BUREAU OF RECLAMATION

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

Last updated: Monday, March 23, 2026 at 8 AM

Executive Summary

ESA and CESA-listed Salmonids

- Entrainment management season is active.
- Annual Loss: 45.43 (0.43% of annual loss threshold) natural winter-run, 62 (4.78% of annual loss threshold) hatchery winter-run (Sac River), 210 natural steelhead, 1446 (22.83% of annual loss threshold) hatchery steelhead, and 1058 (11.08% of annual loss threshold) spring-run surrogates.
- Single-year Incidental Take Limit (ITL) Status: 45.43 (0.77% of 5,922 ITL) natural winter-run; 62 (4.77% of 1,301 ITL) hatchery winter-run (Sac River); 2 (3.85% of 52 ITL) hatchery winter-run (Battle Creek); 210 (3.97% of 5,294 ITL) natural steelhead.
- Spring-run surrogate yearlings (0.5% ITL per experimental release group): Group 1: 0 (0% of 376 ITL); Group 2: 257 (84.64% of 304 ITL); Group 3: 35 (12.26% of 286 ITL).
- LAD winter-run presence in the Delta is high based on historical monitoring.
- Steelhead presence in the Delta is high based on historical monitoring.

ESA and CESA-listed Osmerids

- Delta smelt were most recently detected at Suisun Marsh.
- One Delta smelt was salvaged on 3/6/26, expanded salvage is 4 for this water year.
- No longfin smelt salvage has been observed this water year.
- Turbidity in the central/south Delta is low to moderate.

Current Delta Hydrologic Conditions

Operational and Regulatory Conditions

The current controlling factor is OMRI restrictions to no more negative than -5,000 cfs. 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 18,093 and 3,336 cfs respectively. Most recent Jersey Point Flow (JPF) is 124 cfs. Most recent 1-day, 5-day, and 14-day OMRI measurements were -4,971, -3,782, and -5,061 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.

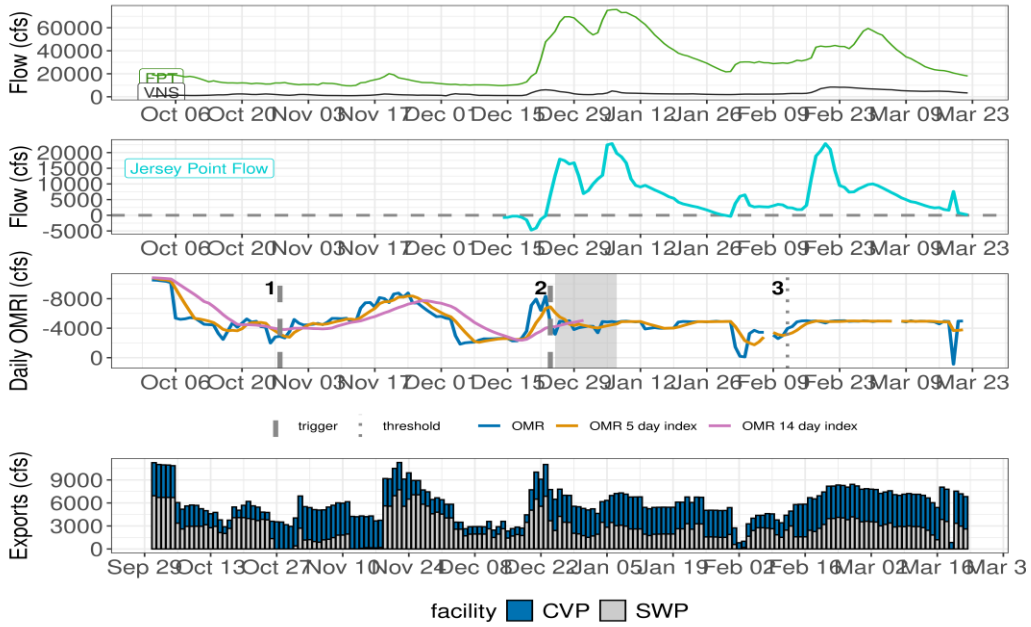

Figure 1: Operations and Action Summary, WY 2026. The numbers and lines in the OMRI plot indicate different triggers and thresholds (see Table 1), with shading representing specific action periods. Dashed and dotted vertical lines represent triggered actions and thresholds, respectively. OMRI data (colored 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. The first is a line chart depicting flow in cfs at FPT and VNS. The second is a line chart depicting Jersey Point flow in cfs. The third is a line chart depicting daily OMRI in cfs for OMR and OMR 5- and 14-day indexes, with three numbered action periods marked. The last chart is a bar graph depicting exports in cfs through the Central Valley Project and State Water Project facilities. The x-axis for all four graphs spans October 6 through March 23.

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	10/30/2025	Ongoing	DCC gates
2	First Flush	12/24/2025	12/25/2025	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 'medmed' 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 "medmed" hydrology is 26, 49, 101 and 163 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 137 km for forecasted conditions indicating that ZOI impacts across OMR scenarios would not change 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.

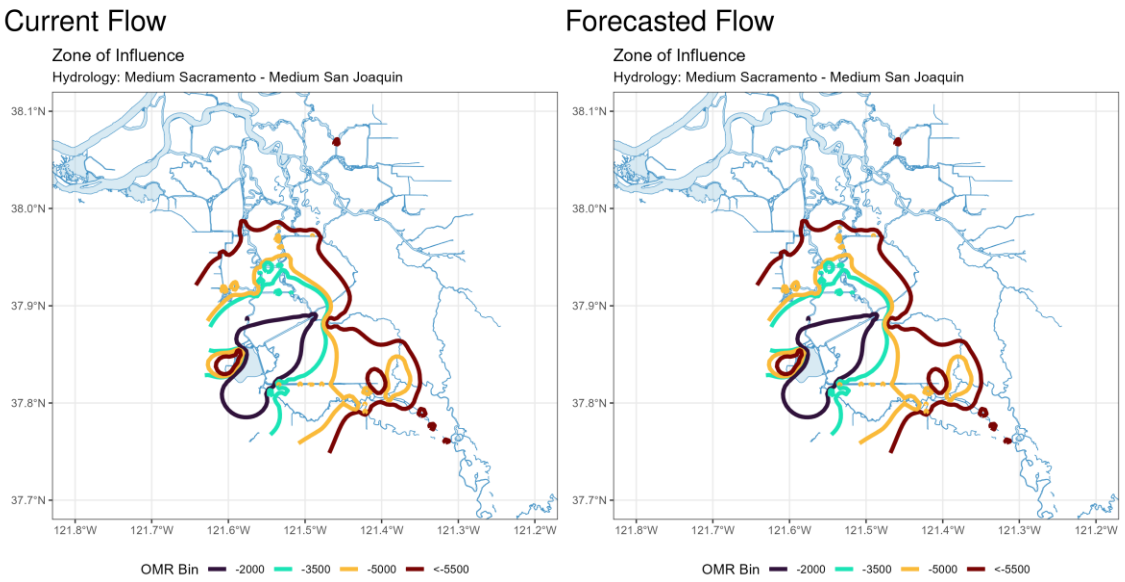

Figure 2: Modeled Zone of Influence at different OMRI scenarios based on current inflow hydrology (left) and forecasted inflow hydrology (right) from the Sacramento River and San Joaquin River

Figure 2 contains two maps of current and forecasted flow for the zone of influence. Each map contains lines of different colors depicting OMR Bin -2000, -3500, -500, and less than -5500 modeling scenarios.

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 Mar 22, 74% of length-at-date (LAD) winter-run have entered the Delta based on Knights Landing RST catch, 39% have exited the Delta based on Chipps Island Trawl Catch, and 86% 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)	Chipps Island Trawl	Salvage
Chinook, LAD Winter-run, Unclipped	100%	99%	99%	74%	39%	72%
Chinook, DNA Winter-run, Unclipped (Water Year)	N/A	N/A	N/A	N/A	N/A	86%

Red Bluff Diversion Dam Passage Estimate - As of Mar 18 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 Mar 08 and Mar 16 is 10 individuals. Total catch at Sacramento Trawl and Beach Seines in the delta between Mar 08 and Mar 20 is 26 individuals. Total catch at Delta Exit at Chipps Island between Mar 08 and Mar 20 is 166 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 March 22, cumulative loss of genetically confirmed winter-run is 45.43 or 0.43% of the annual loss threshold. Cumulative loss in the past 7 days has been 0.

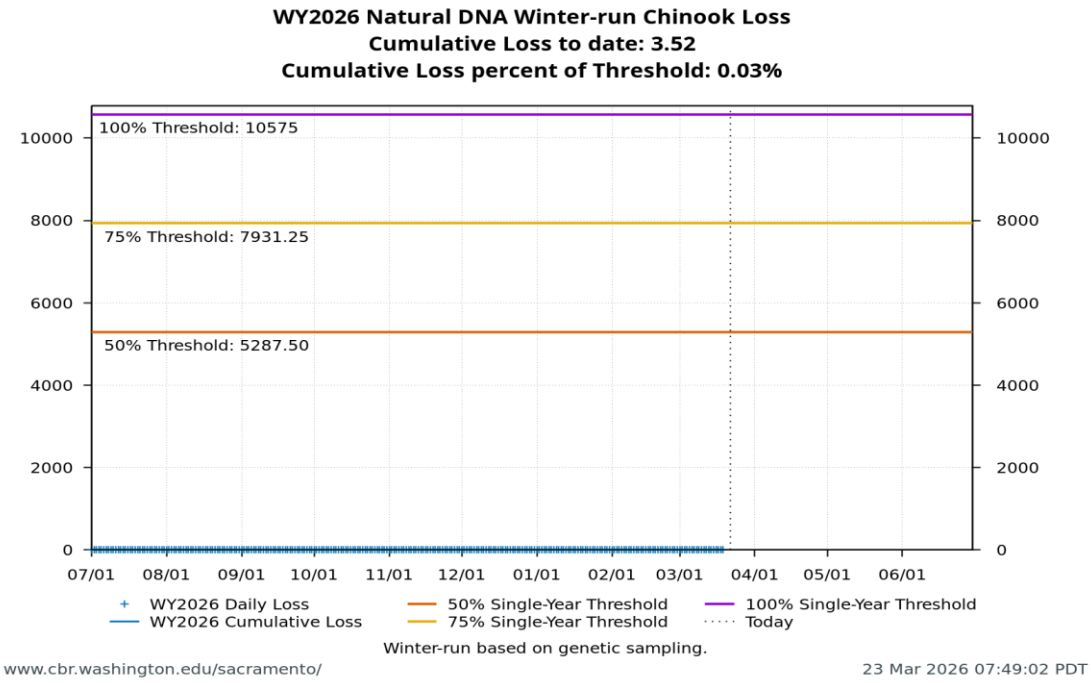

Figure 3: Cumulative loss of natural-origin winter-run for WY 2026. Cumulative loss is based on genetically confirmed winter-run captured in salvage or length-at-date winter-run in which genetic confirmation was unable to be obtained.

Figure 3 displays daily and cumulative winter-run Chinook loss based on genetic sampling for Water Year 2026. Points represent daily estimated loss and the line shows cumulative loss over time, with a vertical dashed line indicating the current date. The 100% threshold: 10575, 75% threshold: 7931.25, and 50% threshold: 5287.50 are shown as horizontal lines. As of March 23, 2026, the cumulative loss to date is 3.52, and the cumulative loss percent of the threshold is 0.03%.

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 March 21, overall through delta STARS estimated survival probability (with 80% credible intervals) is 0.1 (0.04-0.18) placing it in the 4th percentile of historical STARS survival estimates for the month of March (WYs 2018-2025). STARS estimated routing and survival probabilities (with 80% credible intervals) into the interior delta are 0.13 (0.1-0.15) and 0.04 (0.01-0.09), respectively, corresponding to the 58th and 6th percentiles of historical March estimates (WYs 2018-2025).

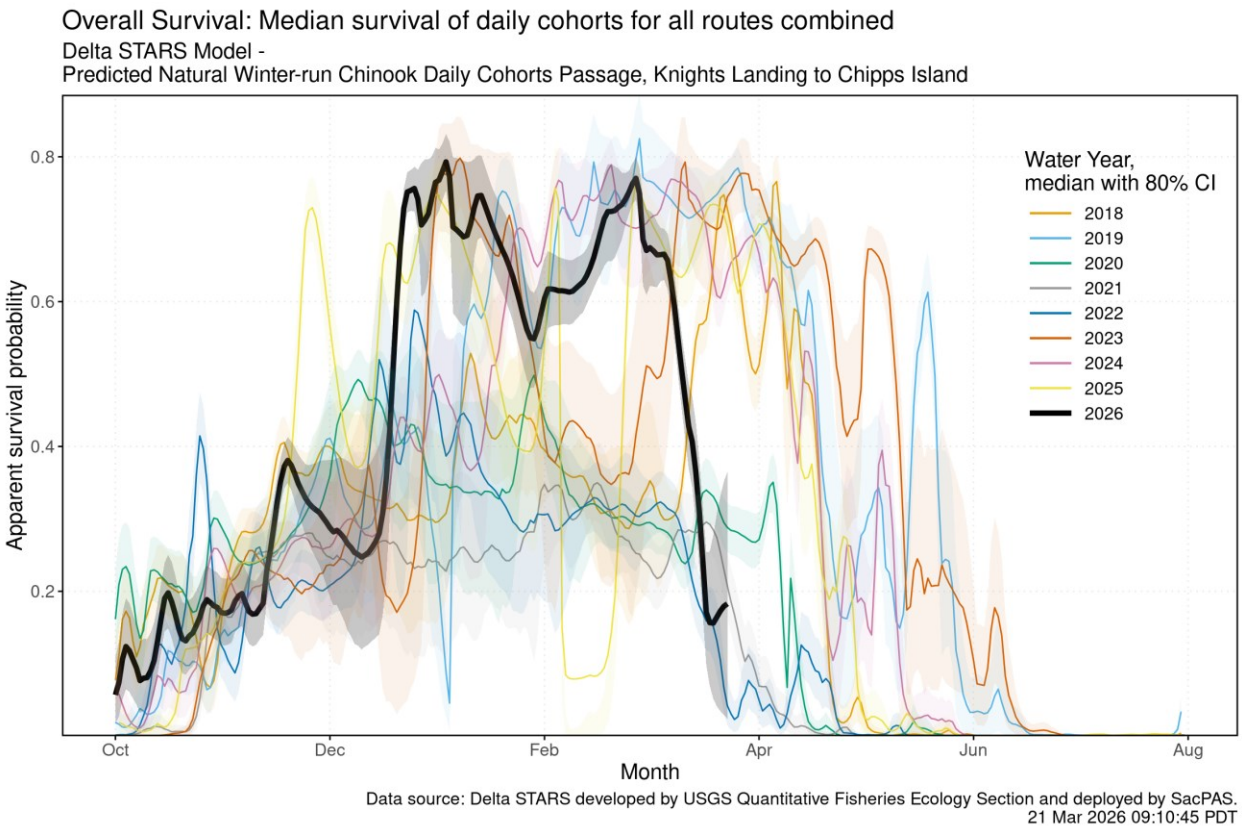

Figure 4: Estimated overall winter-run survival from Knights Landing to Chipps Island. Black line indicates the current water-year, and other colored lines correspond to past water years.

Figure 4 is a line graph depicting median survival of daily cohorts for all routes combined from Knights Landing to Chipps Island. Survival is shown by water year for 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, and 2026, with different-colored lines from October to August and an 80% confidence interval.

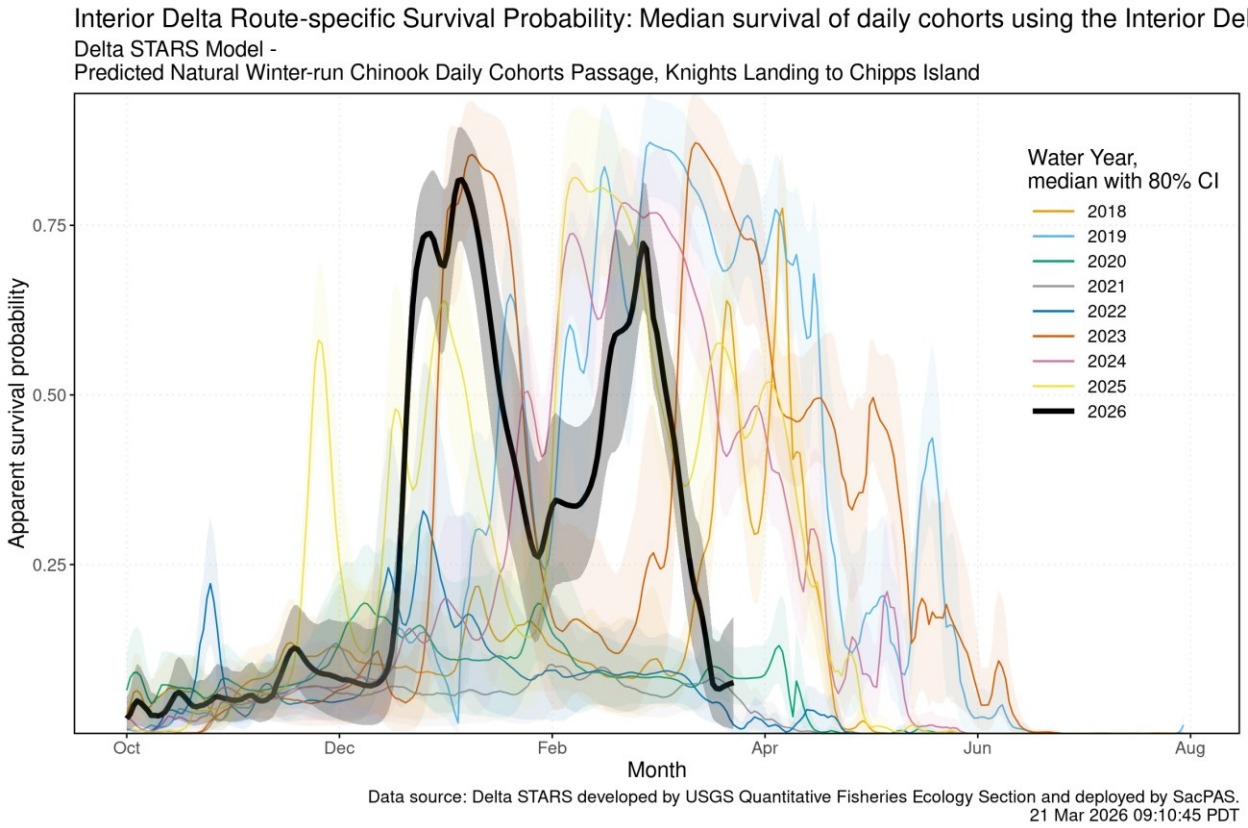

Figure 5: Estimated survival from Knights Landing to Chipps Island of simulated winter-run cohorts that route through the interior Delta. Black line indicates the current water-year, and other colored lines correspond to past water years.

Figure 5 is a line graph depicting median survival of daily cohorts using the Interior Delta routes from Knights Landing to Chipps Island. Survival is shown by water year for 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, and 2026, with different-colored lines from October to August with an 80% confidence interval.

