of Decker	Unresolved in Central Delta	Unresolved in OMR corridor	CVP Entrainment	SWP Entrainment
Week 1: 04/28/2026 - 05/04/2026	-6,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 1: 04/28/2026 - 05/04/2026	-5,000	N/A	N/A	N/A	N/A	N/A	N/A
Week 1: 04/28/2026 - 05/04/2026	-3,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 1: 04/28/2026 - 05/04/2026	-2,000	0.3	2.0	58.9	40.7	0.1	0.0
Week 2: 05/05/2026 - 05/11/2026	-6,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 2: 05/05/2026 - 05/11/2026	-5,000	N/A	N/A	N/A	N/A	N/A	N/A
Week 2: 05/05/2026 - 05/11/2026	-3,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 2: 05/05/2026 - 05/11/2026	-2,000	8.1	5.4	44.4	35.7	10.6	1.2
Week 3: 05/12/2026 - 05/18/2026	-6,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 3: 05/12/2026 - 05/18/2026	-5,000	N/A	N/A	N/A	N/A	N/A	N/A
Week 3: 05/12/2026 - 05/18/2026	-3,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 3: 05/12/2026 - 05/18/2026	-2,000	18.7	9.3	31.1	31.7	13.8	4.7

Note: Values between 0.0 and 0.1 are indicated with <0.1.

Key: CVP = Central Valley Project, OMR = Old and Middle River, SWP = State Water Project

**PTM Results for Surface Oriented Particles. OMR Scenario = -2,000.
 Particles Injected 4/28/2026 at DSM2 Node 465 (Chippis).**

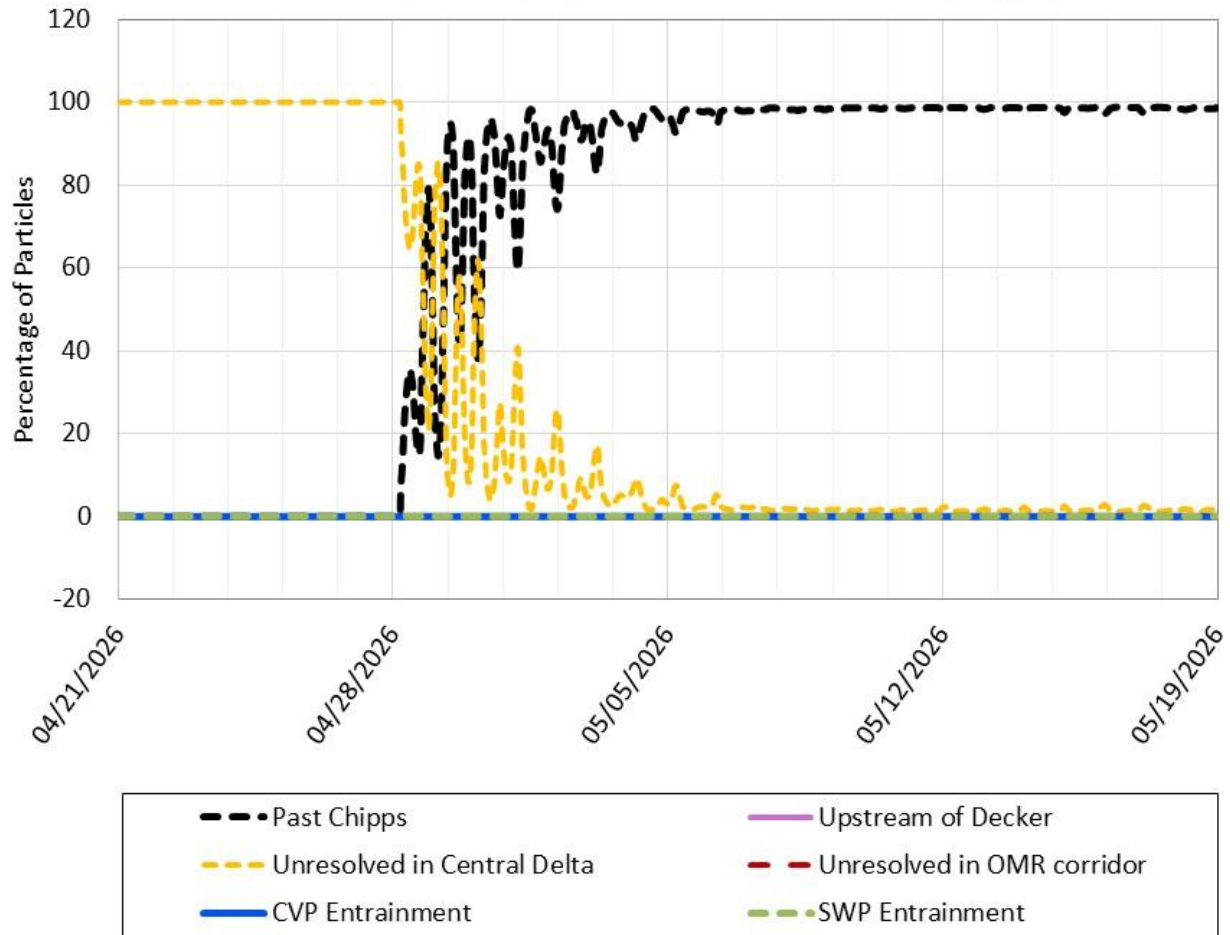


Figure 11. PTM Results for Surface Oriented Particles. OMR Scenario -2,000 cfs. Particles Injected 04/28/2026 at DSM2 Node 465 (Chippis)

Figure 11 is a line graph showing the percentage of surface oriented particles over time from April 21 to May 19, 2026, injected on April 28, 2026 at DSM2 Node 465 (Chippis). Six flux locations are represented by different colored dashed lines, with Past Chipps (black) rapidly increasing to nearly 100% by early May, while Unresolved in Central Delta (yellow) declines from 100% to near 0% over the evaluation period. The remaining flux locations remain near 0% throughout the period.