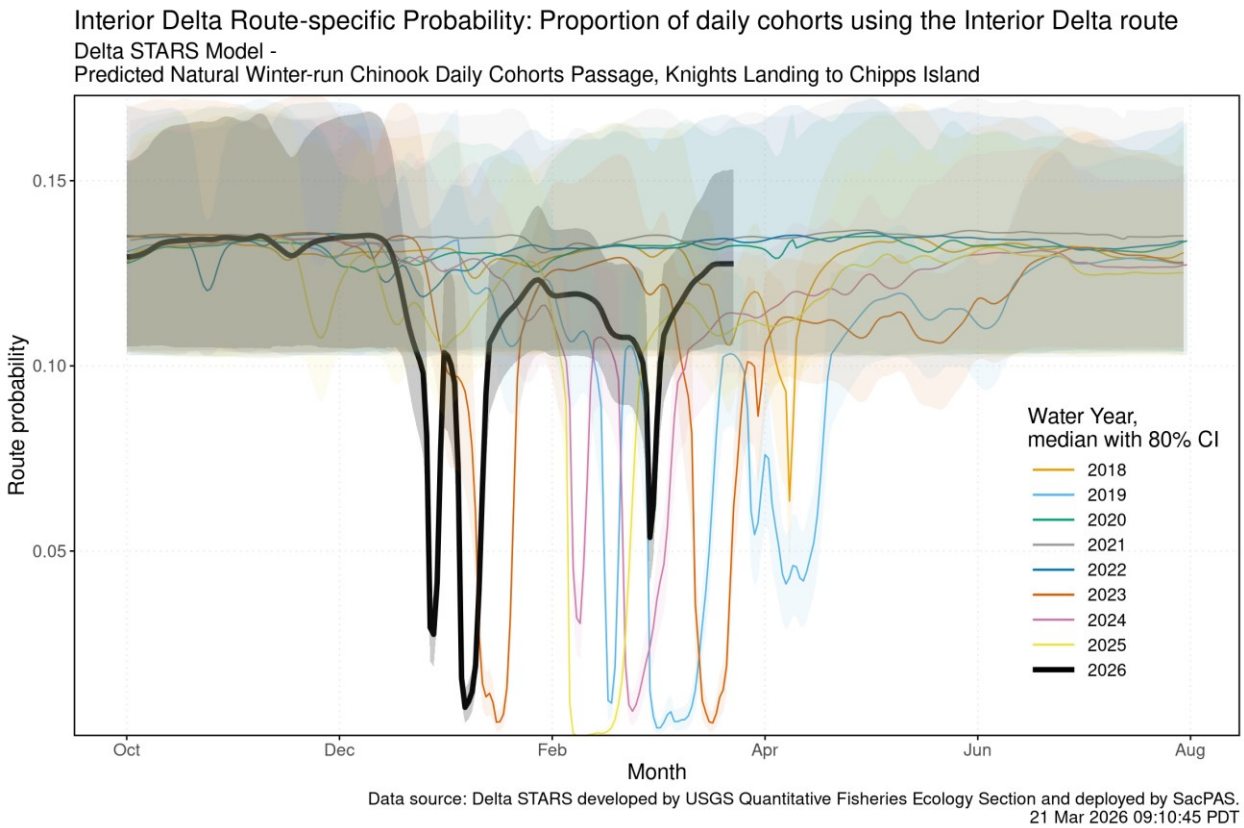

Figure 6: Estimated probability of winter-run routing into the interior Delta. Black line indicates the current water-year, and other colored lines correspond to past water years.

Figure 6 is a line graph depicting survival probability for winter-run Chinook daily cohorts using the Interior Delta routes from Knights Landing to Chipps Island. The survival is shown by water year for 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, and 2026, with different-colored lines from October to August with an 80% confidence interval.

ECO PTM
ECO-PTM Results Evaluation Period: 03/17/2026 – 04/06/2026
Particles Injected: 03/17/2026
Injection Location: Sacramento River at Freeport

Table 3. Salmon Particle Route Ratio After 3 Weeks (Ending 04/06/2026)

OMR Flow Bin	Sutter Slough Route	Steamboat Slough Route	Sacramento River (SS) Route	Sacramento River (GEO) Route	Georgiana Slough Route
-6,500	0.12	0.18	0.70	0.71	0.29
-5,000	0.12	0.17	0.70	0.70	0.30
-3,500	0.13	0.16	0.71	0.71	0.29
-2,000	0.13	0.18	0.69	0.72	0.28

Table 4. Salmon Particle Route-Specific Survival After 3 Weeks (Ending 04/06/2026)

OMR Flow Bin	Sutter Slough Route	Steamboat Slough Route	Sacramento River Route	Georgiana Slough Route	All Routes Combined
-6,500	51%	58%	53%	25%	48%
-5,000	49%	57%	51%	26%	47%
-3,500	50%	57%	52%	25%	47%
-2,000	50%	58%	52%	26%	48%

Notes:

- 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).

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 March 23, cumulative loss of Livingston Stone hatchery fish (Sacramento River releases) is 62 or 4.78% 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 March 23, 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 Mar 22, 59% of CCV steelhead have entered the Delta based on Knights Landing RST catch, 45% have exited the Delta based on Chipps Island Trawl Catch, and 47% 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	45%	52%	3%	59%	47%	51%

Delta Monitoring - Total catch of unclipped steelhead at RSTs at Delta Entry (Tisdale, Knights Landing, Lower Sacramento River) between Mar 08 and Mar 16 is 1 individuals. Total catch at Sacramento Trawl and Beach Seines in the delta between Mar 08 and Mar 20 is 0 individuals. Total catch at Delta Exit at Chipps Island between Mar 08 and Mar 20 is 0 individuals.

Annual Loss

As of March 22, cumulative loss of unclipped steelhead is 210 or 3.97% 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 50.

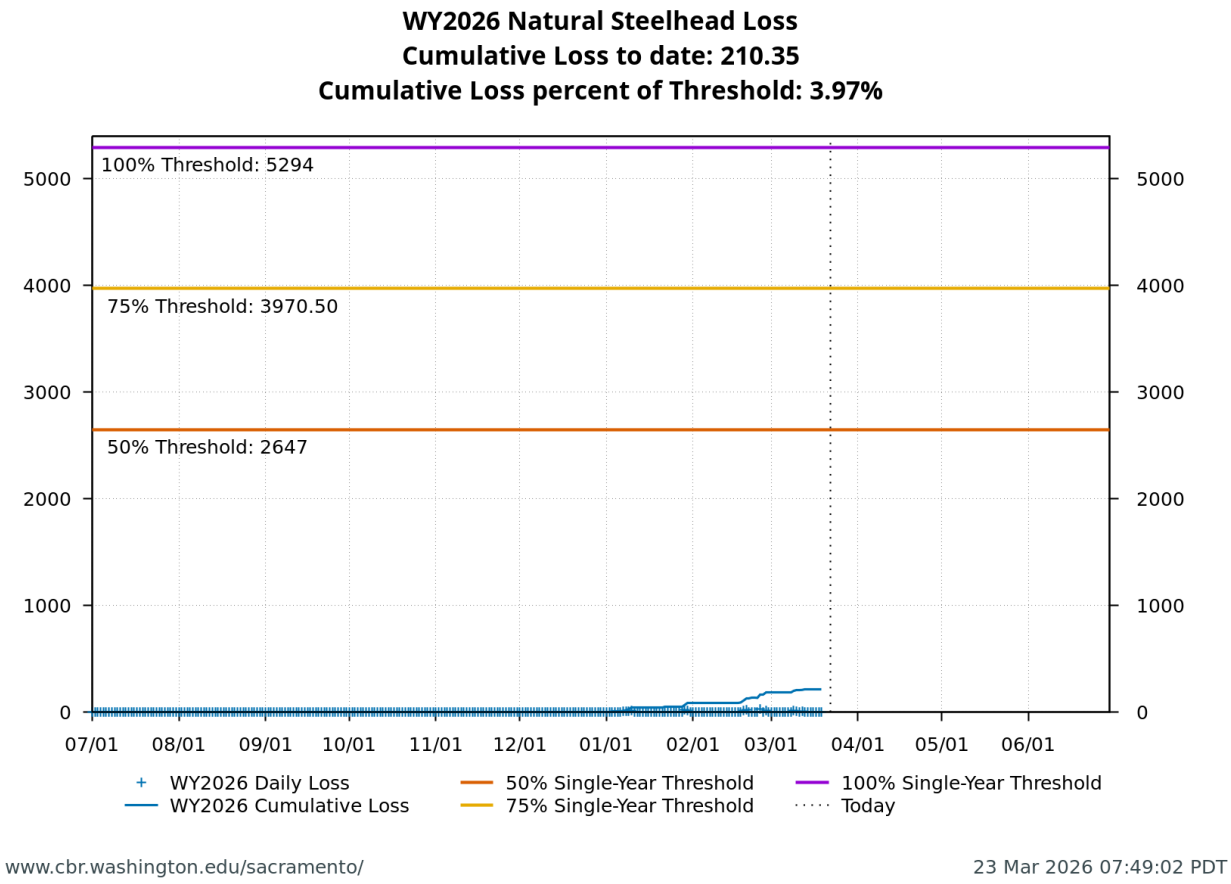

Figure 7: Cumulative loss of natural-origin steelhead for WY 2026. The 5,294 line represents the single-year incidental take limit (ITL), not a loss threshold.

Figure 7 displays daily and cumulative natural steelhead loss based on genetic sampling for Water Year 2026. Points represent daily estimated loss and the line shows cumulative loss over time, with a vertical dashed line indicating the current date. Horizontal lines represent the 100% single-year threshold of 5,294, 75% threshold of 3970.50, and 50% threshold of 2647. As of March 23, 2026, cumulative loss to date is 210.35 fish, representing 3.97% of the threshold.

Hatchery-origin Central Valley Steelhead

Surrogate Releases

There have been a total of 9 releases totaling 1,535,164 steelhead in Water Year 2026. JPE for the hatchery releases as of today is 633,352 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 6,334, 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

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 1446 or 22.83% 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.

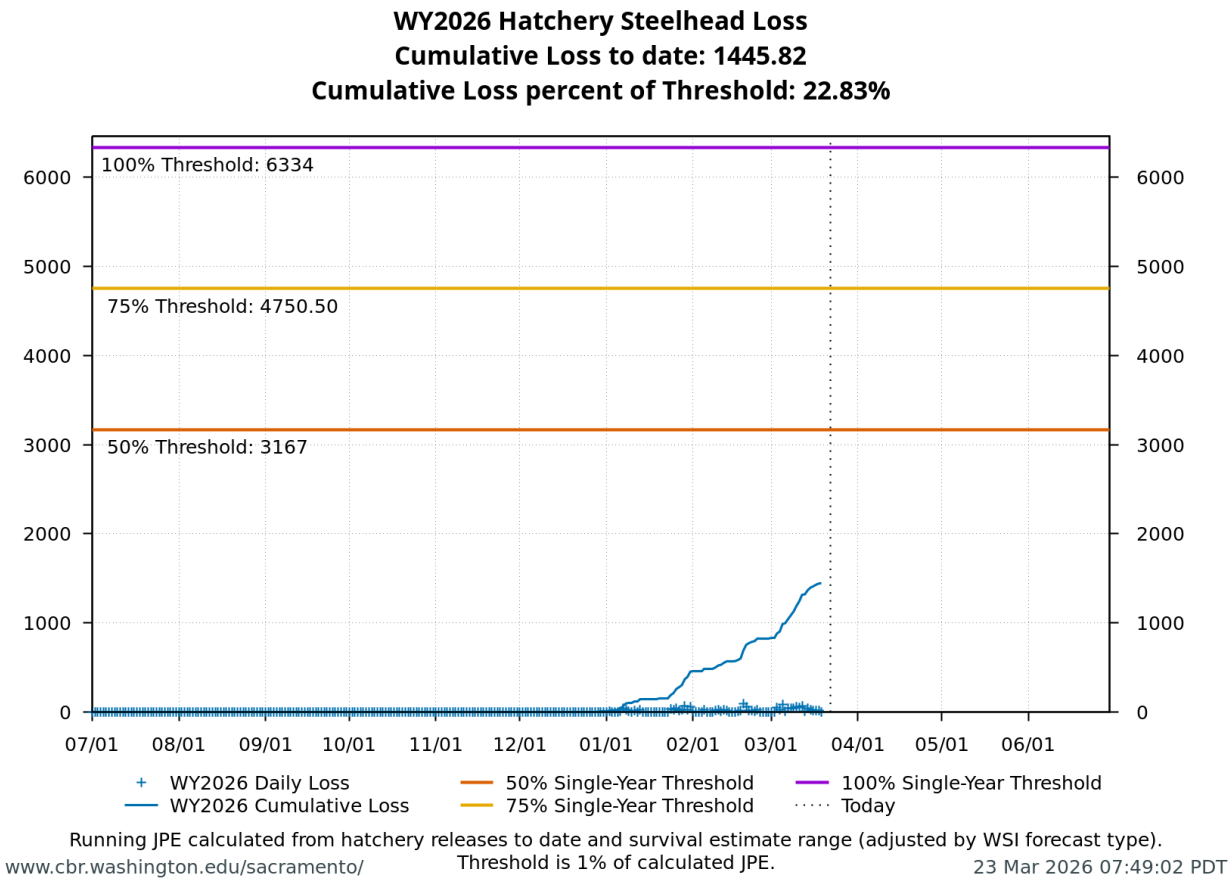

Figure 8: Cumulative loss of hatchery steelhead for WY 2026.

Figure 8 displays daily and cumulative hatchery steelhead loss for Water Year 2026. Points represent daily estimated loss and the line shows cumulative loss over time, with a vertical dashed line indicating the current date. Horizontal lines represent the 100% single-year threshold of 6,334, 75% threshold of 4750.50, and 50% threshold of 3167. As of March 23, 2026, cumulative loss to date is 1445.82 fish, representing 22.83% of the threshold.

Spring-run Chinook

Current Status

Delta Entry Timing - Historically, as of Mar 22, 12% of LAD spring-run have entered the Delta based on Knights Landing RST catch, 0% have exited the Delta based on Chipps Island Trawl Catch, and 5% 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	36%	22%	36%	12%	0%	5%

Red Bluff Diversion Dam Passage Estimate - As of Mar 18 estimated passage to date of LAD spring-run at Red Bluff Diversion is approximately 0.04 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 Mar 08 and Mar 16 is 24 individuals. Total catch at Sacramento Trawl and Beach Seines in the delta between Mar 08 and Mar 20 is 29 individuals. Total catch at Delta Exit at Chipps Island between Mar 08 and Mar 20 is 75 individuals.

Spring-run Surrogate Releases

A total of 2,839,595 spring-run surrogate fish have been released in Water Year 2026, with an estimated Juvenile Production Estimate (JPE) of 954,564 fish entering the Delta. This includes 805,323 Coleman Late-Fall Run Chinook (JPE: 219,852) released from Coleman National Fish Hatchery across 12 coded-wire tag groups. See details in table below.

Table 9: Spring-run Chinook salmon surrogate releases (all Coleman Late-Fall releases, both production and experimental).

Hatchery	Release Date	Type	# of CWT Fish Released	JPE	ITL (0.5%)	Confirmed Loss	CWT Codes
Coleman NFH	2025-11-13	Production	143,346	39,134	N/A	9	056808, 056809
Coleman NFH	2025-11-17	Experimental	75,119	20,507	376	0	056810
Coleman NFH	2025-12-17	Production	468,876	128,002	N/A	757	053700, 056806, 056811, 056812, 056814, 056815, 056817

Hatchery	Release Date	Type	# of CWT Fish Released	JPE	ITL (0.5%)	Confirmed Loss	CWT Codes
Coleman NFH	2025-12-22	Experimental	60,873	16,618	304	257	056813
Coleman NFH	2026-01-08	Experimental	57,109	15,591	286	35	056816

Annual Loss

The annual loss threshold is 1% of the JPE entering the Delta, which equals 9,546 fish. As of March 22, cumulative loss is 1,058 fish or 11.08% of the annual loss 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 experimental release group: Release Group 1 (2025-11-17): 0 loss of 376 ITL (0%); Release Group 2 (2025-12-22): 257 loss of 304 ITL (84.64%); Release Group 3 (2026-01-08): 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.

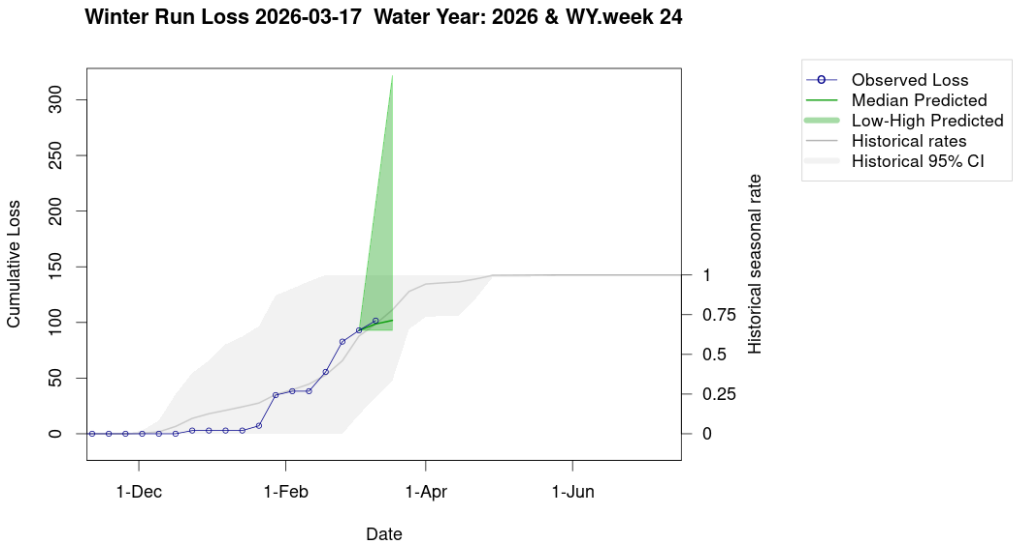

Figure 9: Estimates of winter-run Chinook loss generated by Loss and Salvage Predictor tool.

Figure 9 displays observed cumulative winter-run Chinook loss for Water Year 2026 through March 17, 2026, compared with predicted and historical loss patterns. Points represent observed cumulative loss, while the green line shows the median predicted loss and the shaded green band represents the low–high predicted range. Historical seasonal loss rates and the historical 95% confidence interval are shown in gray for comparison. Observed cumulative loss remains within the predicted and historical ranges, with the median predicted loss briefly spiking above observed values around late March before declining.

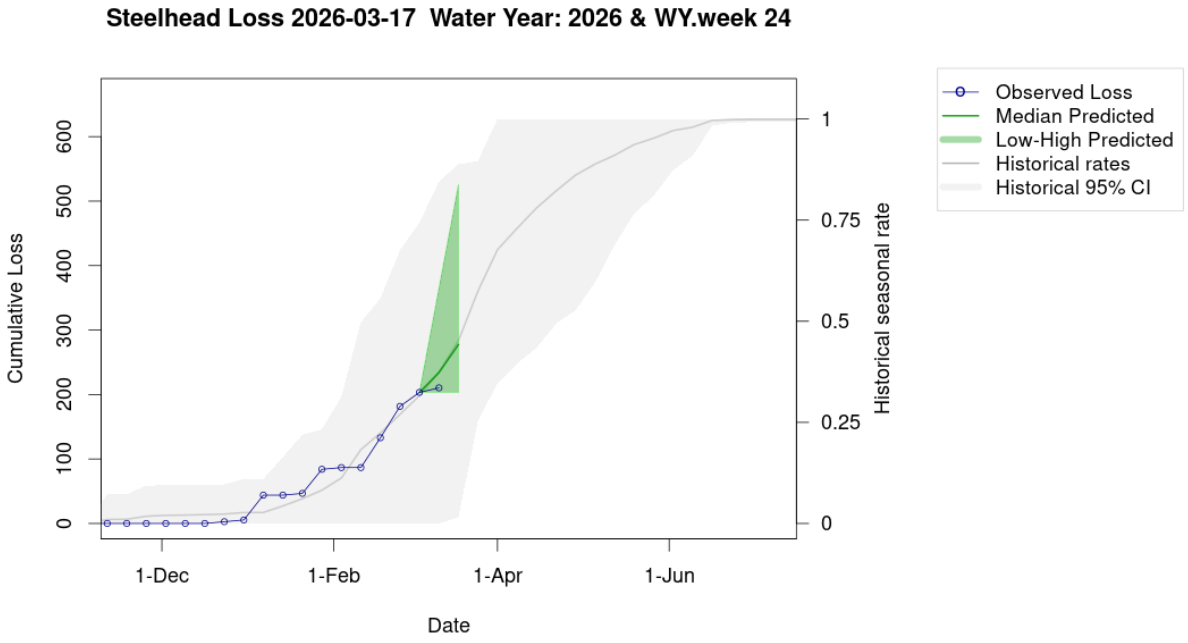

Figure 10: Estimates of steelhead loss generated by Loss and Salvage Predictor tool.

Figure 10 displays observed cumulative steelhead loss for Water Year 2026 through March 17, 2026, compared with predicted and historical loss patterns. Points represent observed cumulative loss, while the green line shows the median predicted loss and the shaded green band represents the low–high predicted range. Historical seasonal loss rates and the historical 95% confidence interval are shown in gray for comparison. Observed cumulative loss tracks within the historical range, with the median predicted loss spiking above observed values around late March before declining.

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.
    b. **LOW RISK:** Hatchery winter-run (Sac River) cumulative loss is currently 4.78% of the threshold.
    c. **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 yearling loss thresholds in the upcoming week?
    a. **LOW RISK:** Spring-run surrogates cumulative loss is currently 11.08% 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 3.97% of the threshold.
    b. **LOW RISK:** Hatchery steelhead cumulative loss is currently 22.83% 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:** Adult
- **Abundance estimate:** 1984 (95% CL: 161 to 8,688) as of the week of March 16–20, 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:** 43 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

- 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
EDSM	2026-03-18	West	Suisun Marsh	Adult	1

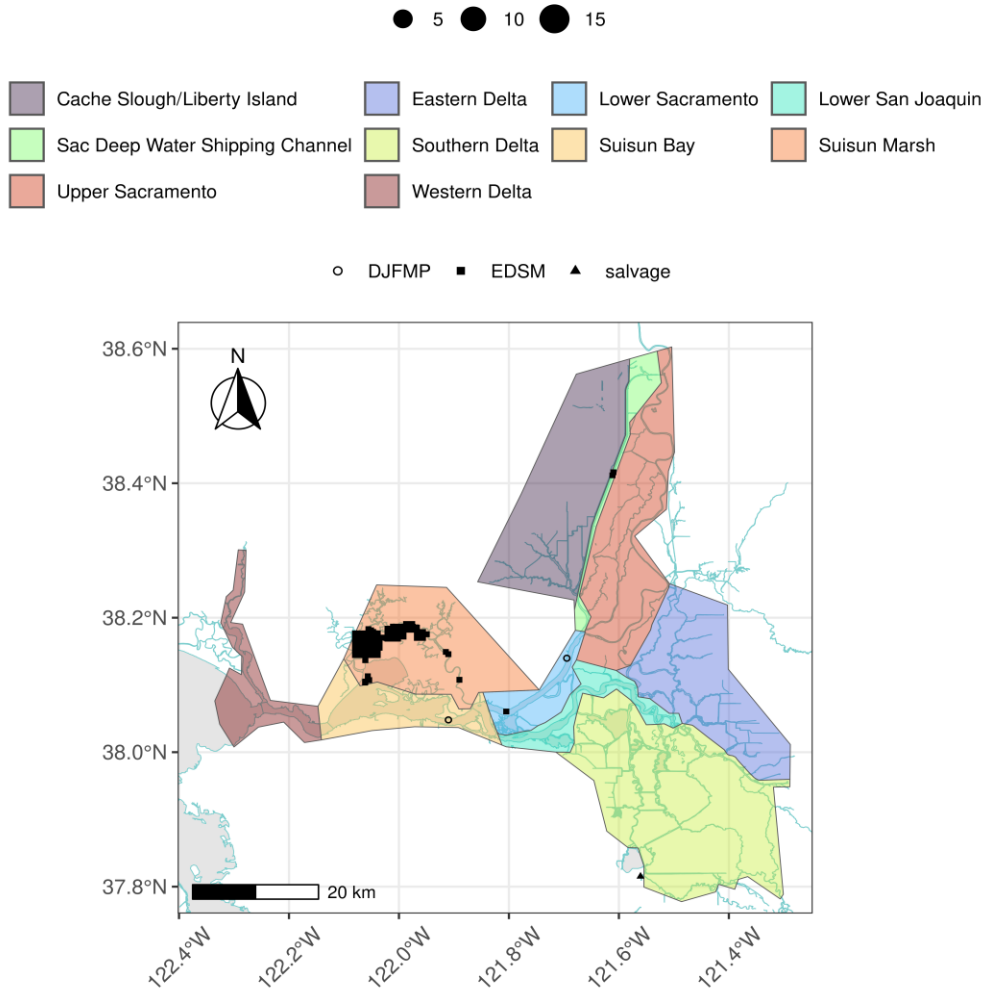

Figure 11: Delta smelt distribution for WY 2026

Figure 11 shows monitoring locations across the Sacramento–San Joaquin Delta. Colored polygons represent Delta regions, including Cache Slough/Liberty Island, Eastern Delta, Lower Sacramento, Lower San Joaquin, Sacramento Deep Water Shipping Channel, Southern Delta, Suisun Bay, Suisun Marsh, Upper Sacramento, and Western Delta. Symbols indicate sampling locations for DJFMP and EDSM monitoring programs, with symbol size representing relative sample counts.

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	39
EDSM	West	Juvenile	29
salvage	South	Adult	1

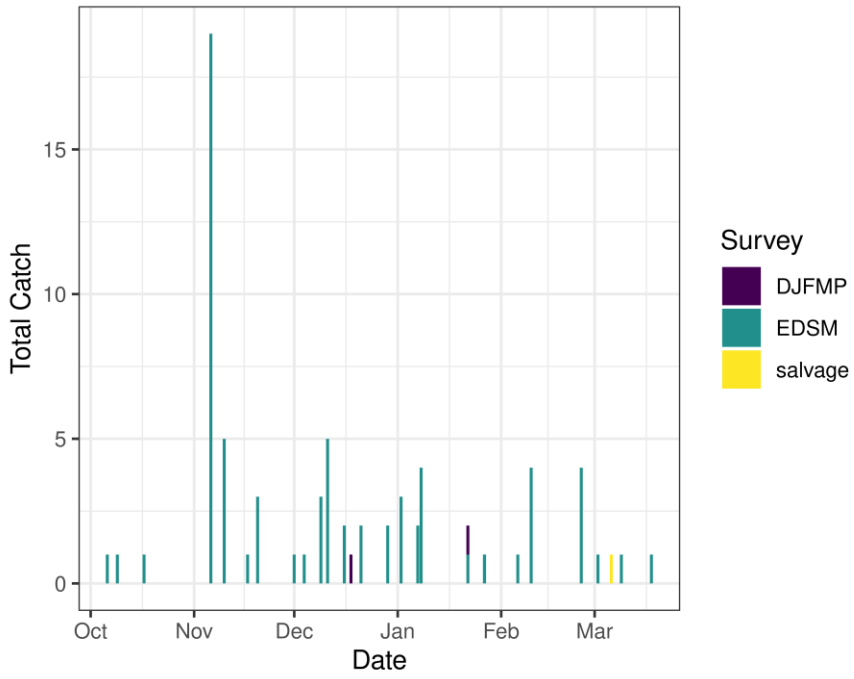

Figure 12: Time series of Delta smelt catch, WY 2026

Figure 12 displays total catch observations over time from October through March for three survey programs: DJFMP, EDSM, and salvage. Bars represent total catch recorded on individual sampling dates, with colors distinguishing the survey type. The figure shows that most detections occurred during EDSM surveys, with a notable peak in November reaching nearly 19 individuals, and relatively few observations from DJFMP and salvage 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 ≥ 5% entrainment of Delta smelt population after 30 days
    - **12-station South Delta Turbidity:** The most recent average turbidity was 5.0 FNU as of Mar 16, 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.
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 ≥5% entrainment of the Delta smelt population at facilities after 30 days?
    a. Although JPF is less than 0 cfs this week, 20-mm Survey 1 was on the water last week, and the most recent 11-station average turbidity in

the South Delta was 5.0 FNU on March 16, 2026. Station 918 could not be sampled due to bridge clearance issues. These turbidity conditions remain below the ≥12 FNU threshold; therefore, the conditions required to initiate the larval and juvenile Delta smelt entrainment action are not met.

b. Additionally, no Delta smelt larvae were captured in SLS or 20-mm surveys to date in WY2026. 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) show 0% particle entrainment at both facilities for all OMRI levels (−6,500, −5,000, −3,500, and −2,000 cfs).

Longfin smelt

Biological

- **Longfin smelt life stages:** Adult, Juvenile, Larva
- **Longfin smelt count**: 443 adult, 1031 juvenile, and 5448 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
20mm	2026-03-16	South	NA	Larva	2
DJFMP	2026-03-12	N/A	Chipps Island	Adult	1
DJFMP	2026-03-12	N/A	Chipps Island	Juvenile	1
EDSM	2026-03-17	Far West	Western Delta	Adult	1
EDSM	2026-03-17	Far West	Western Delta	Juvenile	1
EDSM	2026-03-18	West	Suisun Marsh	Adult	1
EDSM	2026-03-23	Far West	Suisun Bay	Juvenile	6
EDSM	2026-03-24	West	Suisun Marsh	Juvenile	1

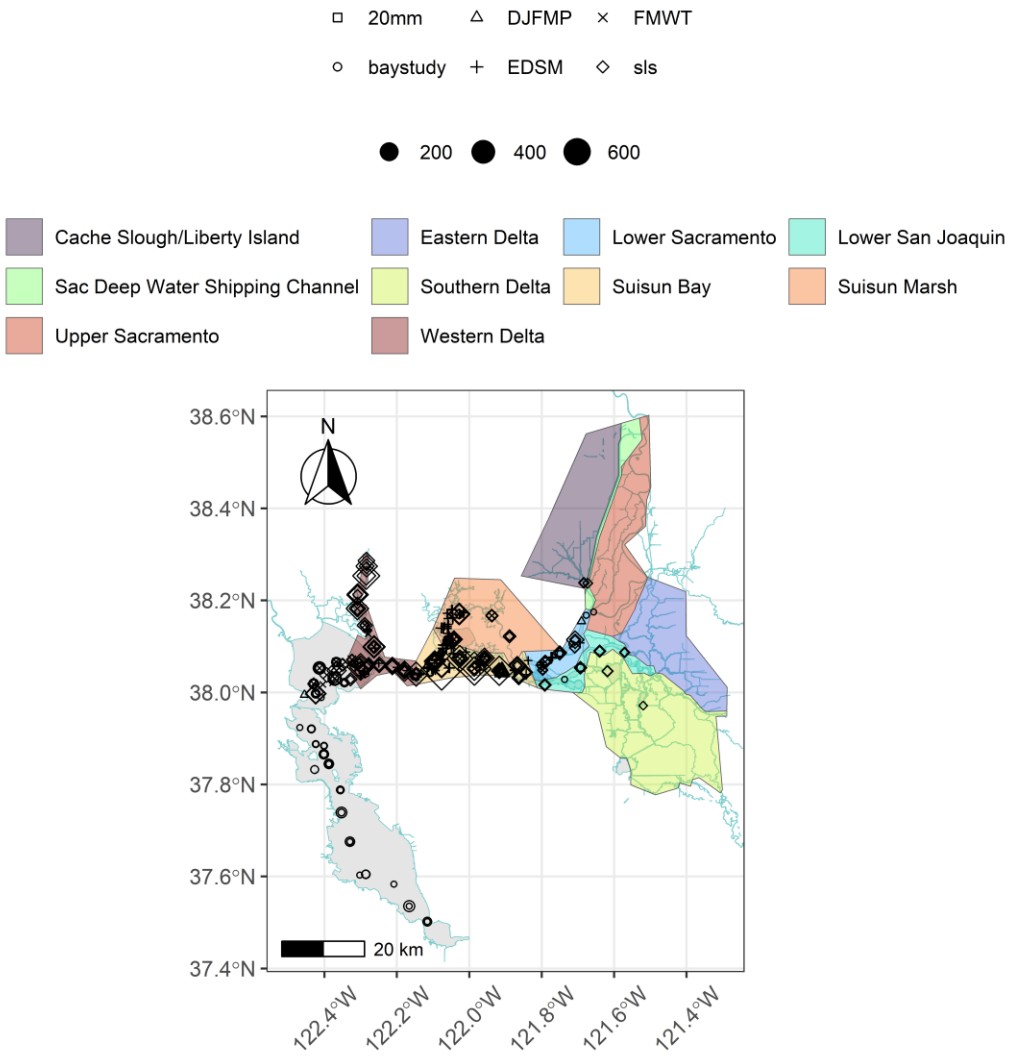

Figure 13: Longfin Smelt Distribution for WY 2026

Figure 13 shows monitoring locations across the Sacramento–San Joaquin Delta and surrounding areas. Colored polygons represent Delta regions, including Cache Slough/Liberty Island, Eastern Delta, Lower Sacramento, Lower San Joaquin, Sacramento Deep Water Shipping Channel, Southern Delta, Suisun Bay, Suisun Marsh, Upper Sacramento, and Western Delta. Symbols indicate sampling locations from multiple monitoring programs (Bay Study, DJFMP, EDSM, FMWT, and SLS), with symbol size representing relative sample counts.

Table 13: Longfin smelt water year totals by life stage

Survey	Region	Life Stage	Total
20mm	South	Larva	2
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	99
EDSM	North	Juvenile	1
EDSM	West	Adult	83
EDSM	West	Juvenile	201
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	39
baystudy	Bay	Juvenile	551
baystudy	Far West	Adult	13
baystudy	Far West	Juvenile	56
baystudy	North	Adult	3
baystudy	West	Adult	4
baystudy	West	Juvenile	14
sls	Bay	Larva	300
sls	Far West	Larva	2654
sls	North	Larva	89
sls	South	Larva	52
sls	West	Larva	2197
sls	NA	Juvenile	3
sls	NA	Larva	154

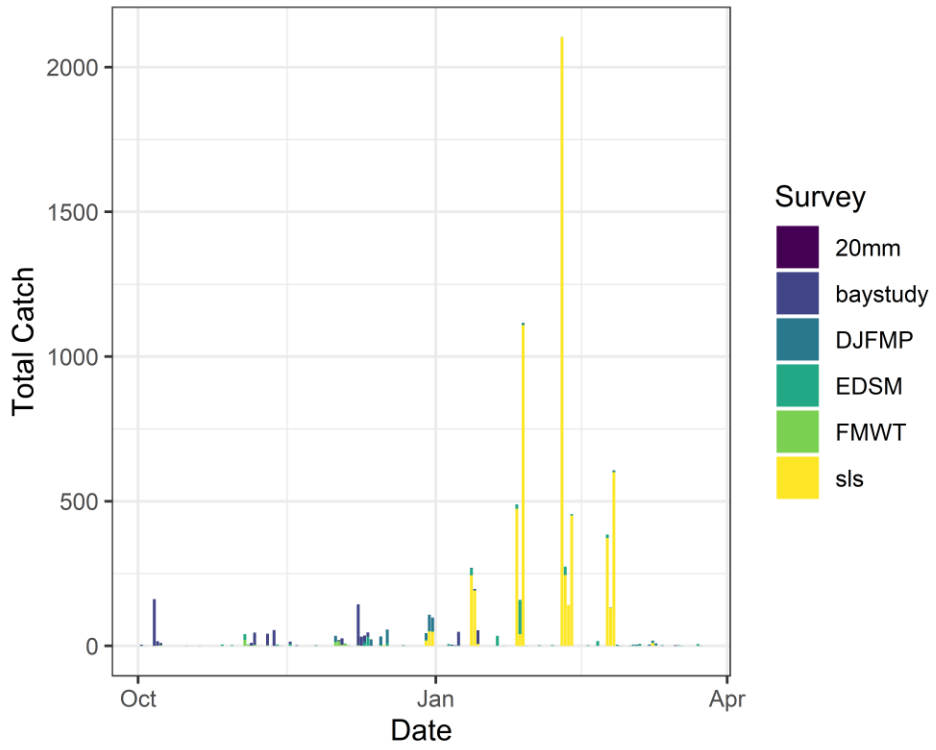

Figure 14: Time series of longfin smelt catch, WY 2026

Figure 14 displays total catch observations over time from October through April for six survey programs: 20mm, baystudy, DJFMP, EDSM, FMWT, and sls. Bars represent total catch recorded on individual sampling dates, with colors distinguishing the survey type. The figure shows that most detections occurred during sls surveys, with a notable peak in February reaching over 2,000 individuals, while catches from other survey programs remained comparatively low throughout the season.

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: 124 cfs as of Mar 22, 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: 124 cfs as of Mar 22, 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. Although JPF is less than 0 cfs this week, no adult longfin smelt have been detected in salvage, indicating annual loss has not begun to approach the 5% regulatory threshold.
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. Although JPF is less than 0 cfs this week, PTM modeling 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. Estimated entrainment is ≤0.1% of the population at all OMRI levels.
    b. 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, and the criteria for initiating this action are not met.
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: 03/23/2026

Forecast Period: 03/17/2026 – 04/06/2026

Forecast Week 1: 03/17/2026 – 03/23/2026

Forecast Week 2: 03/24/2026 – 03/30/2026

Forecast Week 3: 03/31/2026 – 04/06/2026

Index

Common Assumptions

The model run results cover the period March 17, 2026 through April 06, 2026 and are based on the following assumptions established by DWR:

1. CCFB Gates are operating to Priority 3.
2. The Delta Cross Channel gates are closed.
3. Suisun Marsh Salinity Control flashboards are in. All three gates are in open position from March 2.
4. San Joaquin River flow at Vernalis is at 4741 cfs at the beginning of the forecast period and is estimated to decrease to 1500 cfs by the end of the forecast period.
5. San Joaquin River EC at Vernalis is at 352 umhos/cm at the beginning of the forecast period and is estimated to increase to 651 umhos/cm at the end of the forecast period.
6. Sacramento River flow at Freeport is at 25584 cfs at the beginning of the forecast period and is expected to decrease to 11875 cfs by the end of the forecast period.
7. CCFB inflow is at 3396 cfs at the beginning of the forecast period and is expected to decrease to 600 cfs by the end of the forecast period.
8. Export at Jones Pumping Plant is at 4214 cfs at the beginning of the forecast period and is expected to decrease to 3500 cfs to the end the forecast period.

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 03/17/2026 - 03/23/2026	24,011	med	4,844	hi	medhi
Week 2 03/24/2026 - 03/30/2026	21,866	med	4,543	hi	medhi
Week 3 03/31/2026 - 04/06/2026	20,000	med	4,500	hi	medhi

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: 03/17/2026 - 03/23/2026	-6,500	4,208	5,066	9,274	45%	55%
Week 1: 03/17/2026 - 03/23/2026	-5,000	4,208	3,406	7,614	55%	45%
Week 1: 03/17/2026 - 03/23/2026	-3,500	3,606	2,361	5,968	60%	40%
Week 1: 03/17/2026 - 03/23/2026	-2,000	2,919	1,431	4,350	67%	33%
Week 2: 03/24/2026 - 03/30/2026	-6,500	4,208	4,851	9,059	46%	54%
Week 2: 03/24/2026 - 03/30/2026	-5,000	4,208	3,177	7,385	57%	43%
Week 2: 03/24/2026 - 03/30/2026	-3,500	3,506	2,247	5,753	61%	39%

Week	OMR Bin (cfs)	CVP Exports (cfs)	SWP Exports (cfs)	Total Exports (cfs)	CVP Exports (% of total)	SWP Exports (% of total)
Week 2: 03/24/2026 - 03/30/2026	-2,000	2,705	1,431	4,136	65%	35%
Week 3: 03/31/2026 - 04/06/2026	-6,500	4,208	4,809	9,016	47%	53%
Week 3: 03/31/2026 - 04/06/2026	-5,000	4,208	3,106	7,313	58%	42%
Week 3: 03/31/2026 - 04/06/2026	-3,500	3,506	2,204	5,710	61%	39%
Week 3: 03/31/2026 - 04/06/2026	-2,000	2,705	1,403	4,107	66%	34%

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.

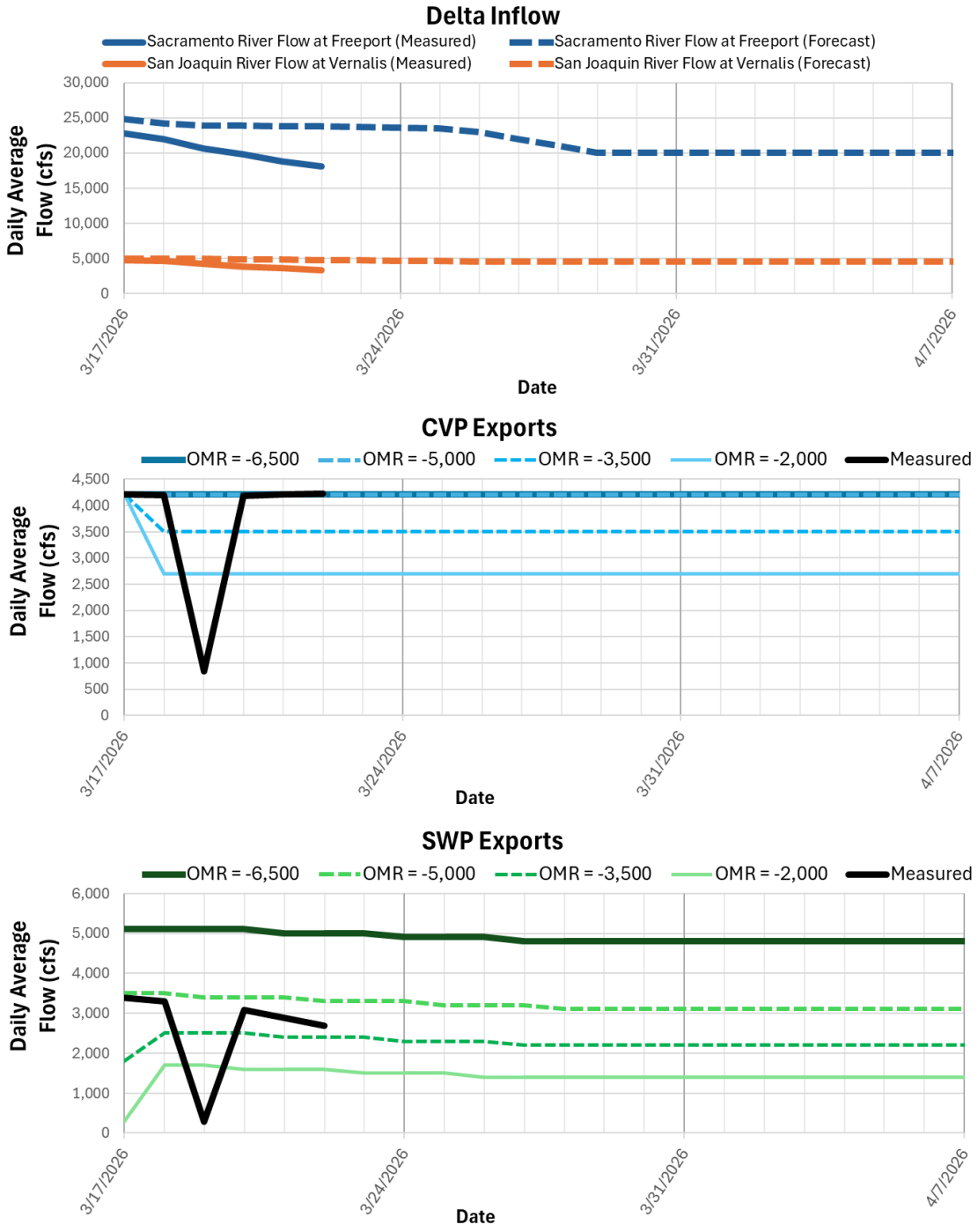

Figure 1: Delta Inflow, CVP Exports, and SWP Exports Summary

Figure 1 is a collection of three line graphs. The top graph shows measured and forecasted Sacramento River flows at Freeport and San Joaquin River flows at Vernalis from March 17 to April 7, 2026. The bottom two graphs show CVP and SWP exports in daily average flow (cfs) for OMR flow scenarios -6,500, -5,000, -3,500, and -2,000 in different colors and line styles for March 17 to April 7, 2026.