**PTM Results for Surface Oriented Particles. OMR Scenario = -2,000.
 Particles Injected 4/28/2026 at DSM2 Node 350 (Cache Slough).**

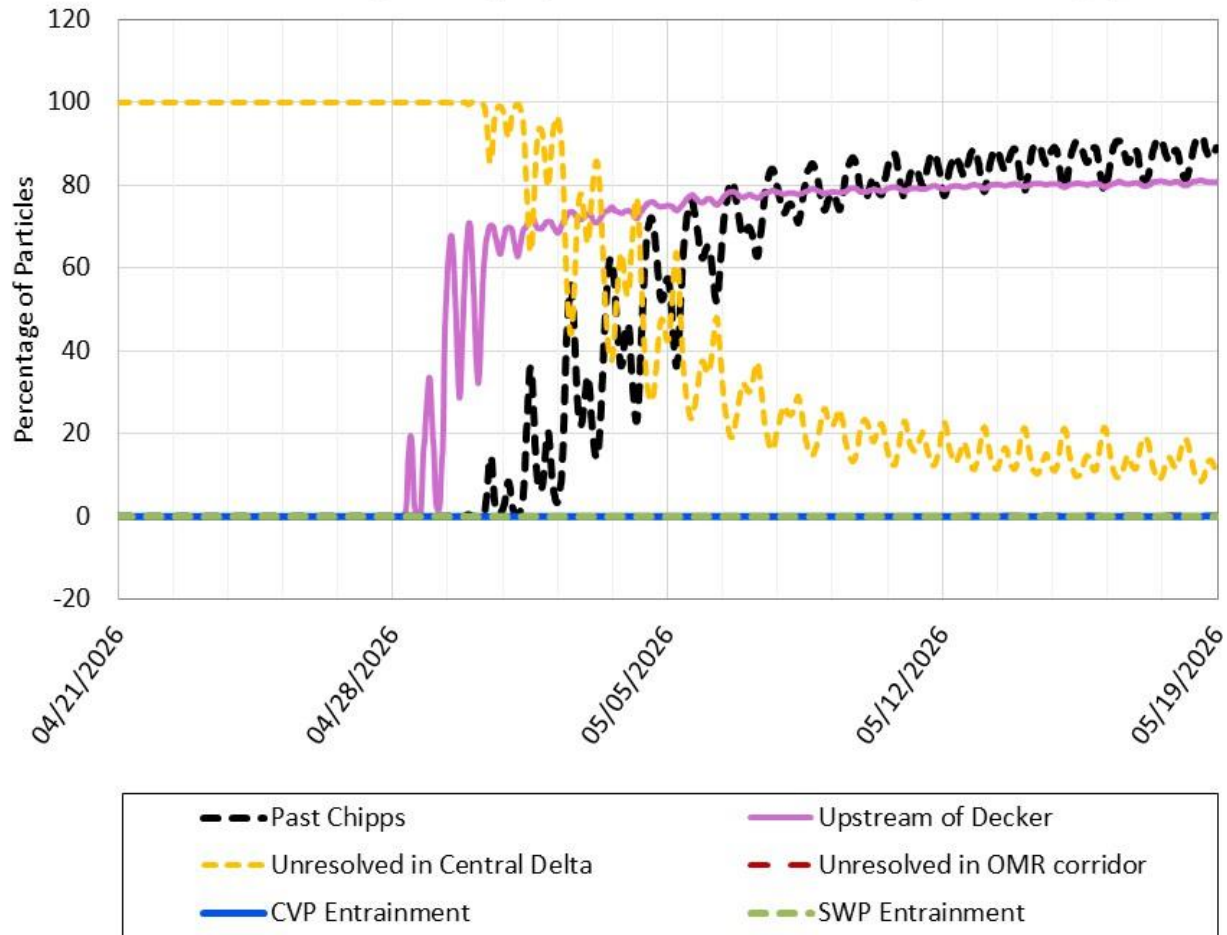


Figure 12. PTM Results for Surface Oriented Particles. OMR Scenario -2,000 cfs. Particles Injected 04/28/2026 at DSM2 Node 350 (Cache Slough)

Figure 12 is a line graph showing the percentage of surface oriented particles over time from April 21 to May 19, 2026, injected on April 28, 2026 at DSM2 Node 350 (Cache Slough). Six flux locations are represented by different colored dashed lines, with Upstream of Decker (pink) rapidly increasing to approximately 70% by early May and remaining elevated, while Past Chipps (black) gradually rises to nearly 90% by mid-May. Unresolved in Central Delta (yellow) declines from 100% to approximately 10-20% over the evaluation period, while the remaining flux locations remain near 0% throughout the period.

**PTM Results for Surface Oriented Particles. OMR Scenario = -2,000.
 Particles Injected 4/28/2026 at DSM2 Node 469 (Jersey Point).**

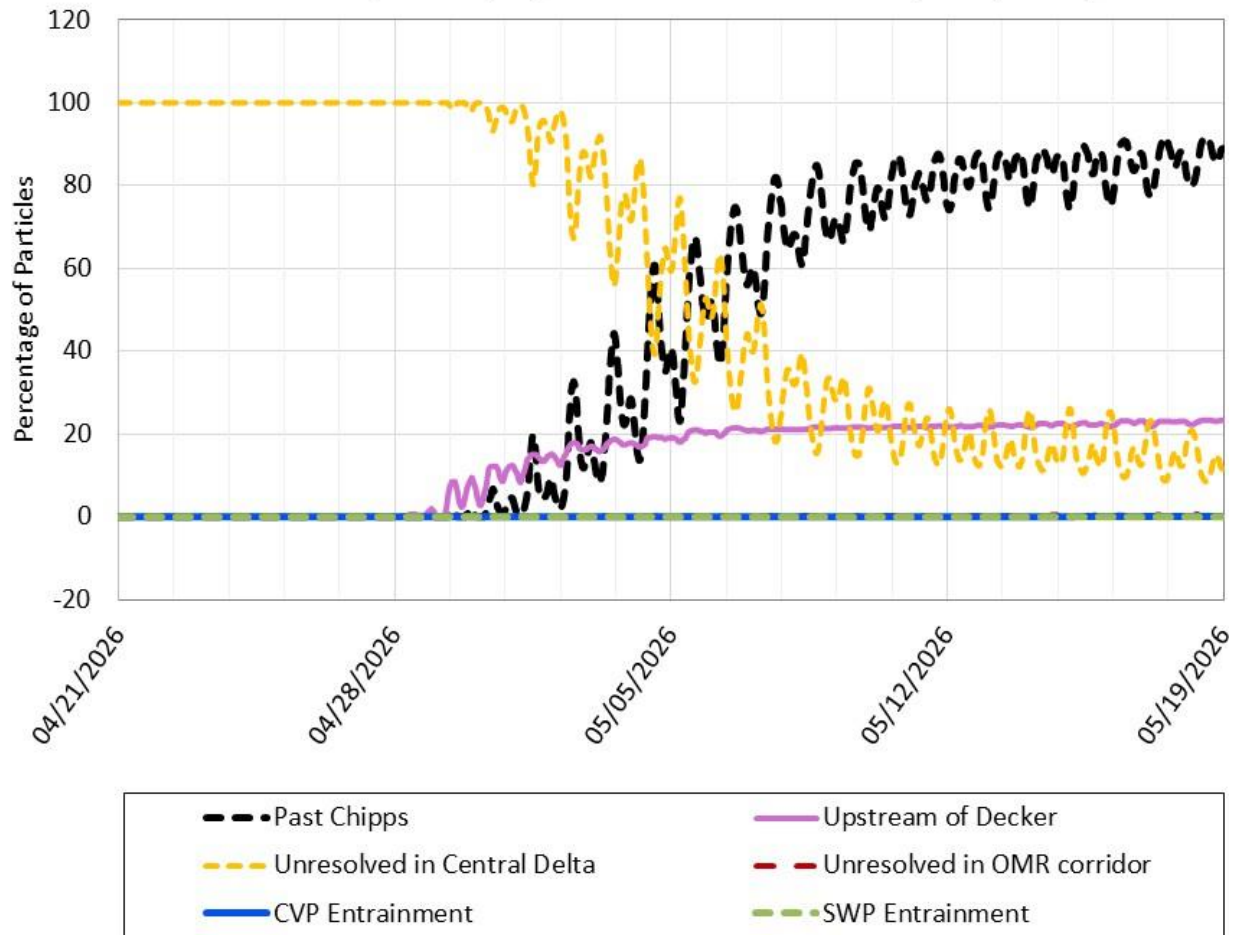


Figure 13. PTM Results for Surface Oriented Particles. OMR Scenario -2,000 cfs. Particles Injected 04/28/2026 at DSM2 Node 469 (Jersey Point)

Figure 13 is a line graph showing the percentage of surface oriented particles over time from April 21 to May 19, 2026, injected on April 28, 2026 at DSM2 Node 469 (Jersey Point). Six flux locations are represented by different colored dashed lines, with Past Chipps (black) steadily increasing to approximately 90% by mid-May, while Unresolved in Central Delta (yellow) declines from 100% to approximately 10–20% over the evaluation period. Upstream of Decker (pink) gradually rises to approximately 20–25%, while the remaining flux locations remain near 0% throughout the period.

**PTM Results for Surface Oriented Particles. OMR Scenario = -2,000.
 Particles Injected 4/28/2026 at DSM2 Node 99 (Old River).**