Delta Export Zone of Influence

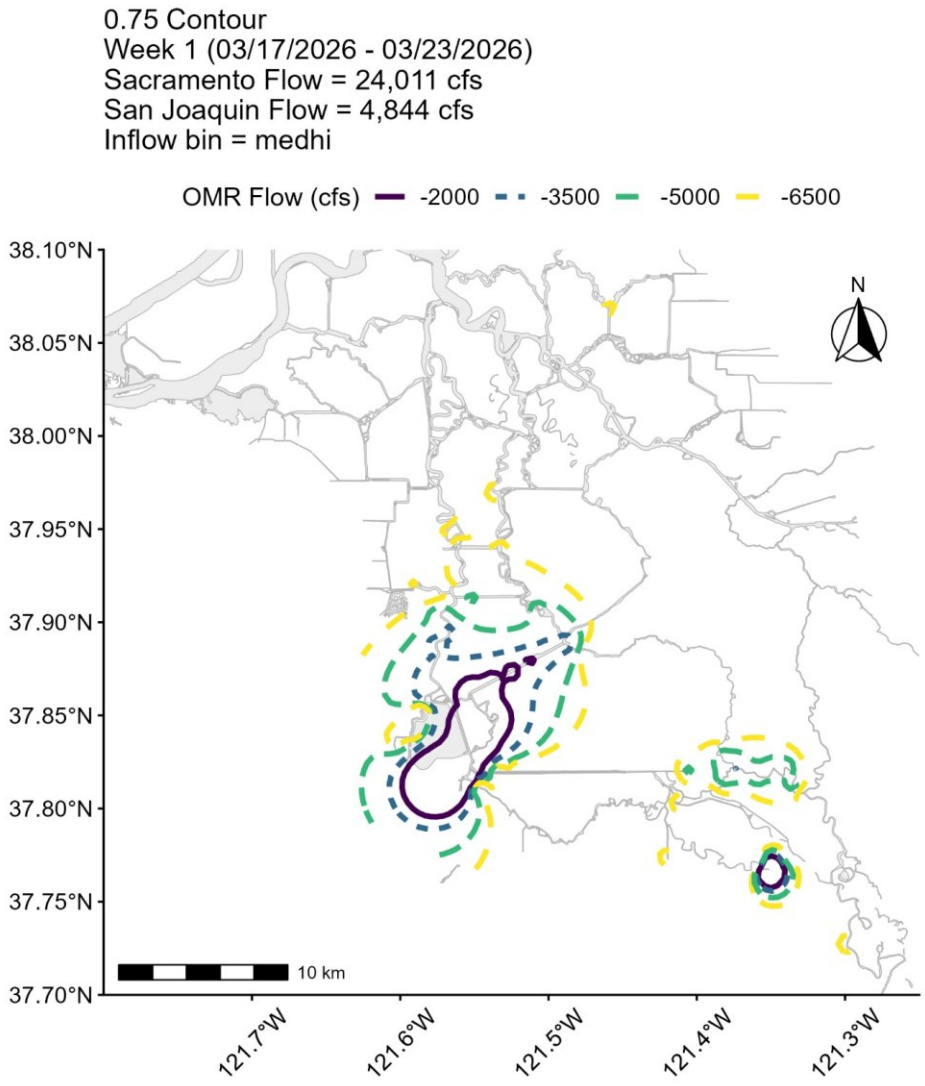

Figure 2: Delta Export Zone of Influence Week 1

Figure 2 is a map of the Delta showing different zone of influences at different OMR flow rates: 2,000, 3,500, 5,000, and 6,500 in different colors and line styles. The map was developed using a 0.75 contour during week 1 (March 17 – 23, 2026) with Sacramento River flow at 24,011 cfs, San Joaquin River flow at 4,844, and medhi inflow bin.

Notes:

- Contours indicate the proportional overlap of hourly average velocity Gaussian KDEs for a 1week 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)

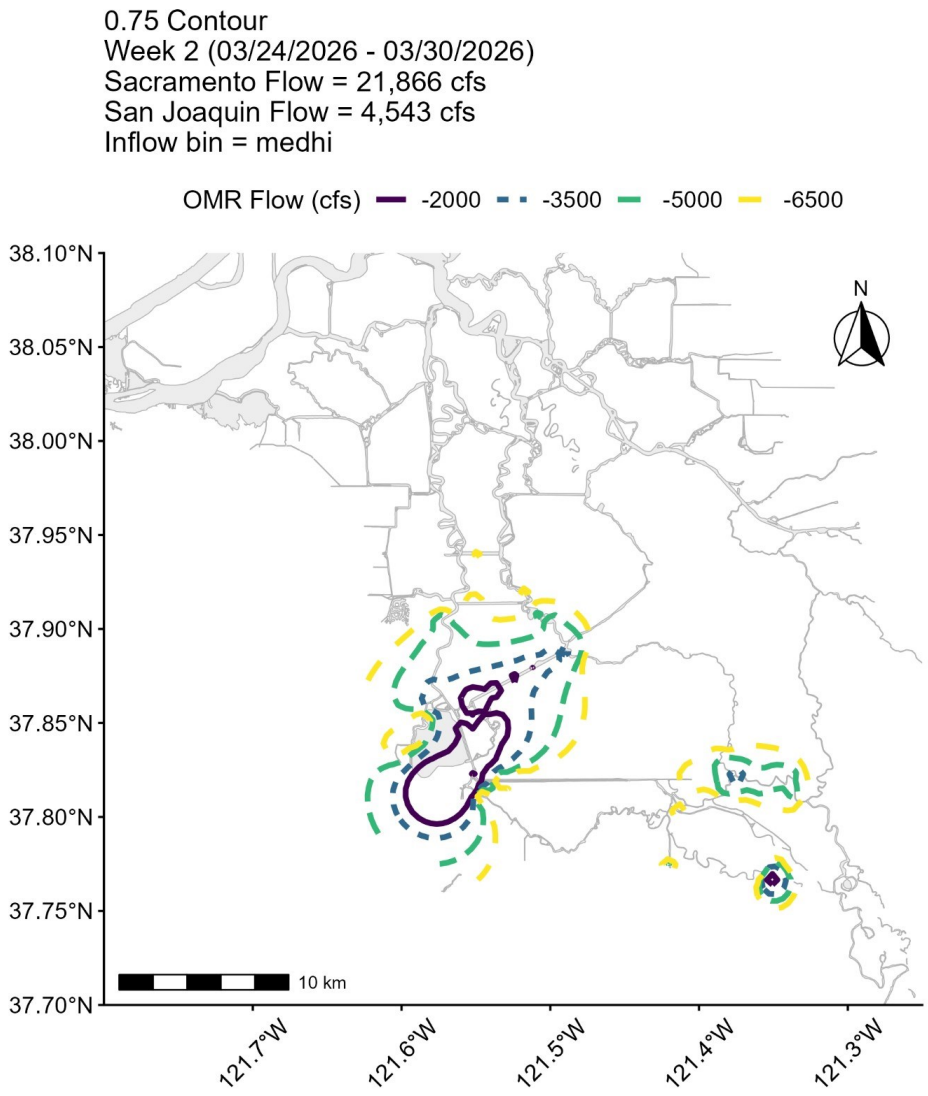

Figure 3: Delta Export Zone of Influence Week 2

Figure 3 is a map of the Delta showing different zone of influences at different OMR flow rates: 2,000, 3,500, 5,000, and 6,500 in different colors and line styles. The map was developed using a 0.75 contour during week 2 (March 24 – 30, 2026) with Sacramento River flow at 21,866 cfs, San Joaquin River flow at 4,543, and medhi inflow bin.

Notes:

- Contours indicate the proportional overlap of hourly average velocity Gaussian KDEs for a 1week 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)

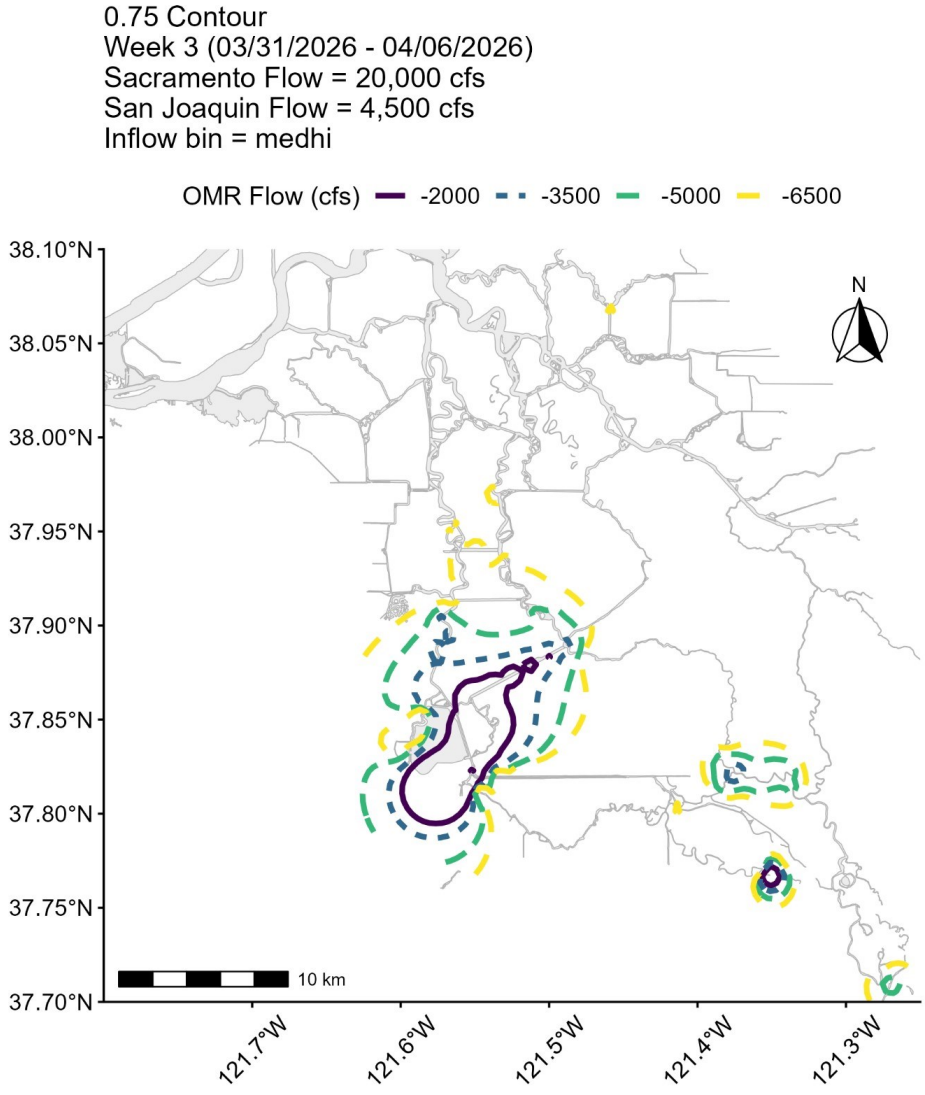

Figure 4: Delta Export Zone of Influence Week 3

Figure 4 is a map of the Delta showing different zone of influences at different OMR flow rates: 2,000, 3,500, 5,000, and 6,500 in different colors and line styles. The map was developed using a 0.75 contour during week 3 (March 31 – April 06, 2026) with Sacramento River flow at 20,000 cfs, San Joaquin River flow at 4,500, and medhi inflow bin.

Notes:

- Contours indicate the proportional overlap of hourly average velocity Gaussian KDEs for a 1week 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)

Table 3: Proportion of DSM2 Channel Length Altered from Pumping by Hydrologic Influence Overlap Range (Low >0.75, Medium 0.25–0.75, High <0.25)

Weekly Model Run	OMR Bin (cfs)	Sum Channel Length (miles) Low	Channel Length (%) Low	Sum Channel Length (miles) Medium	Channel Length (%) Medium	Sum Channel Length (miles) High	Channel Length (%) High
Week 1: 03/17/2026 - 03/23/2026	-6,500	614.2	91.2%	57.8	8.6%	1.7	0.3%
Week 1: 03/17/2026 - 03/23/2026	-5,000	634.7	94.2%	37.3	5.5%	1.7	0.3%
Week 1: 03/17/2026 - 03/23/2026	-3,500	650.3	96.5%	21.6	3.2%	1.7	0.3%
Week 1: 03/17/2026 - 03/23/2026	-2,000	659.1	97.8%	12.8	1.9%	1.7	0.3%
Week 2: 03/24/2026 - 03/30/2026	-6,500	633.9	94.1%	38.9	5.8%	0.9	0.1%
Week 2: 03/24/2026 - 03/30/2026	-5,000	635.6	94.4%	37.2	5.5%	0.9	0.1%
Week 2: 03/24/2026 - 03/30/2026	-3,500	650.6	96.6%	22.2	3.3%	0.9	0.1%
Week 2: 03/24/2026 - 03/30/2026	-2,000	662.2	98.3%	10.6	1.6%	0.9	0.1%
Week 3: 03/31/2026 - 04/06/2026	-6,500	618.6	91.8%	53.4	7.9%	1.7	0.3%
Week 3: 03/31/2026 - 04/06/2026	-5,000	631.4	93.7%	41.4	6.1%	0.9	0.1%
Week 3: 03/31/2026 - 04/06/2026	-3,500	648.2	96.2%	24.6	3.7%	0.9	0.1%
Week 3: 03/31/2026 - 04/06/2026	-2,000	659.6	97.9%	13.2	2.0%	0.9	0.1%

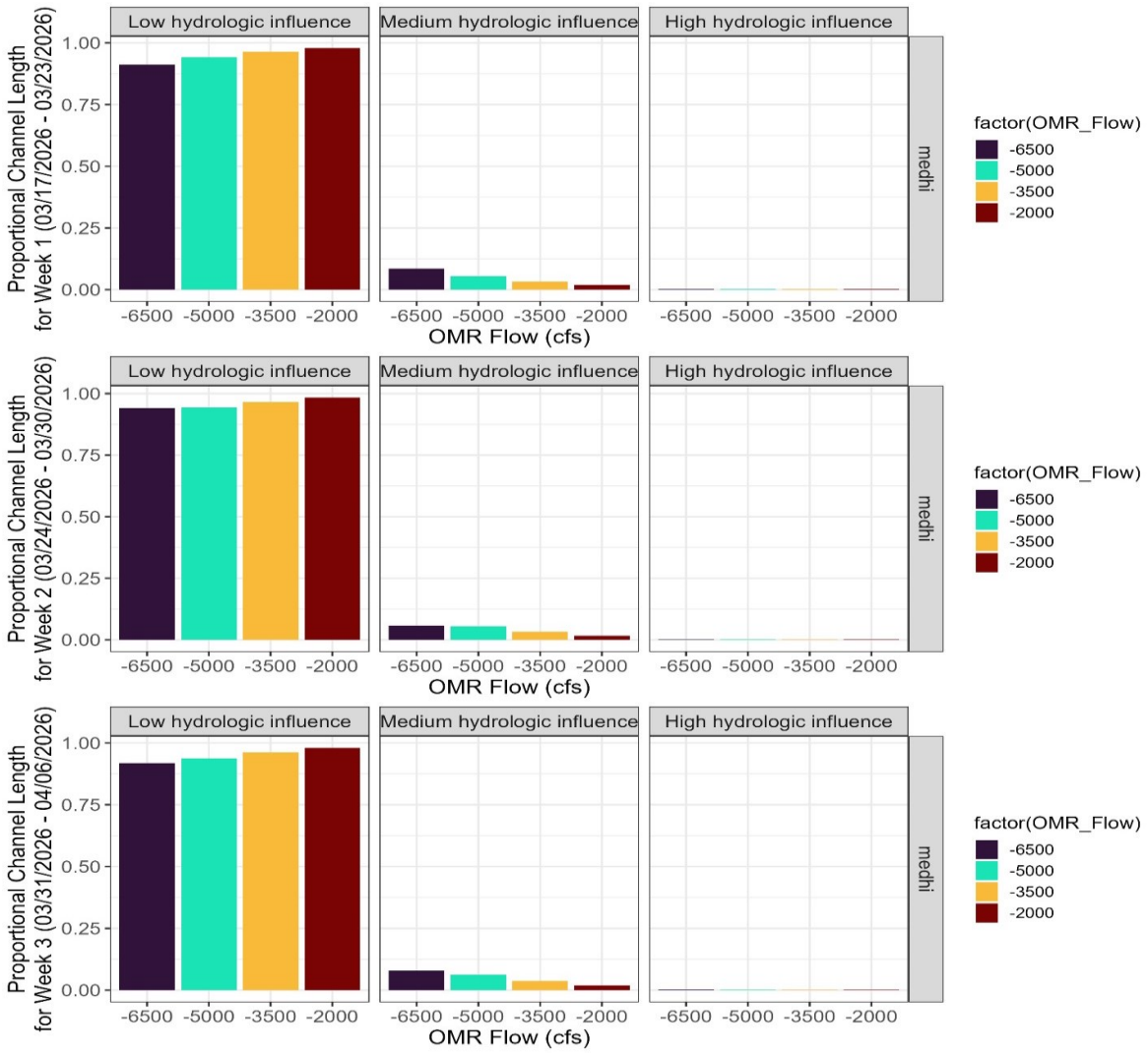

Figure 5: Proportional DSM2 Channel Length Altered from Pumping by Hydrologic Influence Category, Weeks 1–3

Figure 5 is a collection of three grouped bar charts, one for each weekly model run from March 17 to April 6, 2026. Each chart is divided into three panels by hydrologic influence category (Low, Medium, and High) and shows the proportional DSM2 channel length altered from pumping for OMR flow scenarios -6,500, -5,000, -3,500, and -2,000 cfs. Across all three weeks, nearly all channel length falls in the Low hydrologic influence category, with minimal proportional alteration shown in the Medium panel and negligible alteration in the High panel.

Notes:

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

PTM (Particle Tracking Model) Results

PTM Flux Evaluation Period: 03/17/2026 – 04/06/2026
Particles Injected: 03/17/2026

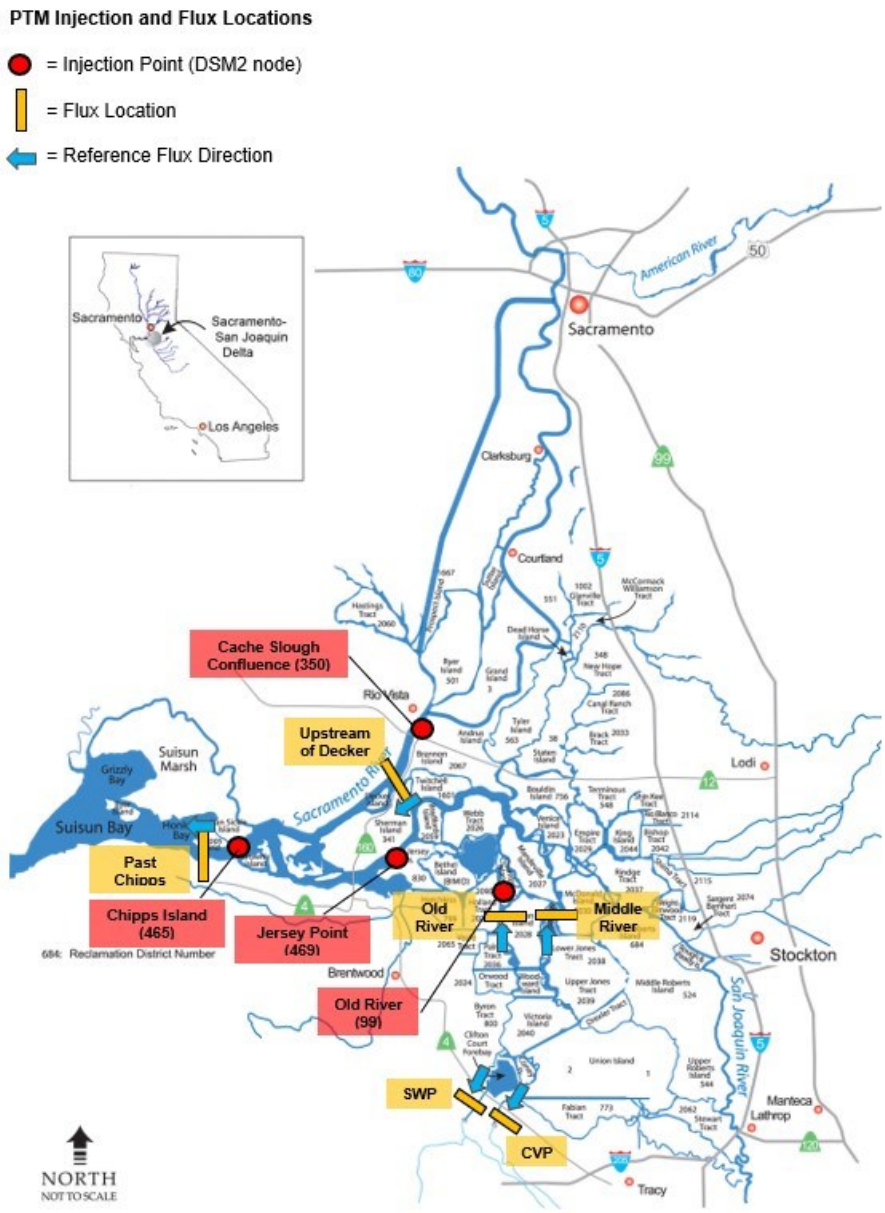

Figure 6: PTM Injection and Flux Locations in the Sacramento-San Joaquin Delta

Figure 6 is a map of the Sacramento-San Joaquin Delta showing PTM injection points (DSM2 nodes) and flux locations used for the March 17 – April 6, 2026 evaluation period, with particles injected on March 17, 2026. Five injection points are marked with red circles and five flux locations with yellow bars, with blue arrows indicating reference flux direction. An inset shows the Delta's location within California.

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 End: 03/23/2026	-6,500	93.6	0.0	6.4	0.0	0.0	0.0
Week 1 End: 03/23/2026	-5,000	95.0	0.0	5.0	0.0	0.0	0.0
Week 1 End: 03/23/2026	-3,500	94.7	0.0	5.3	0.0	0.0	0.0
Week 1 End: 03/23/2026	-2,000	96.0	0.0	4.0	0.0	0.0	0.0
Week 2 End: 03/30/2026	-6,500	97.0	0.1	3.0	0.0	0.0	0.0
Week 2 End: 03/30/2026	-5,000	97.5	0.0	2.5	0.0	0.0	0.0
Week 2 End: 03/30/2026	-3,500	97.8	0.0	2.2	0.0	0.0	0.0
Week 2 End: 03/30/2026	-2,000	97.9	0.0	2.1	0.0	0.0	0.0
Week 3 End: 04/06/2026	-6,500	97.8	0.2	2.2	0.0	0.0	0.0
Week 3 End: 04/06/2026	-5,000	98.2	0.0	1.8	0.0	0.0	0.0
Week 3 End: 04/06/2026	-3,500	97.9	0.0	2.1	0.0	0.0	0.0
Week 3 End: 04/06/2026	-2,000	98.1	0.0	1.9	0.0	0.0	0.0

Note: values between 0.0 and 0.1 are indicated with <0.1

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 End: 03/23/2026	-6,500	45.4	79.7	54.8	0.2	0.0	0.0
Week 1 End: 03/23/2026	-5,000	48.1	78.8	51.9	0.0	0.0	0.0
Week 1 End: 03/23/2026	-3,500	50.1	79.0	49.9	0.0	0.0	0.0
Week 1 End: 03/23/2026	-2,000	53.1	79.4	46.9	0.0	0.0	0.0
Week 2 End: 03/30/2026	-6,500	76.2	84.9	24.7	0.4	0.1	0.4
Week 2 End: 03/30/2026	-5,000	80.3	83.5	20.4	0.5	0.1	0.2
Week 2 End: 03/30/2026	-3,500	83.8	83.2	16.5	0.2	0.0	0.1
Week 2 End: 03/30/2026	-2,000	86.3	82.5	13.7	0.0	0.0	0.0
Week 3 End: 04/06/2026	-6,500	84.5	86.9	17.5	0.7	0.5	0.8
Week 3 End: 04/06/2026	-5,000	86.7	85.4	14.8	0.7	0.5	0.3
Week 3 End: 04/06/2026	-3,500	91.1	84.6	9.4	0.2	0.1	0.2
Week 3 End: 04/06/2026	-2,000	92.1	84.3	8.0	0.1	0.0	0.0

Note: values between 0.0 and 0.1 are indicated with <0.1

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 End: 03/23/2026	-6,500	12.4	19.8	88.7	1.0	0.0	0.1
Week 1 End: 03/23/2026	-5,000	16.3	17.0	84.4	0.6	0.0	0.1
Week 1 End: 03/23/2026	-3,500	17.0	15.9	83.2	0.2	0.0	0.0
Week 1 End: 03/23/2026	-2,000	23.5	14.6	76.6	0.1	0.0	0.0
Week 2 End: 03/30/2026	-6,500	51.2	29.9	52.7	1.7	1.2	1.0
Week 2 End: 03/30/2026	-5,000	61.5	22.8	40.1	0.8	0.5	0.3
Week 2 End: 03/30/2026	-3,500	69.2	20.9	32.1	0.7	0.4	0.2
Week 2 End: 03/30/2026	-2,000	80.0	19.0	20.3	0.3	0.0	0.0
Week 3 End: 04/06/2026	-6,500	70.0	33.0	36.6	1.8	2.1	2.7
Week 3 End: 04/06/2026	-5,000	80.0	24.9	22.5	0.8	0.9	0.8
Week 3 End: 04/06/2026	-3,500	86.4	22.2	15.3	0.6	0.8	0.3
Week 3 End: 04/06/2026	-2,000	91.8	19.6	8.8	0.4	0.1	0.1

Note: values between 0.0 and 0.1 are indicated with <0.1

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 End: 03/23/2026	-6,500	0.0	0.4	6.2	31.0	25.3	37.5
Week 1 End: 03/23/2026	-5,000	0.0	0.8	15.6	44.9	24.0	15.5
Week 1 End: 03/23/2026	-3,500	0.2	0.8	27.5	53.7	14.9	3.6
Week 1 End: 03/23/2026	-2,000	0.1	1.6	53.0	46.4	0.3	0.2
Week 2 End: 03/30/2026	-6,500	0.5	0.5	4.0	8.6	27.9	59.0
Week 2 End: 03/30/2026	-5,000	2.4	1.9	8.7	15.3	32.4	41.2
Week 2 End: 03/30/2026	-3,500	4.0	2.9	18.1	20.6	31.1	26.2
Week 2 End: 03/30/2026	-2,000	8.4	6.0	38.4	30.9	17.0	5.3
Week 3 End: 04/06/2026	-6,500	1.0	1.2	2.7	5.3	28.7	62.3
Week 3 End: 04/06/2026	-5,000	4.9	2.2	5.1	8.1	34.5	47.4
Week 3 End: 04/06/2026	-3,500	9.0	4.3	10.1	13.0	32.9	34.9
Week 3 End: 04/06/2026	-2,000	20.1	9.5	21.8	23.6	21.6	12.9

Note: values between 0.0 and 0.1 are indicated with <0.1

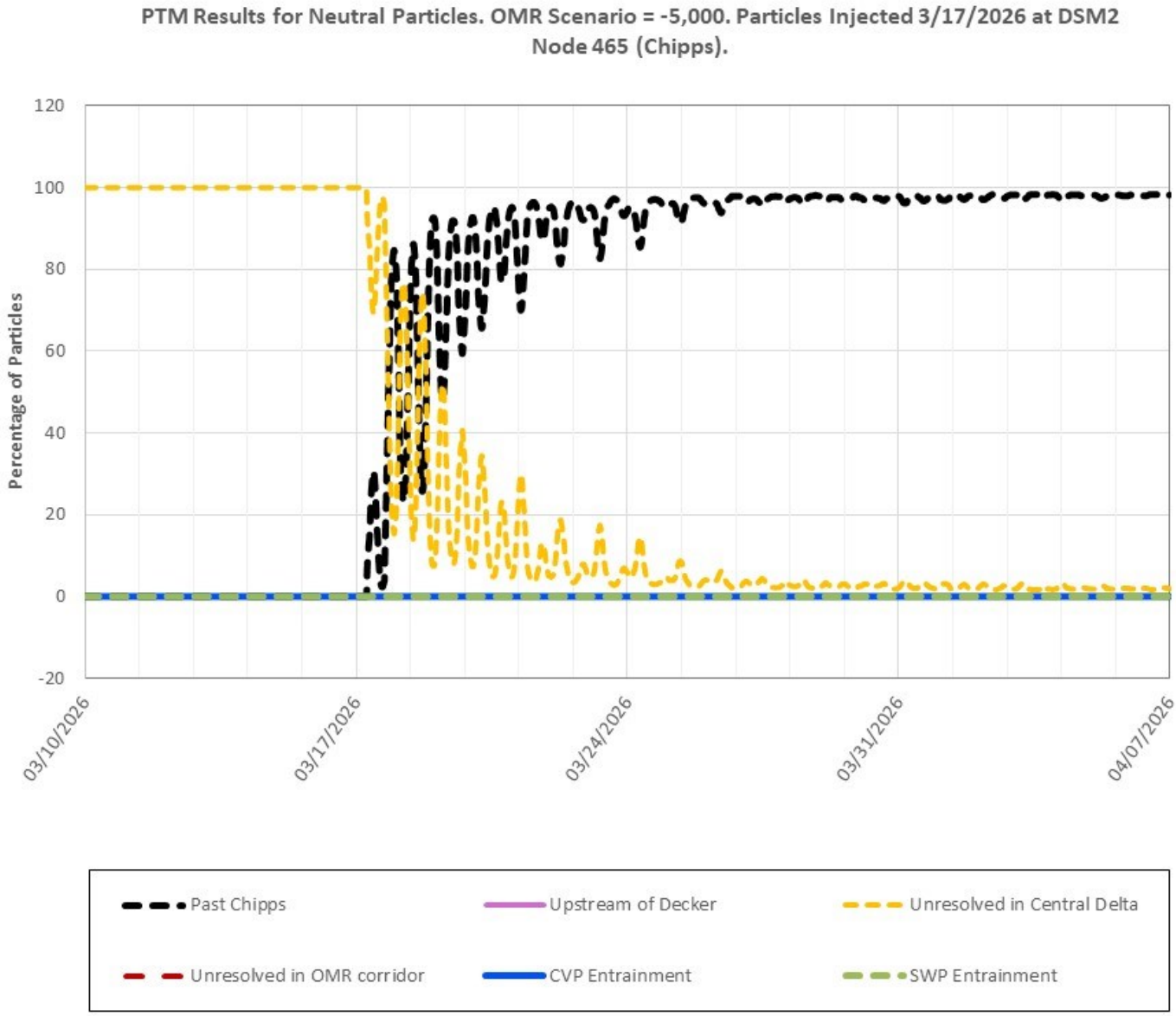

Figure 7: PTM Results for Neutral Particles at Chipps Island, OMR Scenario -5,000

Figure 7 is a line graph showing the percentage of neutral particles over time from March 10 to April 7, 2026, injected on March 17, 2026 at DSM2 Node 465 (Chipps), under OMR Scenario -5,000. Unresolved in Central Delta (yellow) begins near 100% before declining sharply around March 17 to approximately 5% by early April, while Past Chipps (black) rises steeply from March 17 to near 100% and remains there through the end of the period.

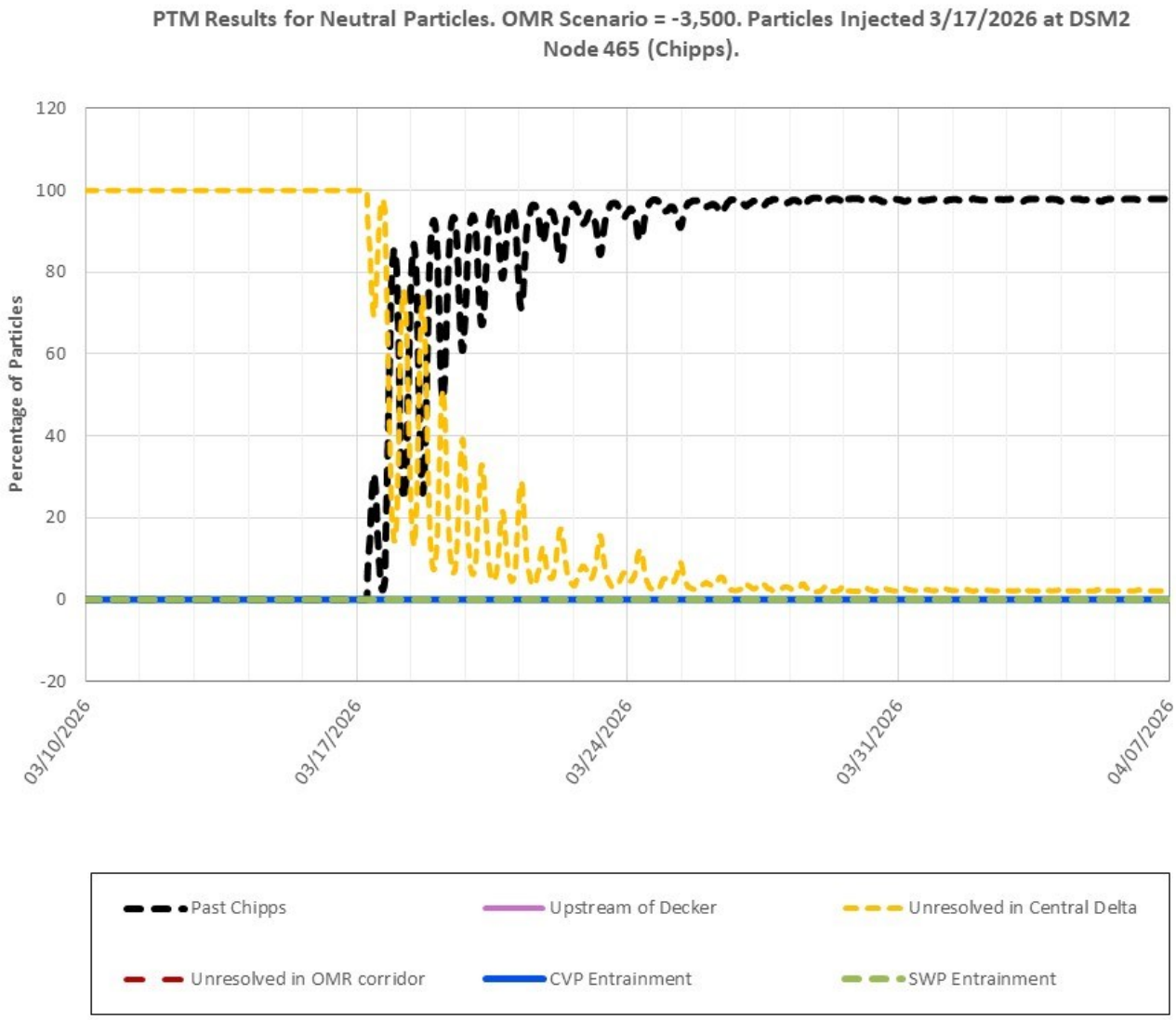

Figure 8: PTM Results for Neutral Particles at Chipps Island, OMR Scenario -3,500

Figure 8 is a line graph showing the percentage of neutral particles over time from March 10 to April 7, 2026, injected on March 17, 2026 at DSM2 Node 465 (Chipps), under OMR Scenario -3,500. Unresolved in Central Delta (yellow) begins near 100% before declining sharply around March 17 to approximately 5% by early April, while Past Chipps (black) rises steeply from March 17 to near 100% and remains there through the end of the period.

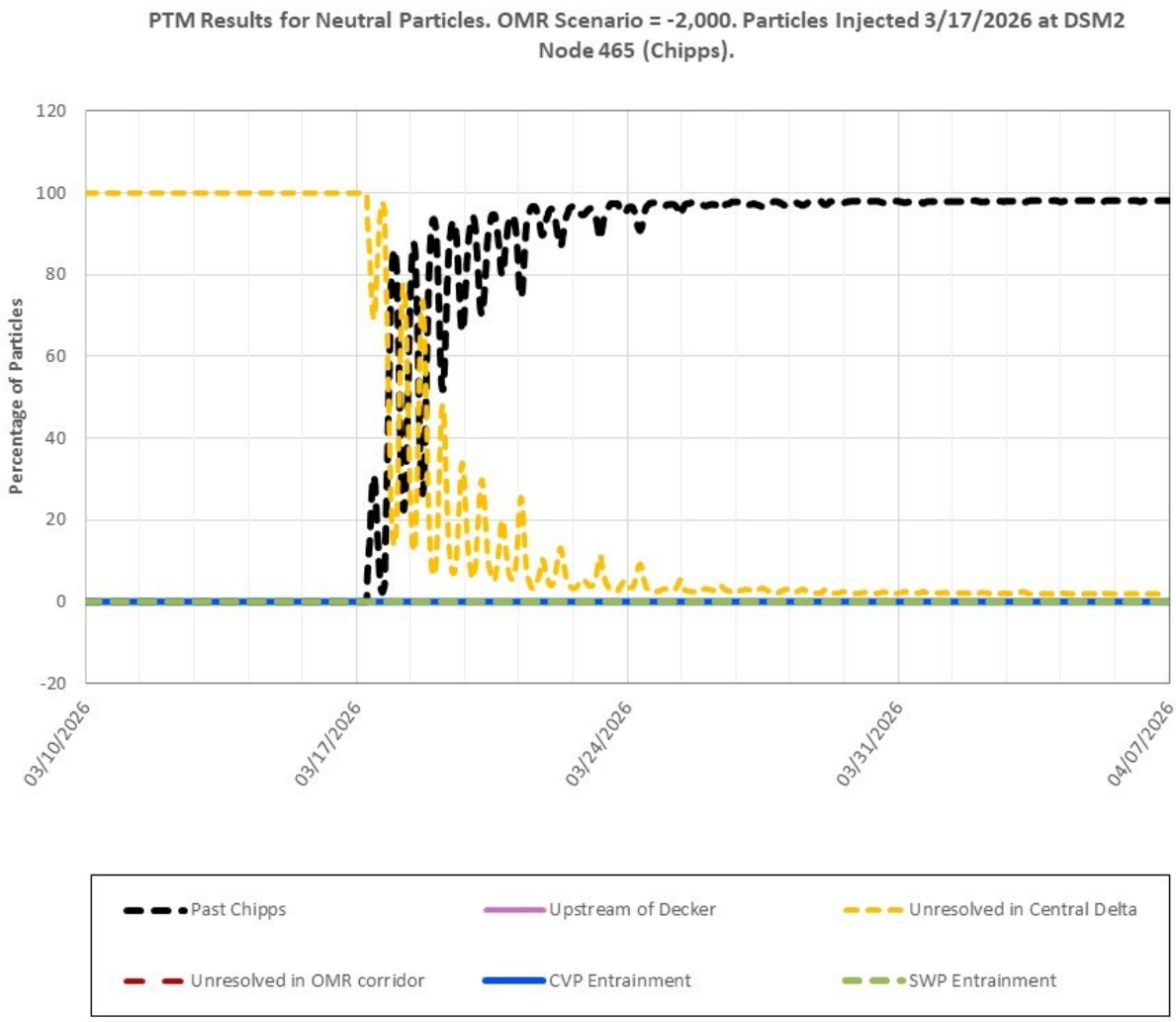

Figure 9: PTM Results for Neutral Particles at Chipps Island, OMR Scenario -2,000

Figure 9 is a line graph showing the percentage of neutral particles over time from March 10 to April 7, 2026, injected on March 17, 2026 at DSM2 Node 465 (Chipps), under OMR Scenario -2,000. Unresolved in Central Delta (yellow) begins near 100% before declining sharply around March 17 to approximately 5% by early April, while Past Chipps (black) rises steeply from March 17 to near 100% and remains there through the end of the period.