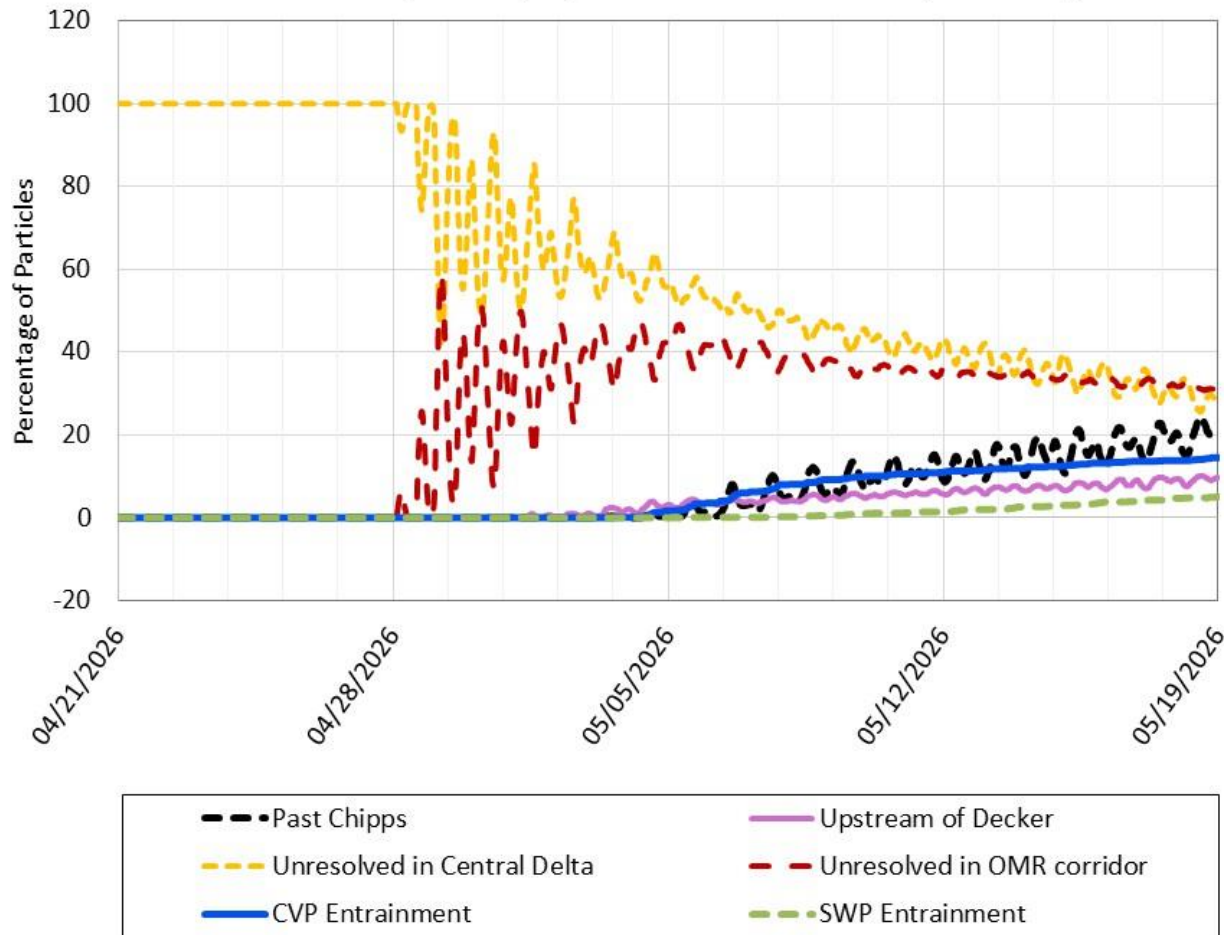


Figure 14. PTM Results for Surface Oriented Particles. OMR Scenario -2,000 cfs. Particles Injected 04/28/2026 at DSM2 Node 99 (Old River)

Figure 14 is a line graph showing the percentage of surface oriented particles over time from April 21 to May 19, 2026, injected on April 28, 2026 at DSM2 Node 99 (Old River). Six flux locations are represented by different colored dashed lines, with Unresolved in Central Delta (yellow) declining from approximately 100% to 30% over the evaluation period, while Unresolved in OMR corridor (red) rises rapidly to approximately 40–45% and remains elevated through mid-May. Past Chipps (black), CVP Entrainment (blue), Upstream of Decker (pink), and SWP Entrainment (green) gradually increase over time, reaching approximately 20%, 15%, 10%, and 5%, respectively, by the end of the evaluation period.

ECO-PTM (Ecological Particle Tracking Model)

ECO-PTM Results Evaluation Period: 04/28/2026 – 05/18/2026

Particles Injected: 04/28/2026

Injection Location: Sacramento River at Freeport

Table 12. Salmon Particle Route Ratio After 3 Weeks Ending 05/18/2026

OMR Flow Bin (cfs)	Sutter Slough Route	Steamboat Slough Route	Sacramento River (SS) Route	Sacramento River (GEO) Route	Georgiana Slough Route
-6,500	N/A	N/A	N/A	N/A	N/A
-5,000	N/A	N/A	N/A	N/A	N/A
-3,500	N/A	N/A	N/A	N/A	N/A
-2,000	0.12	0.14	0.73	0.71	0.29

Note: Salmon particle route ratio for the Sacramento River (SS) Route reflects particles inserted at Freeport that are not routed through either Sutter Slough or Steamboat Slough. Salmon particle route ratio for the Sacramento River (GEO) Route reflects particles inserted at Freeport that are not routed through either Sutter Slough, Steamboat Slough, Georgiana Slough, or the Delta Cross Channel (when operational).