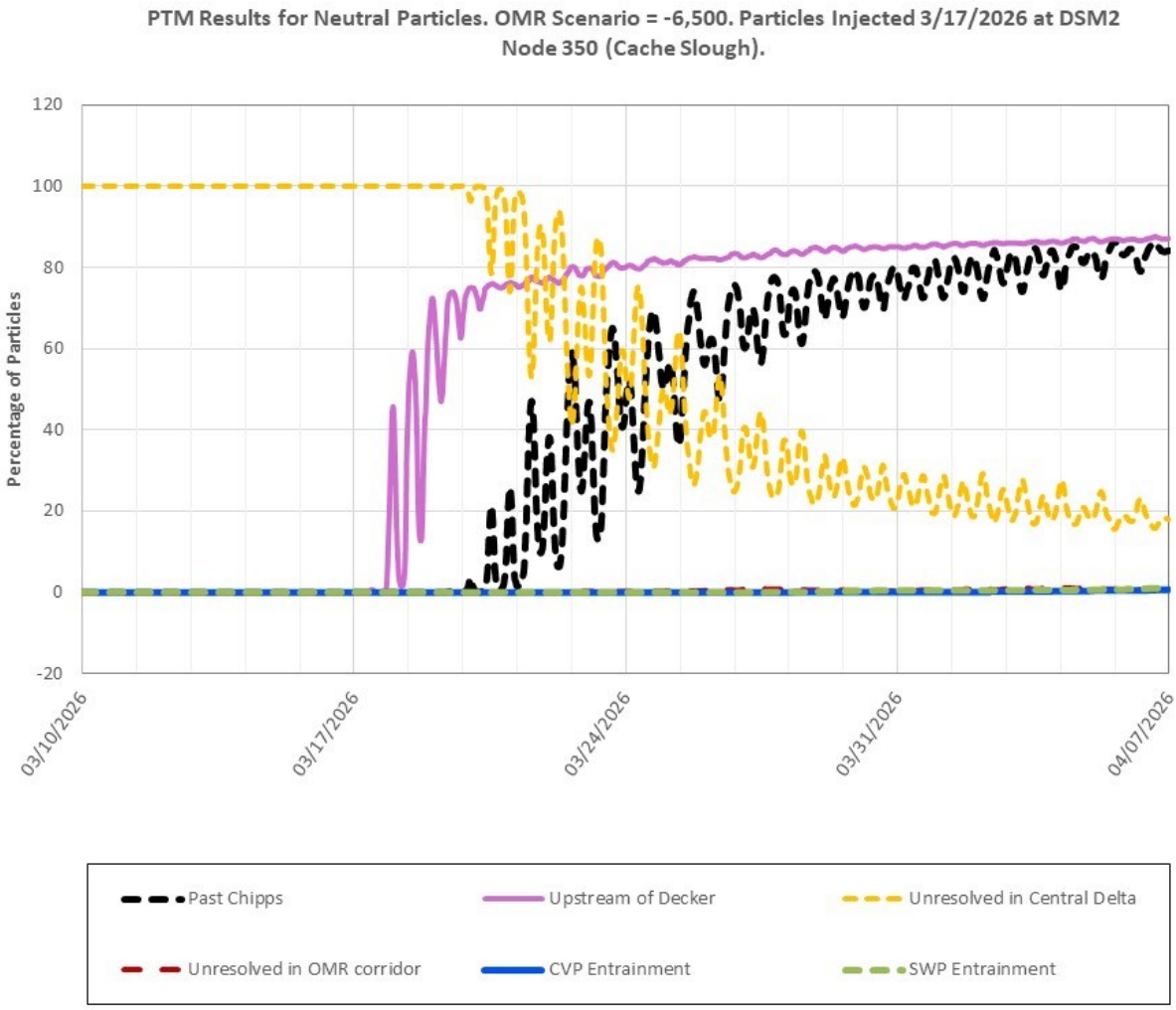

Figure 10: PTM Results for Neutral Particles at Cache Slough Confluence, OMR Scenario -6,500

Figure 10 is a line graph showing the percentage of neutral particles over time from March 10 to April 7, 2026, injected on March 17, 2026 at DSM2 Node 350 (Cache Slough), under OMR Scenario -6,500. Upstream of Decker (pink) rises to near 80% by March 20 and stabilizes around 85%, Past Chipps (black) climbs gradually to roughly 85% by early April, and Unresolved in Central Delta (yellow) peaks near 100% before declining to approximately 15% by the end of the period.

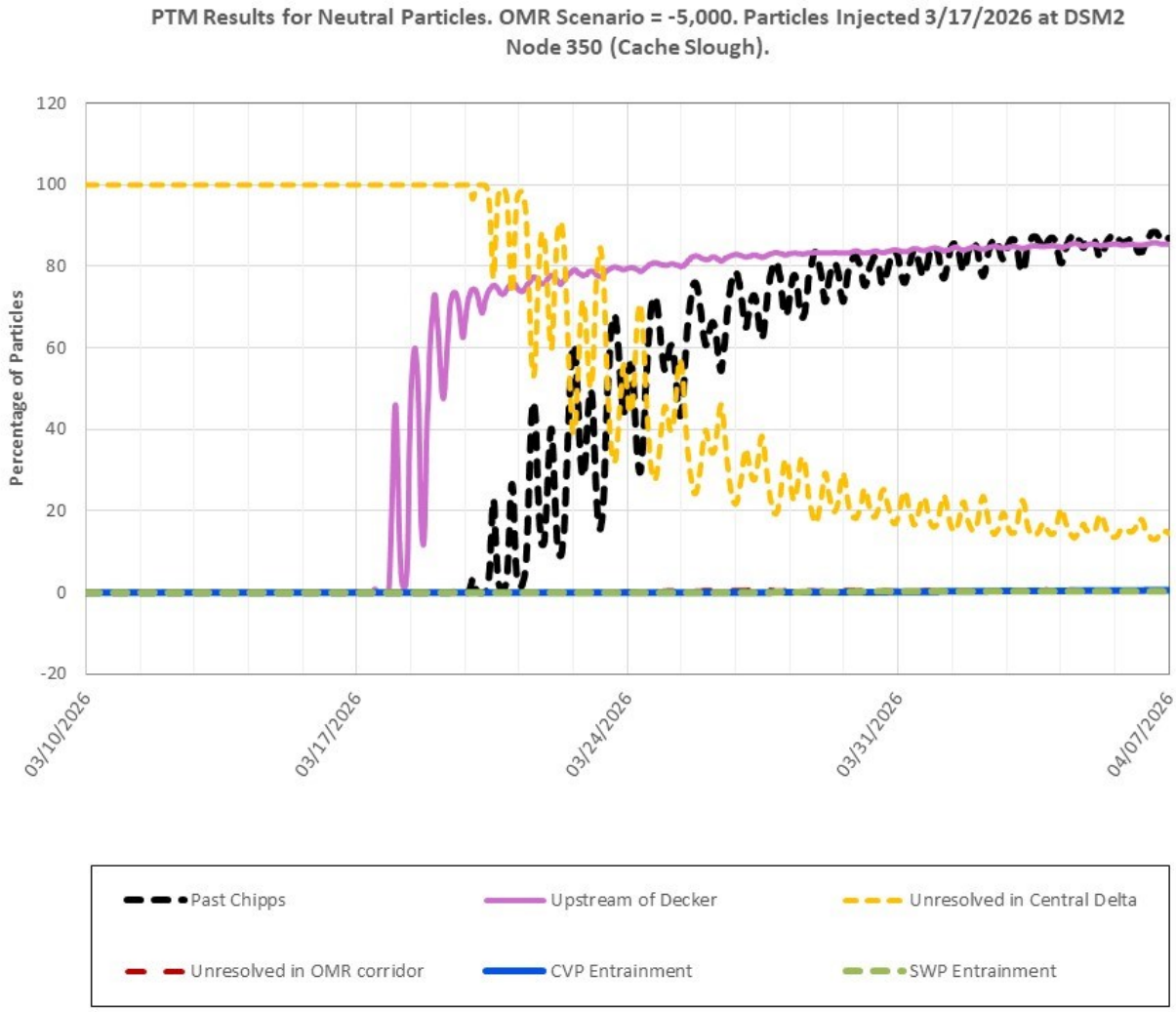

Figure 11: PTM Results for Neutral Particles at Cache Slough Confluence, OMR Scenario -5,000

Figure 11 is a line graph showing the percentage of neutral particles over time from March 10 to April 7, 2026, injected on March 17, 2026 at DSM2 Node 350 (Cache Slough), under OMR Scenario -5,000. Upstream of Decker (pink) rises to near 80% by March 20 and stabilizes around 85%, Past Chipps (black) climbs gradually to roughly 85% by early April, and Unresolved in Central Delta (yellow) peaks near 100% before declining to approximately 15% by the end of the period.

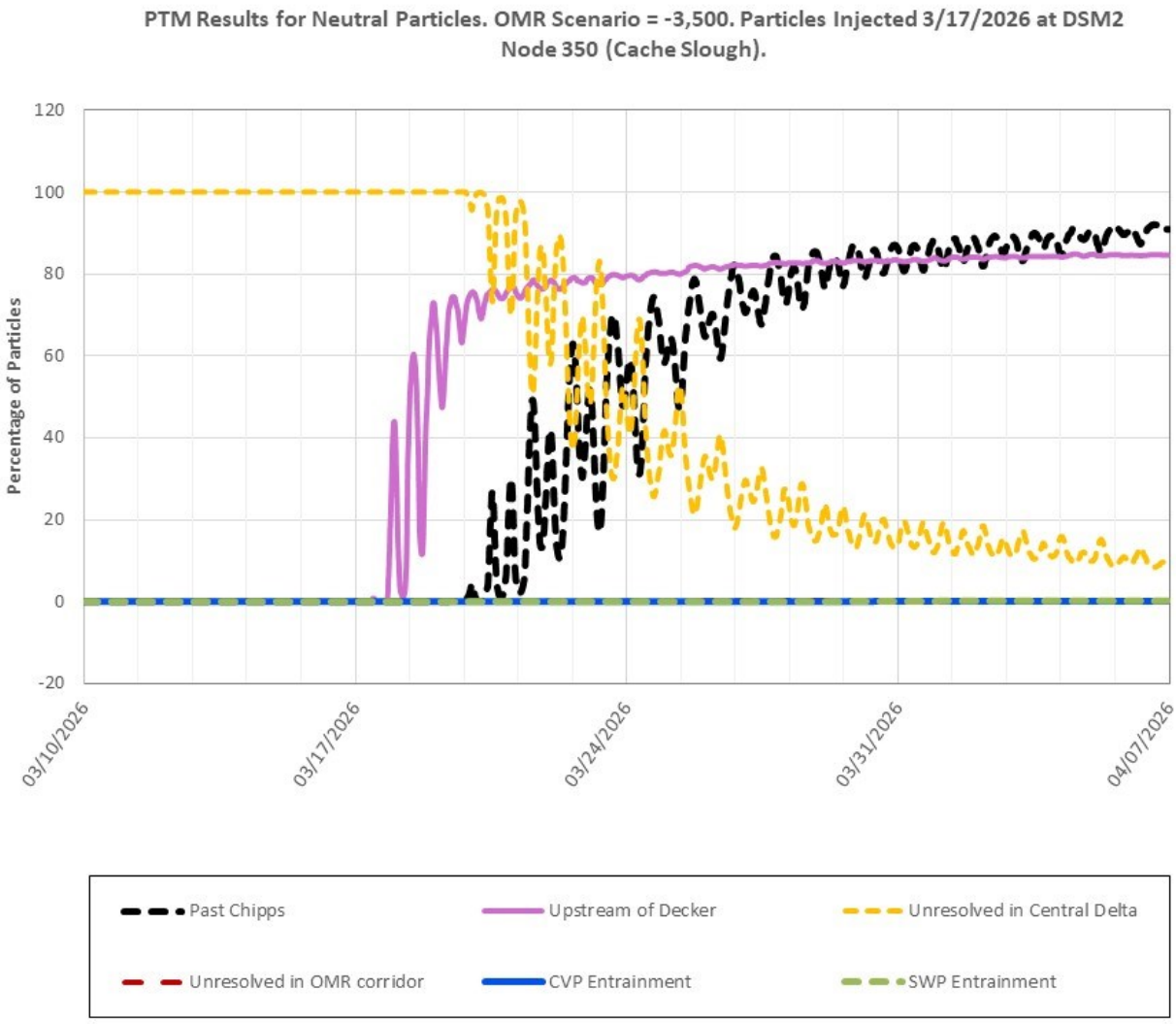

Figure 12: PTM Results for Neutral Particles at Cache Slough Confluence, OMR Scenario -3,500

Figure 12 is a line graph showing the percentage of neutral particles over time from March 10 to April 7, 2026, injected on March 17, 2026 at DSM2 Node 350 (Cache Slough), under OMR Scenario -3,500. Upstream of Decker (pink) rises to near 80% by March 20 and stabilizes around 85%, Past Chipps (black) climbs gradually to roughly 90% by early April, and Unresolved in Central Delta (yellow) peaks near 100% before declining to approximately 10% by the end of the period.

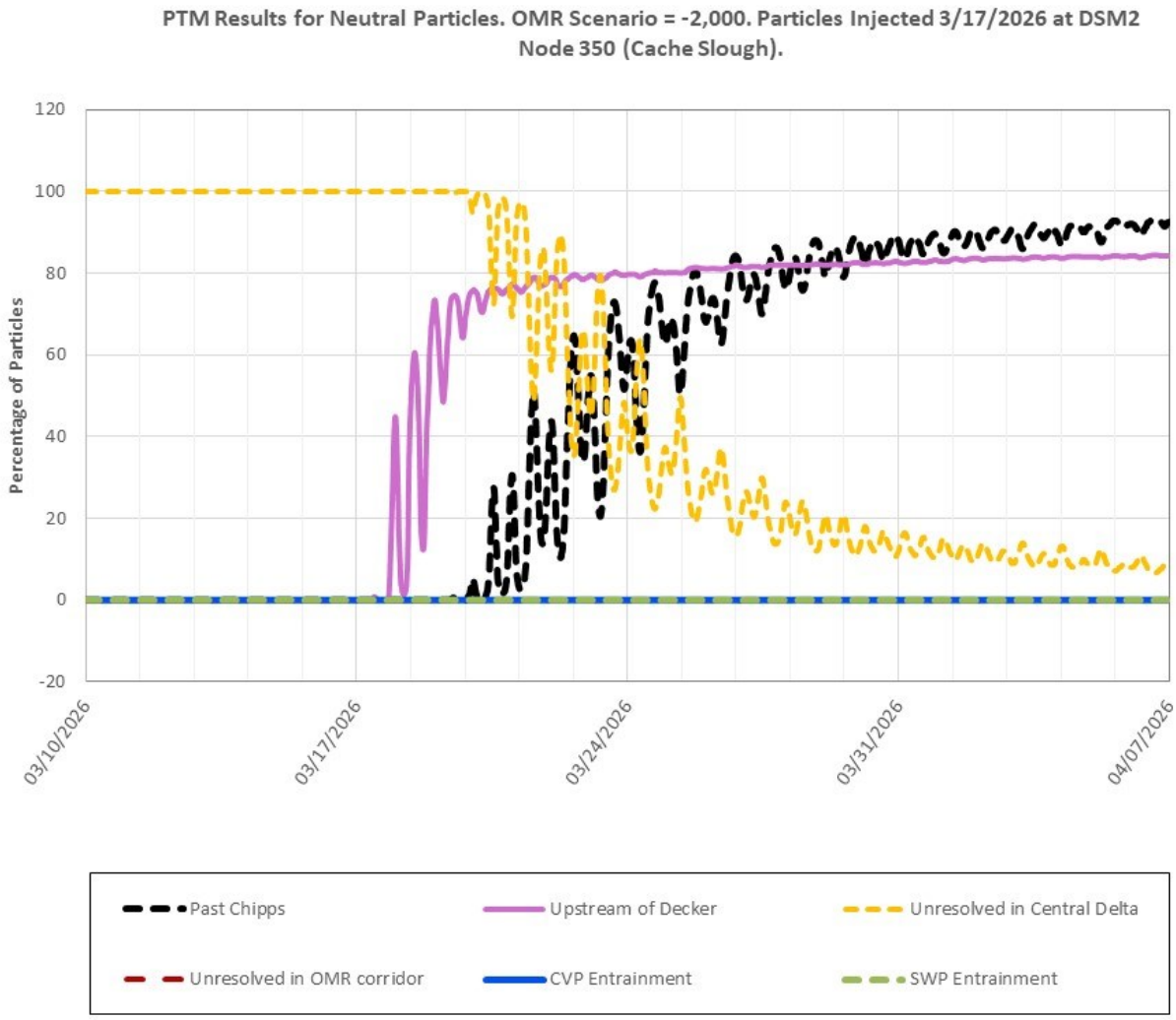

Figure 13: PTM Results for Neutral Particles at Cache Slough Confluence, OMR Scenario -2,000

Figure 13 is a line graph showing the percentage of neutral particles over time from March 10 to April 7, 2026, injected on March 17, 2026 at DSM2 Node 350 (Cache Slough), under OMR Scenario -2,000. Upstream of Decker (pink) rises to near 80% by March 20 and stabilizes around 85%, Past Chipps (black) climbs gradually to roughly 90% by early April, and Unresolved in Central Delta (yellow) peaks near 100% before declining to approximately 10% by the end of the period.

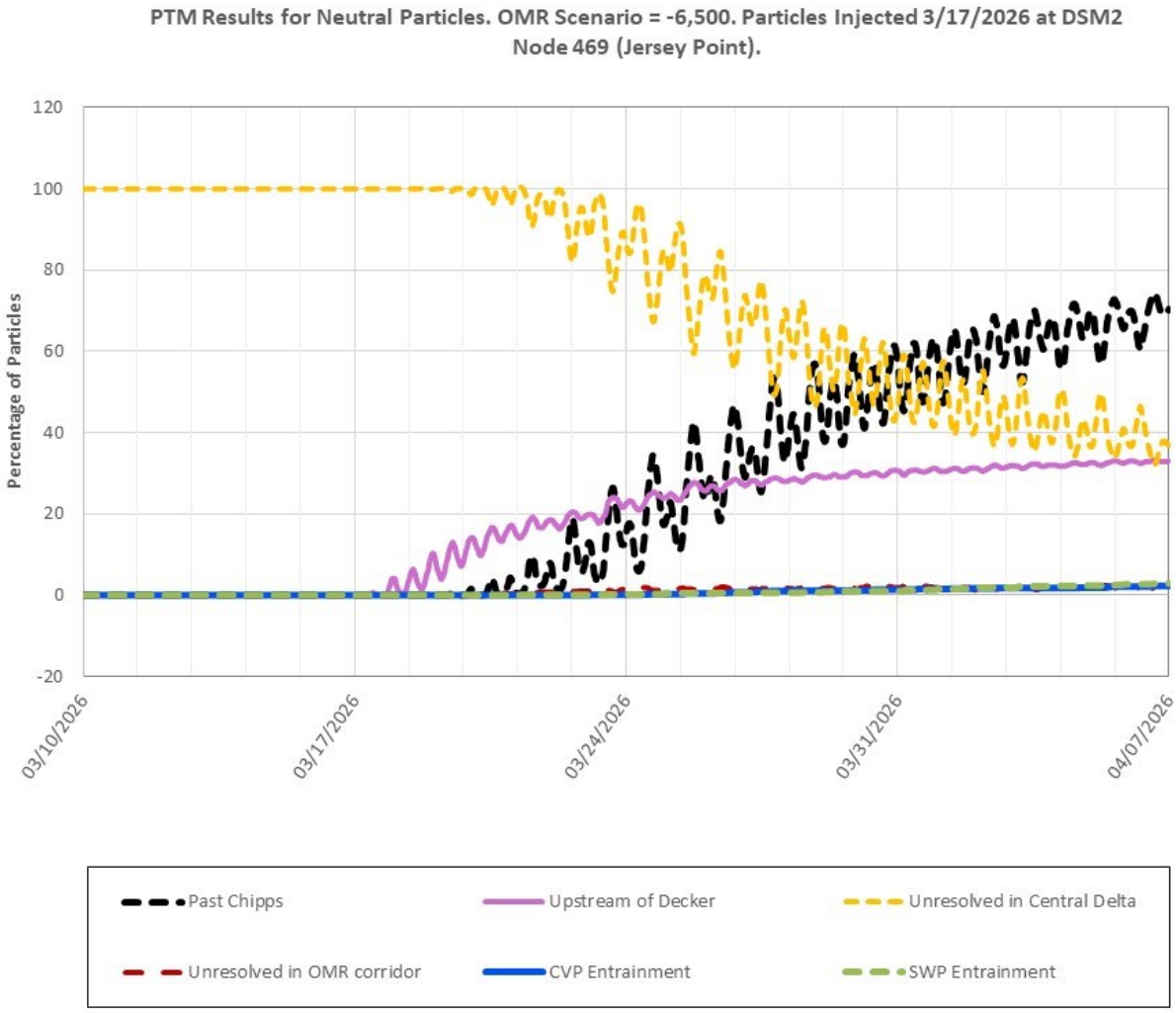

Figure 14: PTM Results for Neutral Particles at Jersey Point, OMR Scenario -6,250

Figure 14 is a line graph showing the percentage of neutral particles over time from March 10 to April 7, 2026, injected on March 17, 2026 at DSM2 Node 469 (Jersey Point), under OMR Scenario -6,500. Unresolved in Central Delta (yellow) begins near 100% and declines gradually to approximately 40% by early April, Past Chipps (black) rises steadily from around March 22 to roughly 70% by early April, and Upstream of Decker (pink) climbs gradually to approximately 30% by the end of the period.

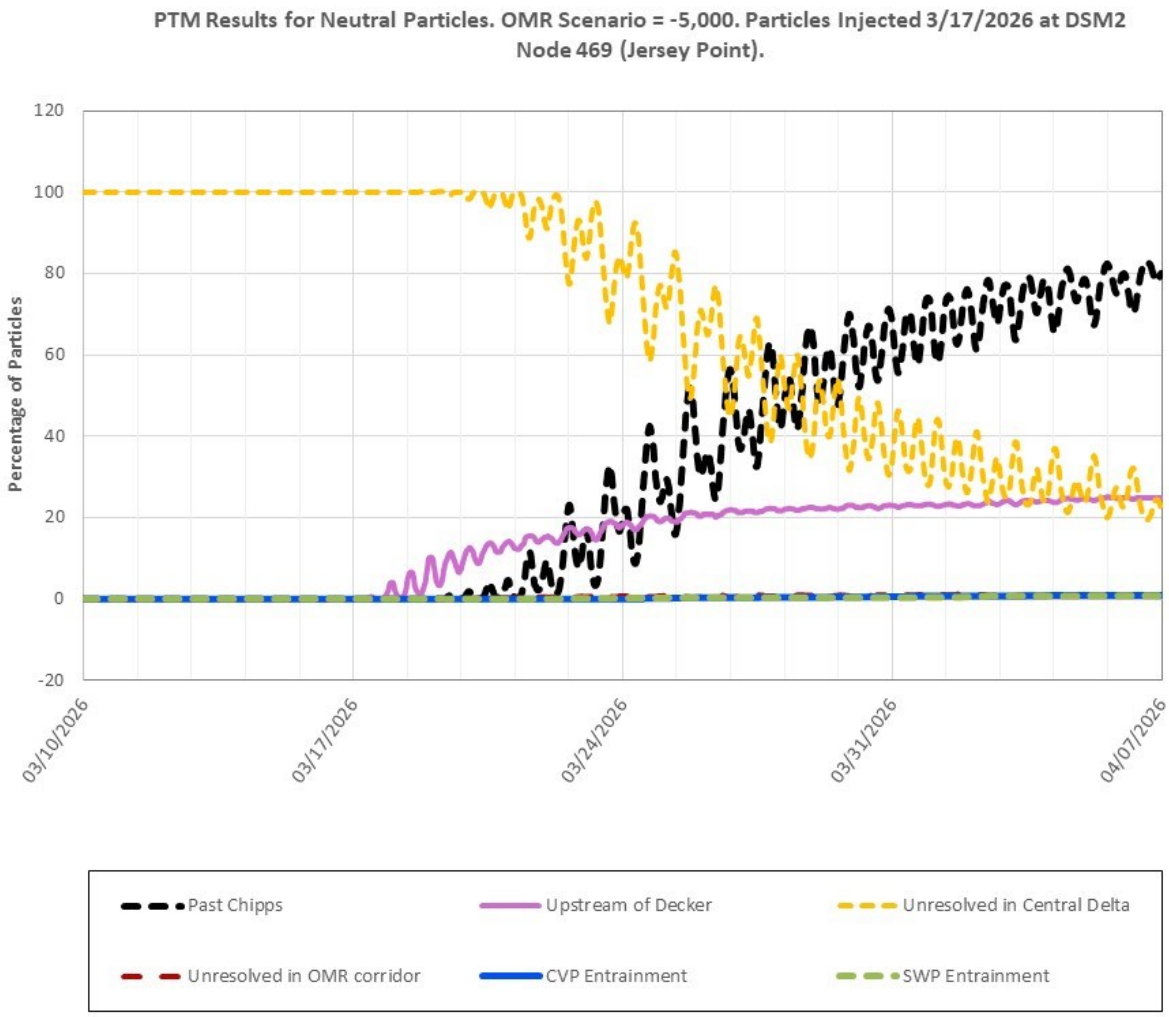

Figure 15: PTM Results for Neutral Particles at Jersey Point, OMR Scenario -5,000

Figure 15 is a line graph showing the percentage of neutral particles over time from March 10 to April 7, 2026, injected on March 17, 2026 at DSM2 Node 469 (Jersey Point), under OMR Scenario -5,000. Unresolved in Central Delta (yellow) begins near 100% and declines gradually to approximately 25% by early April, Past Chipps (black) rises steadily from around March 22 to roughly 80% by early April, and Upstream of Decker (pink) climbs gradually to approximately 25% by the end of the period.

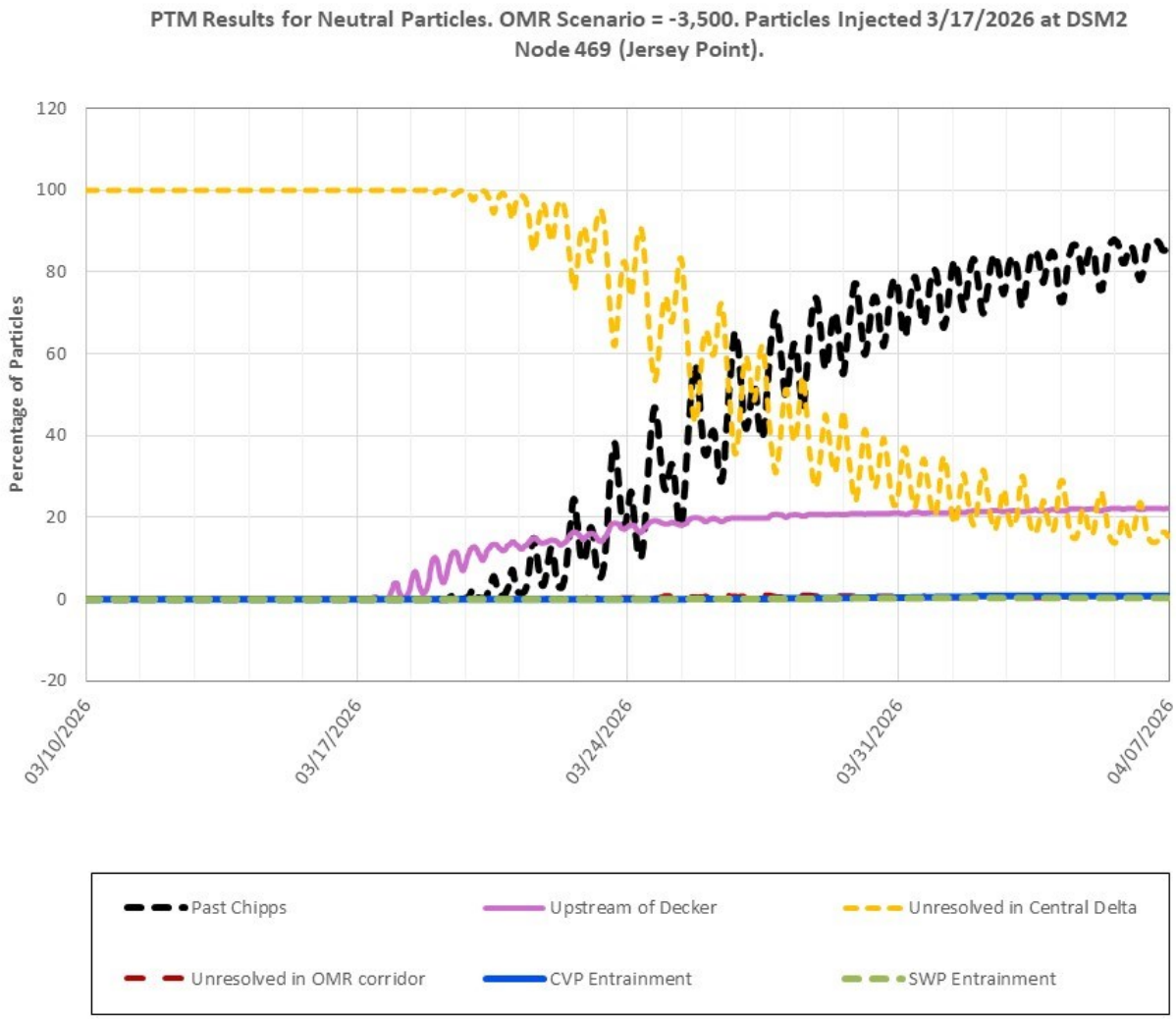

Figure 16: PTM Results for Neutral Particles at Jersey Point, OMR Scenario -3,500

Figure 16 is a line graph showing the percentage of neutral particles over time from March 10 to April 7, 2026, injected on March 17, 2026 at DSM2 Node 469 (Jersey Point), under OMR Scenario -3,500. Unresolved in Central Delta (yellow) begins near 100% and declines gradually to approximately 20% by early April, Past Chipps (black) rises steadily from around March 22 to roughly 85% by early April, and Upstream of Decker (pink) climbs gradually to approximately 20% by the end of the period.

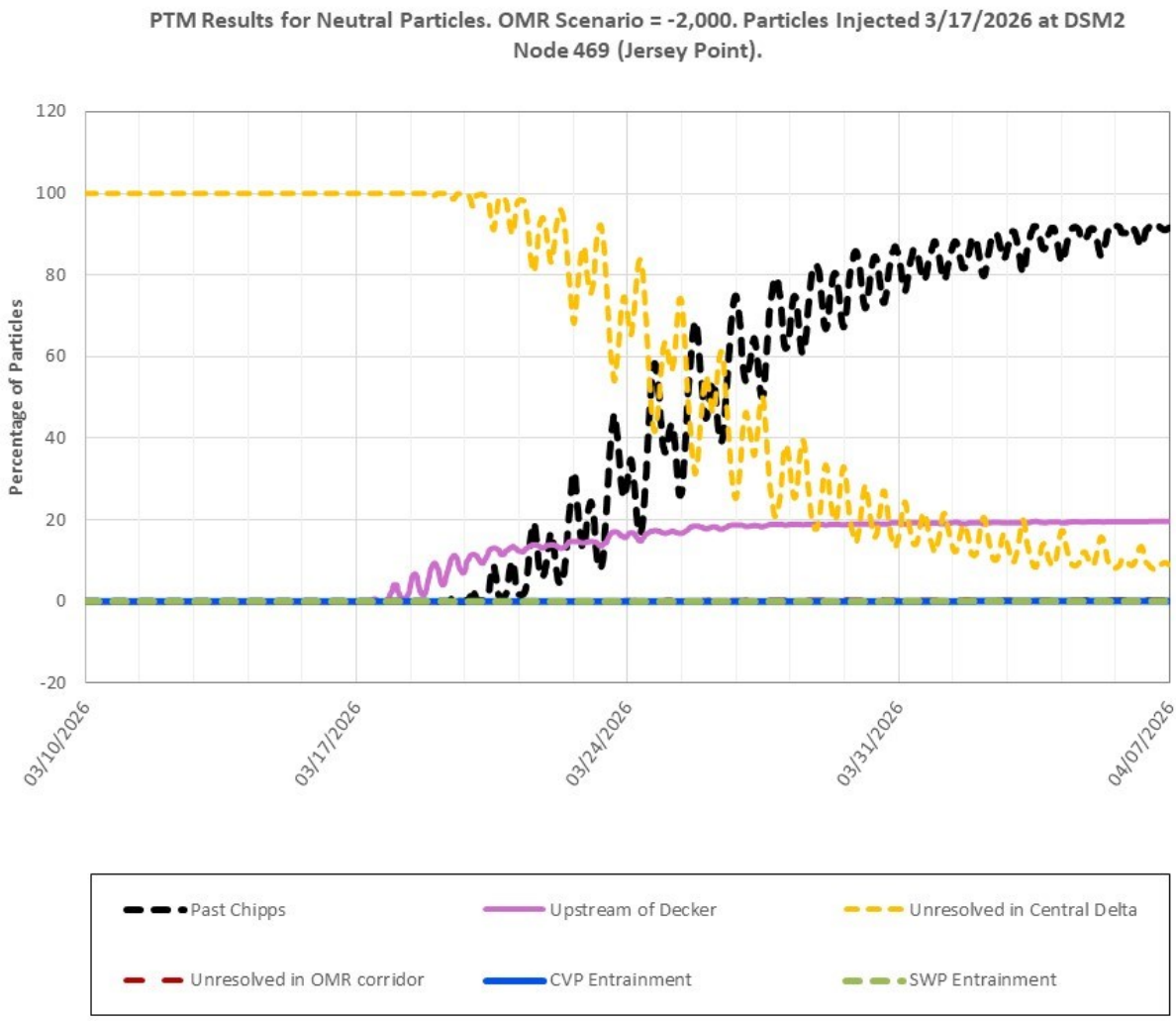

Figure 17: PTM Results for Neutral Particles at Jersey Point, OMR Scenario -2,000

Figure 17 is a line graph showing the percentage of neutral particles over time from March 10 to April 7, 2026, injected on March 17, 2026 at DSM2 Node 469 (Jersey Point), under OMR Scenario -2,000. Unresolved in Central Delta (yellow) begins near 100% and declines gradually to approximately 10% by early April, Past Chipps (black) rises steadily from around March 22 to roughly 90% by early April, and Upstream of Decker (pink) climbs gradually to approximately 20% by the end of the period.

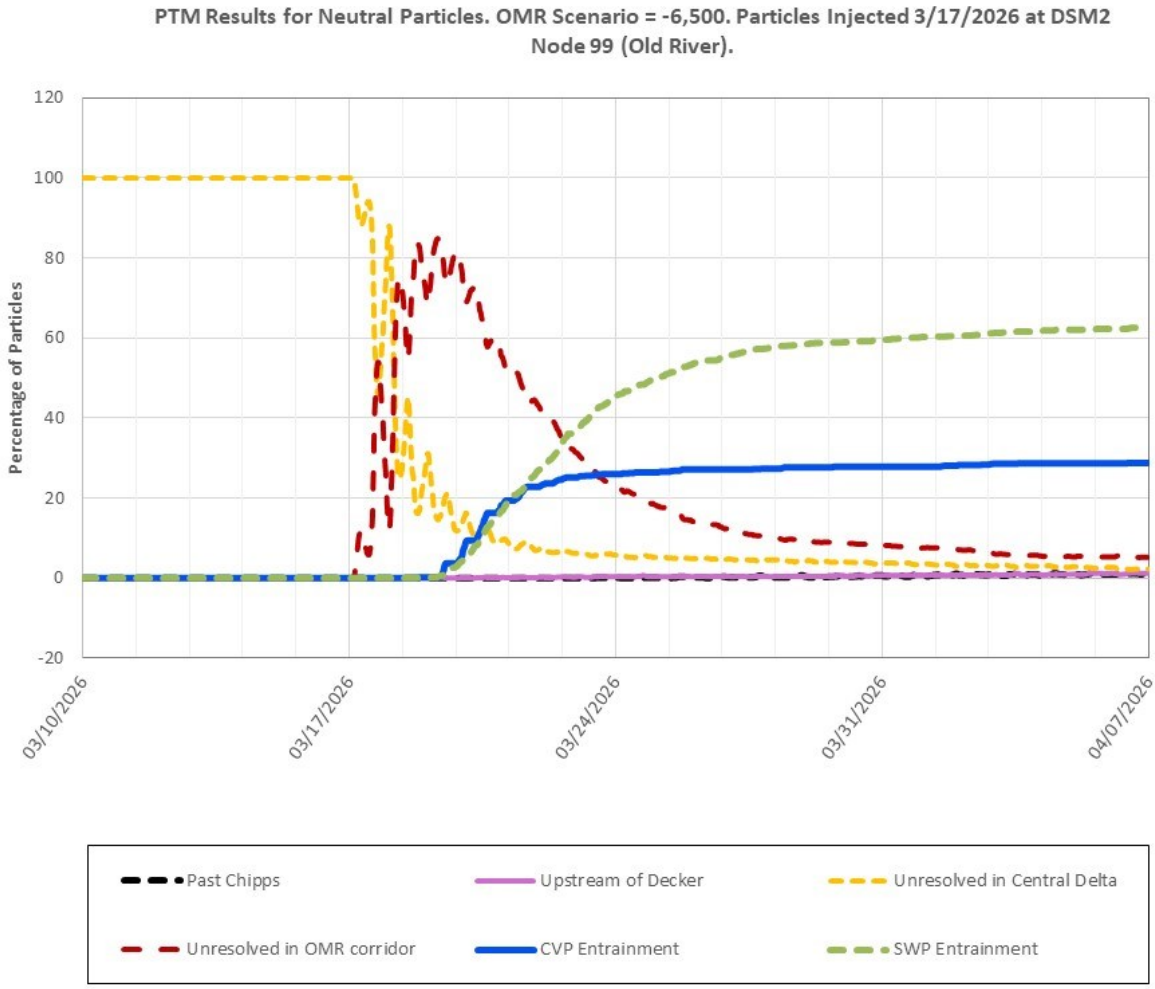

Figure 18: PTM Results for Neutral Particles at Old River, OMR Scenario -6,250

Figure 18 is a line graph showing the percentage of neutral particles over time from March 10 to April 7, 2026, injected on March 17, 2026 at DSM2 Node 99 (Old River), under OMR Scenario -6,500. Unresolved in Central Delta (yellow) begins near 100% and declines rapidly to near 0% by March 22, Unresolved in OMR corridor (red) peaks near 85% around March 19 before declining to approximately 5% by early April, SWP Entrainment (green) rises steadily from March 22 to roughly 63% by early April, and CVP Entrainment (blue) stabilizes at approximately 28% by March 24 and remains steady through the end of the period.

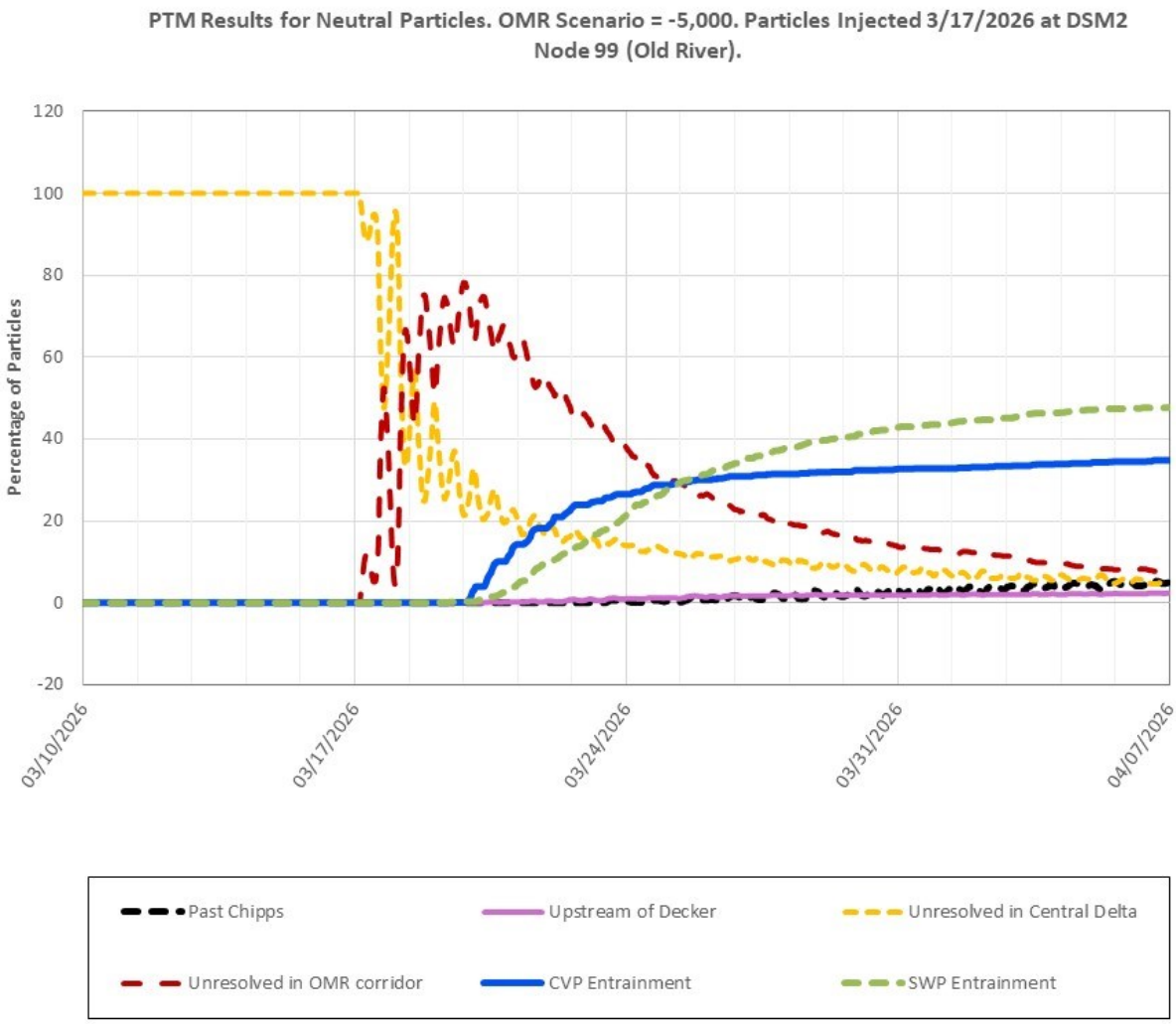

Figure 19: PTM Results for Neutral Particles at Old River, OMR Scenario -5,000

Figure 19 is a line graph showing the percentage of neutral particles over time from March 10 to April 7, 2026, injected on March 17, 2026 at DSM2 Node 99 (Old River), under OMR Scenario -5,000. Unresolved in Central Delta (yellow) begins near 100% and declines rapidly to near 0% by March 22, Unresolved in OMR corridor (red) peaks near 80% around March 19 before declining to approximately 5% by early April, SWP Entrainment (green) rises steadily from March 17 to roughly 48% by early April, and CVP Entrainment (blue) climbs to approximately 35% by March 24 and remains steady through the end of the period.