Key: cfs = cubic feet per second, OMR = Old and Middle River

Table 13. Salmon Particle Route-Specific Survival After 3 Weeks Ending 05/18/2026

OMR Flow Bin (cfs)	Sutter Slough Route	Steamboat Slough Route	Sacramento River Route	Georgiana Slough Route	All Routes Combined
-6,500	N/A	N/A	N/A	N/A	N/A
-5,000	N/A	N/A	N/A	N/A	N/A
-3,500	N/A	N/A	N/A	N/A	N/A
-2,000	52%	62%	57%	27%	51%

Key: cfs = cubic feet per second, OMR = Old and Middle River

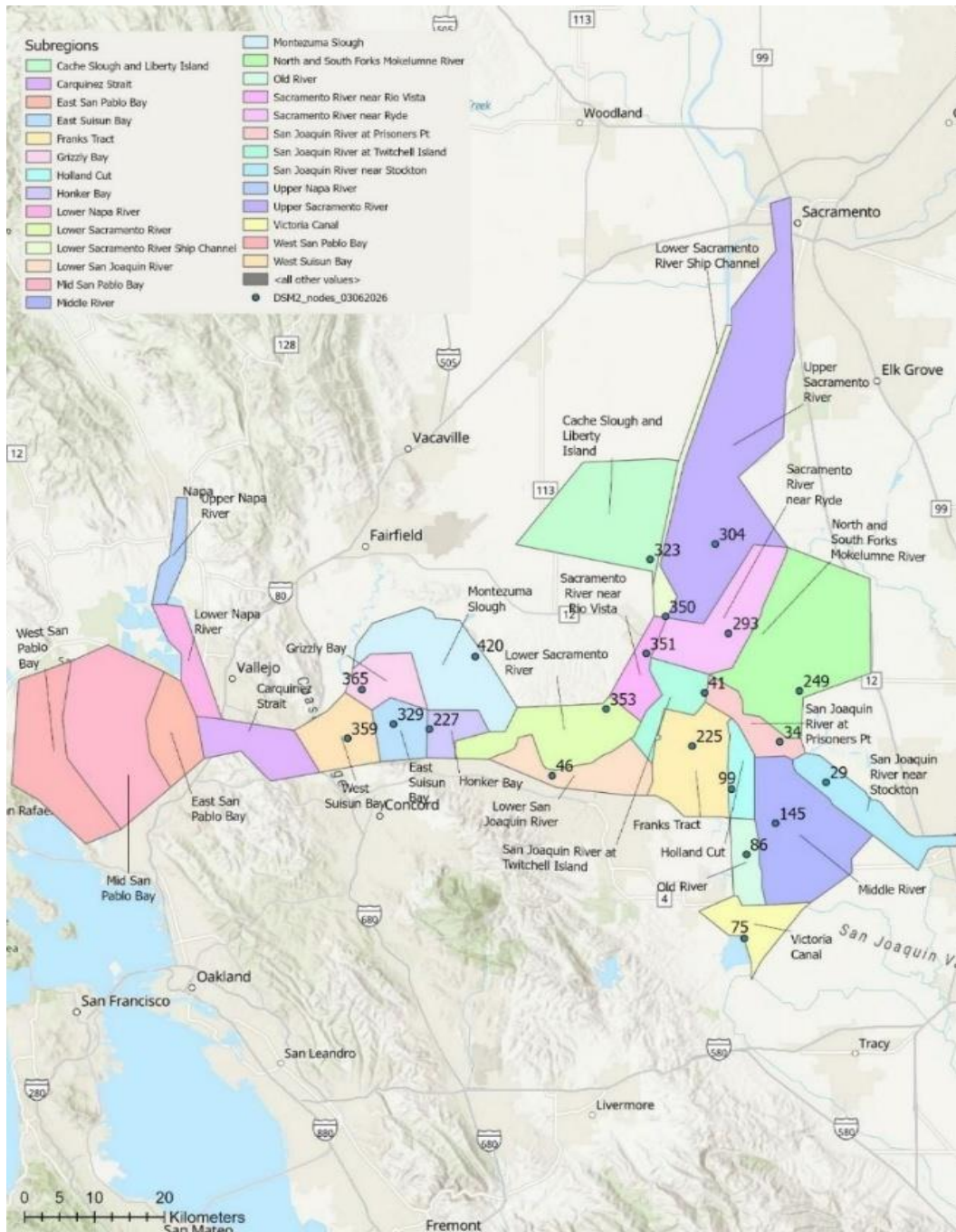
Longfin Smelt Larval Population and PTM Analysis

PTM Results Evaluation Period: 04/28/2026 – 05/18/2026

Particles Injected: 04/28/2026

PTM Injection Location: node(s) within each Delta Region identified in map below

PTM Analysis Method: LFS larva abundance is estimated in each Enhanced Delta Smelt Monitoring (EDSM) program subregion. Cumulative particle flux into CVP and SWP facilities is represented in PTM by one injection location per subregion (Figure 17). LFS larva entrainment is estimated by multiplying the LFS subregion abundance by cumulative particle flux into CVP and SWP facilities from the corresponding subregion injection point. LFS entrainment from each subregion is added together and reported at the LFS Region scale (Figure 18).



Note: No DSM2 nodes are west of the West Suisun Bay subregion, so the furthest west node in the DSM2 domain is used to represent particle entrainment for all subregions west of West Suisun Bay.

Figure 15. Map of Delta showing Longfin Smelt subregions and DSM2 nodes

Figure 15 is a map of the Sacramento-San Joaquin Delta showing Longfin Smelt subregions, each distinguished by a different color, including Cache Slough and Liberty Island, Carquinez Strait, East San Pablo Bay, East Suisun Bay, Franks Tract, Grizzly Bay, Honker Bay, Lower Napa River, Lower Sacramento River, Lower San Joaquin River, Middle River, and additional Delta subregions. DSM2 node locations and node numbers are displayed throughout the map.

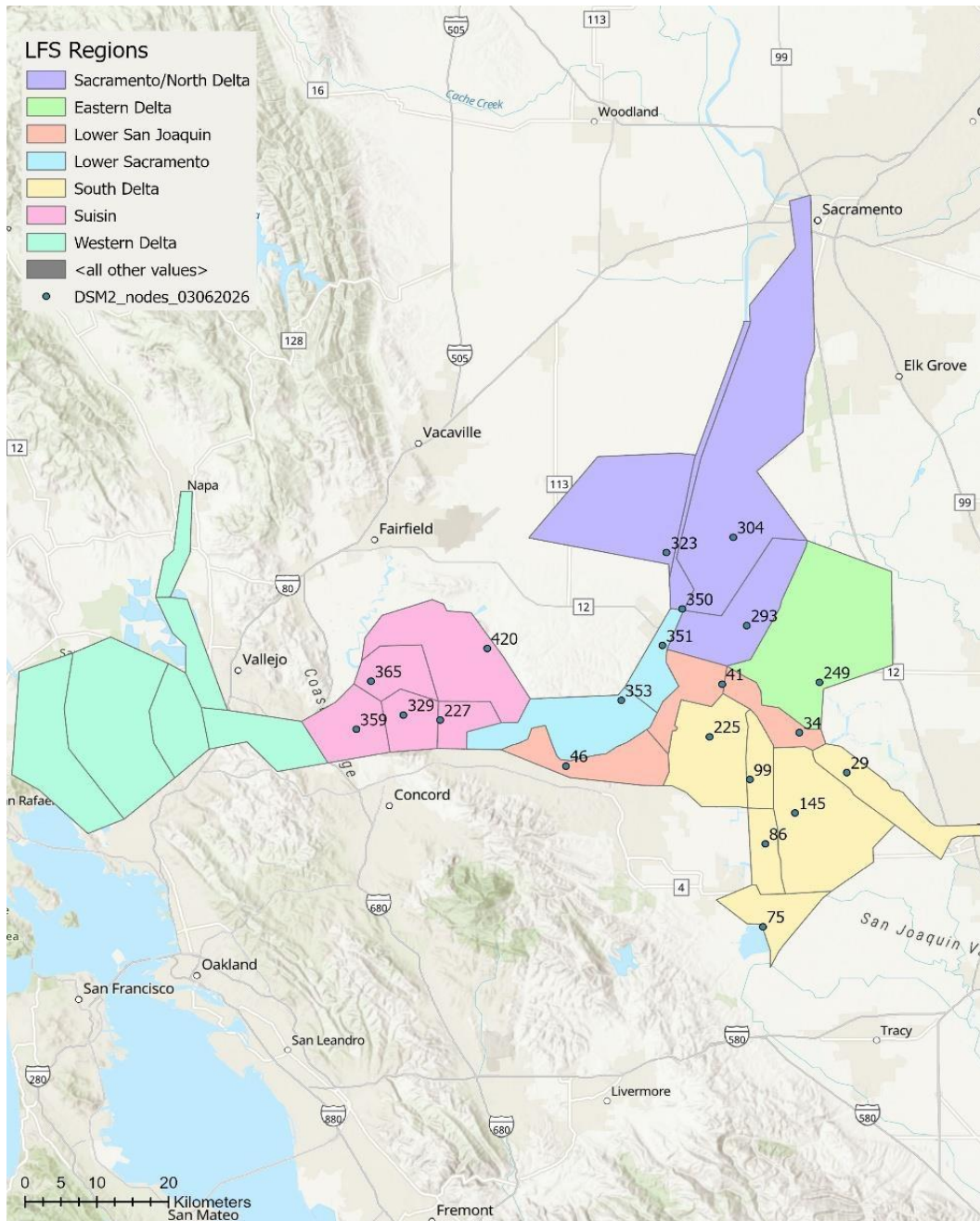


Figure 16. Map of Delta showing Longfin Smelt regions and DSM2 nodes.

Figure 16 is a map of the Sacramento-San Joaquin Delta showing the seven Longfin Smelt regions — Sacramento/North Delta, Eastern Delta, Lower San Joaquin, Lower Sacramento, South Delta, Suisun, and Western Delta — each distinguished by a different color. DSM2 node locations and node numbers are displayed throughout the map.

Notes:

- Regional and Delta-wide longfin smelt (LFS) larval population is estimated using SLS survey data from Survey 6 (3/9/2026-3/11/2026) and volumetric expansion methods developed by the Six-Agency Monitoring Survey Design Team. As of 04/21/2026, all SLS survey catch data has been processed (Table 14).

Table 14. Percent of Smelt Larva Survey Sample Results Processed as of 04/09/2026

SLS Survey Number	Survey Date	Eastern Delta	Lower Sacramento	Lower San Joaquin	Sacramento/ North Delta	South Delta	Suisun	Western Delta
1	12/29/2025	100%	100%	100%	100%	100%	100%	100%
2	1/12/2026	100%	100%	100%	100%	100%	100%	100%
3	1/26/2026	100%	100%	100%	100%	100%	100%	100%
4	2/9/2026	100%	100%	100%	100%	100%	100%	100%
5	2/23/2026	100%	100%	100%	100%	100%	100%	100%
6	3/9/2026	100%	100%	100%	100%	100%	100%	100%

Key: SLS = Smelt Larva Survey

The DSM2 node used as an injection point, EDSM subregion, and LFS Region for reporting are shown in Table 15.

Table 15. DSM2 Injection Node, EDSM Subregion, and LFS Region

DSM2 Injection Node	EDSM Subregion	LFS Region
329	East Suisun Bay	Suisun
365	Grizzly Bay	Suisun
227	Honker Bay	Suisun
420	Montezuma Slough	Suisun
359	West Suisun Bay	Suisun
359	Carquinez Strait	Western Delta
359	Upper Napa River	Western Delta
359	Lower Napa River	Western Delta
359	East San Pablo Bay	Western Delta
359	West San Pablo Bay	Western Delta
359	Mid San Pablo Bay	Western Delta
353	Lower Sacramento River	Lower Sacramento
351	Sacramento River near Rio Vista	Lower Sacramento
350	Lower Sacramento River Ship Channel	Sacramento/ North Delta
293	Sacramento River near Ryde	Sacramento/ North Delta
323	Cache Slough and Liberty Island	Sacramento/ North Delta
304	Upper Sacramento River	Sacramento/ North Delta
249	North and South Forks Mokelumne River	East
46	Lower San Joaquin River	Lower San Joaquin
41	San Joaquin River at Twitchell Island	Lower San Joaquin
34	San Joaquin River at Prisoners Point	Lower San Joaquin
225	Franks Tract	South Delta
99	Holland Cut	South Delta
86	Old River	South Delta
29	San Joaquin River near Stockton	South Delta
145	Middle River	South Delta
75	Victoria Canal	South Delta

Table 16. LFS Entrainment Estimate using PTM with Surface Oriented Particles: Week 1 ending 05/04/2026

OMR (cfs)	Combined Exports (cfs)	Region Metric	West	Suisun	Sacramento/ North Delta	Lower San Joaquin	Lower Sacramento	South Delta	East	Total (#)	Total (%)
N/A	N/A	LFS Larva Abundance (Survey 6: 3/9/2026)	117,633,687	145,677,478	304,865	4,078,739	3,695,676	0	0	271,390,445	N/A
-6,500	N/A	PTM Entrained (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
-5,000	N/A	PTM Entrained (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
-3,500	N/A	PTM Entrained (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
-2,000	2,771	PTM Entrained (%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	N/A	N/A
-6,500	N/A	LFS Larva Entrained (#)	N/A	N/A	N/A	N/A	N/A	N/A	-	N/A	N/A
-5,000	N/A	LFS Larva Entrained (#)	N/A	N/A	N/A	N/A	N/A	N/A	-	N/A	N/A
-3,500	N/A	LFS Larva Entrained (#)	N/A	N/A	N/A	N/A	N/A	N/A	-	N/A	N/A
-2,000	2,771	LFS Larva Entrained (#)	0	0	0	0	0	0	0	0	0.0%

Notes:

Values between 0.0 and 0.1 are indicated with <0.1

The PTM entrained (%) value reflects the total entrained particles from all subregions within an LFS Region divided by the estimated LFS Region abundance. Key:

cfs = cubic feet per second LFS = longfin Smelt

OMR = Old and Middle River

Table 17. LFS Entrainment Estimate using PTM with Surface Oriented Particles: Week 2 ending 05/11/2026

OMR (cfs)	Combined Exports (cfs)	Region Metric	West	Suisun	Sacramento/ North Delta	Lower San Joaquin	Lower Sacramento	South Delta	East	Total (#)	Total (%)
N/A	N/A	LFS Larva Abundance (Survey 6: 3/9/2026)	117,633,687	145,677,478	304,865	4,078,739	3,695,676	0	0	271,390,445	N/A
-6,500	N/A	PTM Entrained (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
-5,000	N/A	PTM Entrained (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
-3,500	N/A	PTM Entrained (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
-2,000	2,047	PTM Entrained (%)	0.0	0.0	0.0	<0.1	0.0	0.0	0.0	N/A	N/A
-6,500	N/A	LFS Larva Entrained (#)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
-5,000	N/A	LFS Larva Entrained (#)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
-3,500	N/A	LFS Larva Entrained (#)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
-2,000	2,047	LFS Larva Entrained (#)	0	0	0	2,381	0	0	0	2,381	<0.1%

Notes:

Values between 0.0 and 0.1 are indicated with <0.1

The PTM entrained (%) value reflects the total entrained particles from all subregions within an LFS Region divided by the estimated LFS Region abundance. Key:

cfs = cubic feet per second LFS = longfin Smelt

OMR = Old and Middle River

Table 18. LFS Entrainment Estimate using PTM with Surface Oriented Particles: Week 3 ending 05/18/2026

Table 18. LFS Entrainment Estimate using PTM with Surface Oriented Particles: Week 3 ending 05/18/2026

OMR (cfs)	Combined Exports (cfs)	Region Metric	West	Suisun	Sacramento/ North Delta	Lower San Joaquin	Lower Sacramento	South Delta	East	Total (#)	Total (%)
N/A	N/A	LFS Larva Abundance (Survey 6: 3/9/2026)	117,633,687	145,677,478	304,865	4,078,739	3,695,676	0	0	271,390,445	N/A
-6,500	N/A	PTM Entrained (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
-5,000	N/A	PTM Entrained (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
-3,500	N/A	PTM Entrained (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
-2,000	1,904	PTM Entrained (%)	0.0	0.0	0.0	0.5	0.0	0.0	0.0	N/A	N/A
-6,500	N/A	LFS Larva Entrained (#)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
-5,000	N/A	LFS Larva Entrained (#)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
-3,500	N/A	LFS Larva Entrained (#)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
-2,000	1,904	LFS Larva Entrained (#)	0	0	0	20,136	0	0	0	20,136	<0.1%

Notes:

Values between 0.0 and 0.1 are indicated with <0.1

The PTM entrained (%) value reflects the total entrained particles from all subregions within an LFS Region divided by the estimated LFS Region abundance. Key:

cfs = cubic feet per second LFS = longfin Smelt

OMR = Old and Middle River

**Average PTM Results by Injection Region for Position Oriented Particles
Entrained at CVP and SWP. OMR Scenario = -2,000. Particles Injected
4/28/2026.**

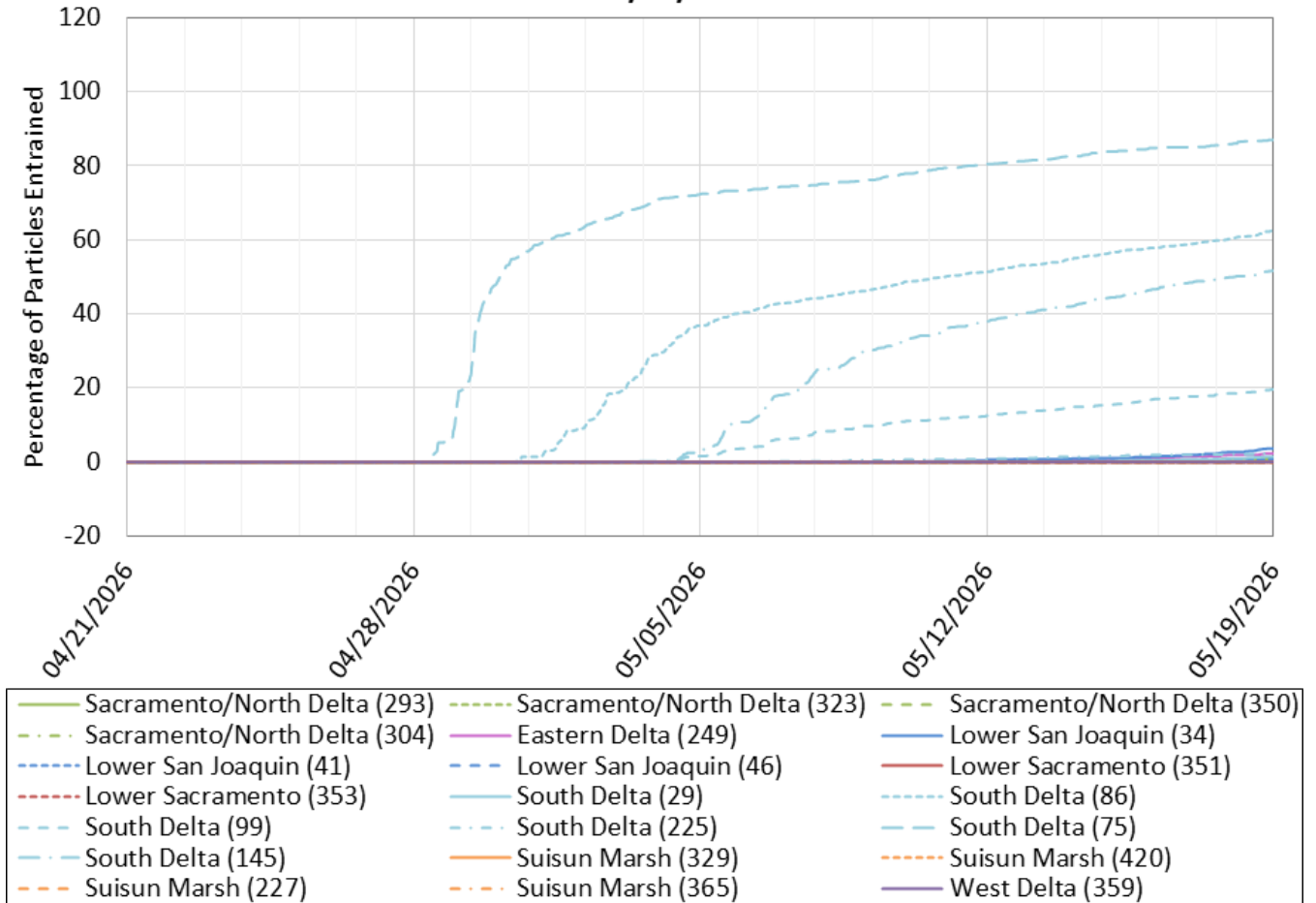


Figure 17. Average PTM Results by Injection Region for Position Oriented Particles Entrained at CVP and SWP. OMR Scenario -2,000 cfs. Particles Injected 04/28/2026

Figure 17 is a line graph showing the average percentage of position oriented particles entrained at CVP and SWP over time from April 21 to May 19, 2026, injected on April 28, 2026, grouped by seven DSM2 injection regions. South Delta (light blue) shows the highest entrainment, rising to approximately 85% by mid-May, while Lower San Joaquin (blue), Eastern Delta (pink), Lower Sacramento (red), Suisun Marsh (orange), and all other regions remain below approximately 5% throughout the evaluation period.