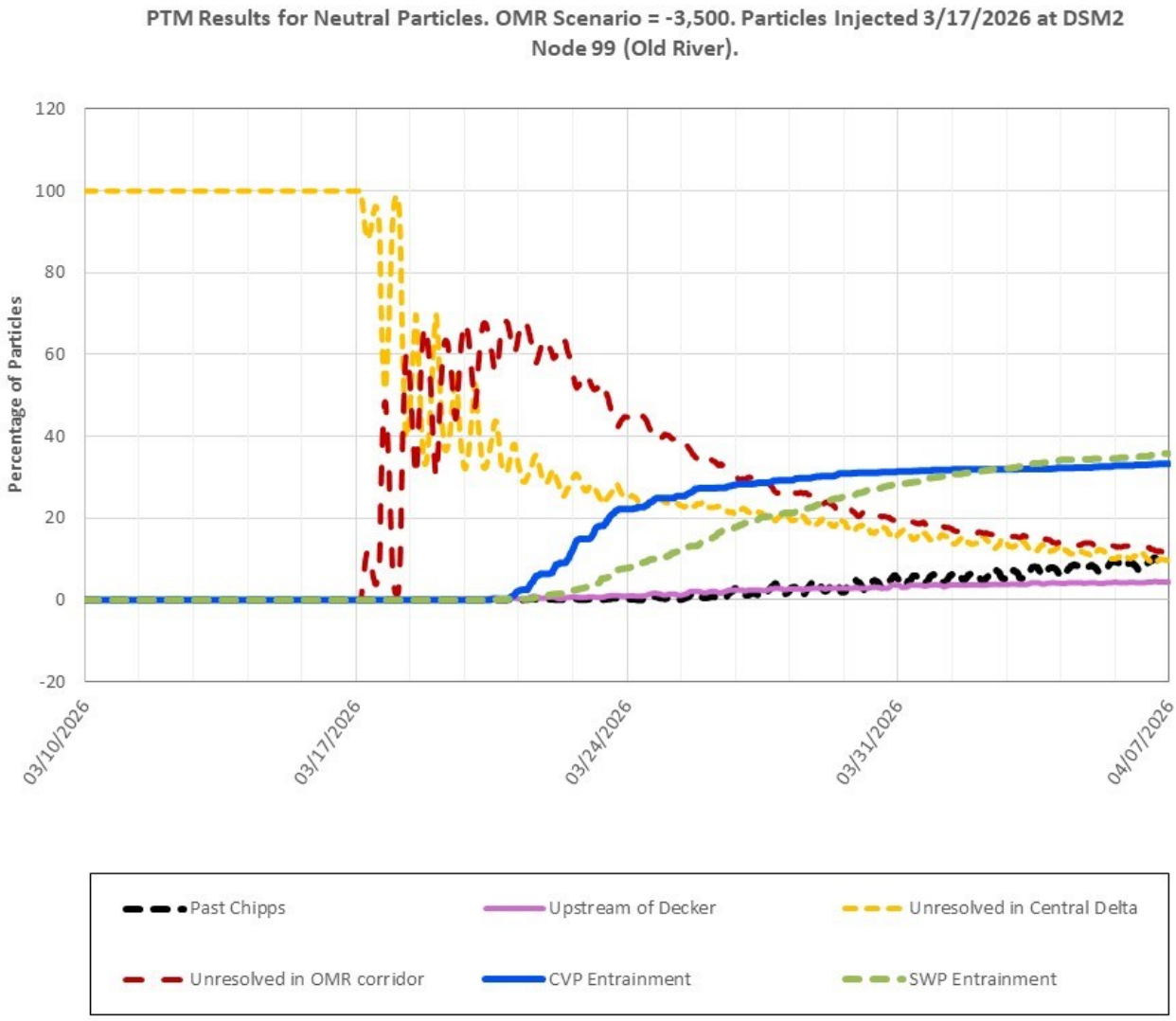

Figure 20: PTM Results for Neutral Particles at Old River, OMR Scenario -3,500

Figure 20 is a line graph showing the percentage of neutral particles over time from March 10 to April 7, 2026, injected on March 17, 2026 at DSM2 Node 99 (Old River), under OMR Scenario -3,500. Unresolved in Central Delta (yellow) begins near 100% and declines rapidly to approximately 10% by early April, Unresolved in OMR corridor (red) peaks near 65% around March 19 before declining to approximately 10% by early April, CVP Entrainment (blue) rises steadily from March 17 to roughly 33% by early April, and SWP Entrainment (green) climbs to approximately 35% by early April, with Past Chipps (black) and Upstream of Decker (pink) remaining near 0% throughout the period.

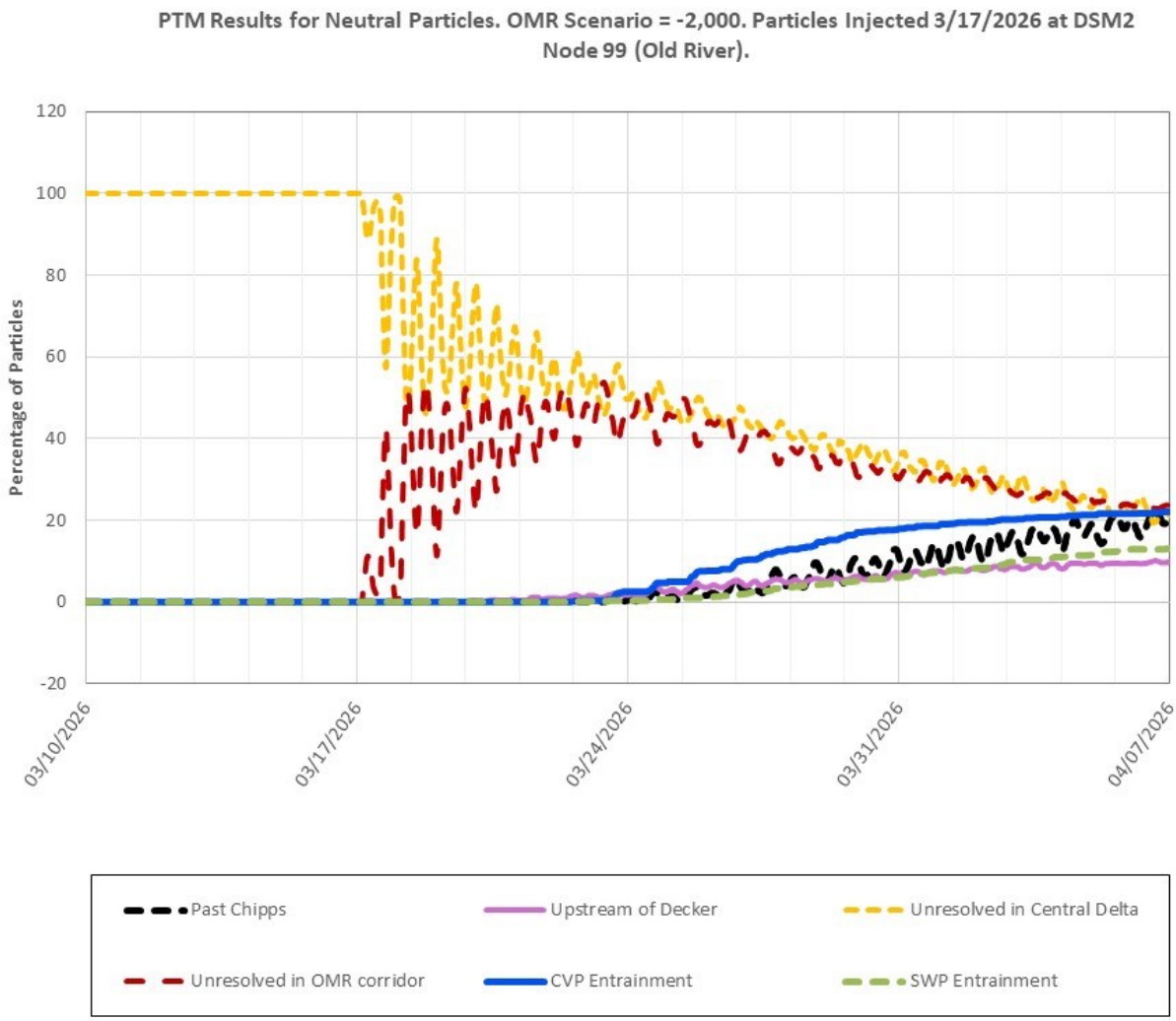

Figure 21: PTM Results for Neutral Particles at Old River, OMR Scenario -2,000

Figure 21 is a line graph showing the percentage of neutral particles over time from March 10 to April 7, 2026, injected on March 17, 2026 at DSM2 Node 99 (Old…Figure 20 is a line graph showing the percentage of neutral particles over time from March 10 to April 7, 2026, injected on March 17, 2026 at DSM2 Node 99 (Old River), under OMR Scenario -2,000. Unresolved in Central Delta (yellow) begins near 100% and declines gradually to approximately 25% by early April, Unresolved in OMR corridor (red) peaks near 50% around March 20 before declining to approximately 25% by early April, while CVP Entrainment (blue), SWP Entrainment (green), Past Chipps (black), and Upstream of Decker (pink) all rise modestly and converge near 10-25% by the end of the period.

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 End: 03/23/2026	-6,500	96.3	0.0	3.8	0.0	0.0	0.0
Week 1 End: 03/23/2026	-5,000	96.2	0.0	3.8	0.0	0.0	0.0
Week 1 End: 03/23/2026	-3,500	97.9	0.0	2.1	0.0	0.0	0.0
Week 1 End: 03/23/2026	-2,000	98.2	0.0	1.8	0.0	0.0	0.0
Week 2 End: 03/30/2026	-6,500	98.0	0.1	2.0	0.0	0.0	0.0
Week 2 End: 03/30/2026	-5,000	99.0	0.0	1.0	0.0	0.0	0.0
Week 2 End: 03/30/2026	-3,500	99.0	0.0	1.0	0.0	0.0	0.0
Week 2 End: 03/30/2026	-2,000	98.8	0.0	1.2	0.0	0.0	0.0
Week 3 End: 04/06/2026	-6,500	98.3	0.1	1.7	0.0	0.0	0.0
Week 3 End: 04/06/2026	-5,000	99.2	0.0	0.8	0.0	0.0	0.0
Week 3 End: 04/06/2026	-3,500	99.1	0.0	0.9	0.0	0.0	0.0
Week 3 End: 04/06/2026	-2,000	98.8	0.0	1.2	0.0	0.0	0.0

Note: values between 0.0 and 0.1 are indicated with <0.1

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 End: 03/23/2026	-6,500	52.7	74.6	47.8	0.4	0.0	0.1
Week 1 End: 03/23/2026	-5,000	54.9	74.6	45.2	0.1	0.0	0.0
Week 1 End: 03/23/2026	-3,500	59.6	75.8	40.6	0.2	0.0	0.0
Week 1 End: 03/23/2026	-2,000	63.6	77.4	36.5	0.1	0.0	0.0
Week 2 End: 03/30/2026	-6,500	80.7	80.2	21.7	1.0	0.8	0.5
Week 2 End: 03/30/2026	-5,000	82.8	79.0	18.1	0.5	0.2	0.2
Week 2 End: 03/30/2026	-3,500	86.8	79.9	13.8	0.2	0.1	0.2
Week 2 End: 03/30/2026	-2,000	90.2	81.0	10.1	0.2	0.1	0.0
Week 3 End: 04/06/2026	-6,500	87.0	83.6	16.6	0.2	1.5	1.9
Week 3 End: 04/06/2026	-5,000	89.3	80.9	12.1	0.6	0.5	0.3
Week 3 End: 04/06/2026	-3,500	92.7	81.4	8.0	0.3	0.1	0.3
Week 3 End: 04/06/2026	-2,000	93.7	82.3	6.9	0.3	0.2	0.1

Note: values between 0.0 and 0.1 are indicated with <0.1

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 End: 03/23/2026	-6,500	24.2	22.4	77.1	0.9	0.2	0.2
Week 1 End: 03/23/2026	-5,000	28.9	18.5	72.1	0.8	<0.1	0.1
Week 1 End: 03/23/2026	-3,500	37.3	16.4	63.1	0.3	0.0	0.0
Week 1 End: 03/23/2026	-2,000	43.6	13.9	56.4	0.0	0.0	0.0
Week 2 End: 03/30/2026	-6,500	67.5	29.4	36.2	1.3	1.2	1.2
Week 2 End: 03/30/2026	-5,000	77.3	23.4	24.9	0.3	1.2	0.7
Week 2 End: 03/30/2026	-3,500	84.7	20.1	16.0	0.4	0.2	0.1
Week 2 End: 03/30/2026	-2,000	90.7	15.9	9.4	0.1	0.0	0.0
Week 3 End: 04/06/2026	-6,500	80.9	31.5	25.9	1.8	2.1	2.9
Week 3 End: 04/06/2026	-5,000	88.7	25.2	14.9	0.8	1.6	1.2
Week 3 End: 04/06/2026	-3,500	92.8	21.0	8.3	0.2	0.6	0.3
Week 3 End: 04/06/2026	-2,000	96.2	16.8	4.2	0.3	0.0	0.1

Note: values between 0.0 and 0.1 are indicated with <0.1

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 End: 03/23/2026	-6,500	0.1	0.3	7.1	27.5	24.4	40.9
Week 1 End: 03/23/2026	-5,000	0.3	0.6	14.4	37.8	28.9	18.6
Week 1 End: 03/23/2026	-3,500	0.7	2.5	24.3	47.8	19.8	7.5
Week 1 End: 03/23/2026	-2,000	1.0	2.9	46.8	49.5	2.1	0.6
Week 2 End: 03/30/2026	-6,500	1.2	1.1	4.3	8.6	27.7	58.2
Week 2 End: 03/30/2026	-5,000	3.6	2.3	8.3	13.2	33.8	41.1
Week 2 End: 03/30/2026	-3,500	6.9	5.0	14.6	21.2	30.4	26.9
Week 2 End: 03/30/2026	-2,000	12.2	6.2	31.4	29.0	19.5	8.0
Week 3 End: 04/06/2026	-6,500	2.4	1.5	2.3	5.8	28.7	60.8
Week 3 End: 04/06/2026	-5,000	6.9	3.1	3.9	6.8	35.3	47.1
Week 3 End: 04/06/2026	-3,500	12.9	6.9	6.9	13.1	32.6	34.5
Week 3 End: 04/06/2026	-2,000	24.2	9.6	16.1	21.1	23.4	15.2

Note: values between 0.0 and 0.1 are indicated with <0.1

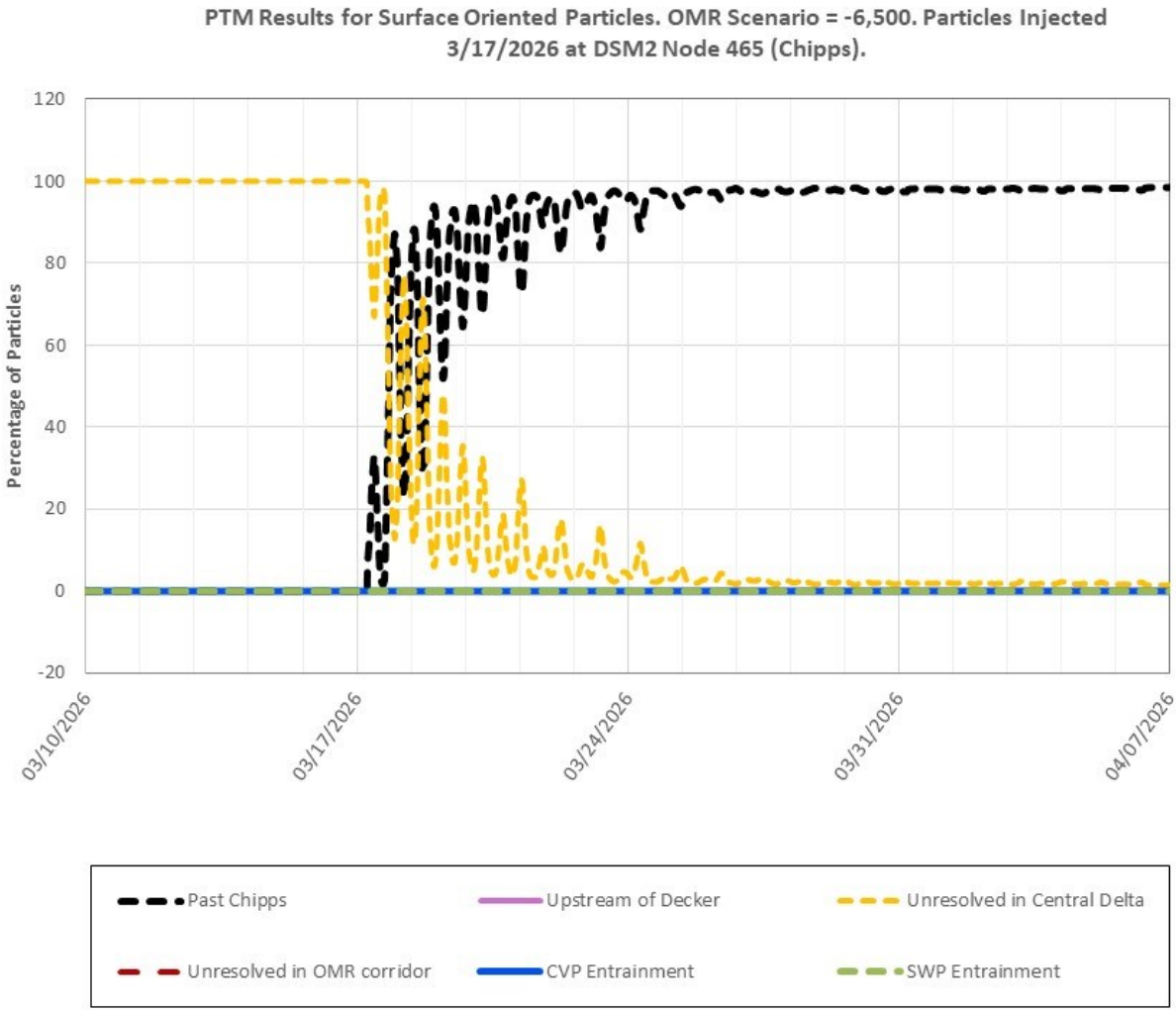

Figure 22: PTM Results for Surface Oriented Particles at Chipps Island, OMR Scenario -6,250

Figure 22 is a line graph showing the percentage of surface oriented particles over time from March 10 to April 7, 2026, injected on March 17, 2026 at DSM2 Node 465 (Chipps), under OMR Scenario -6,500. Unresolved in Central Delta (yellow) begins near 100% and declines sharply around March 17 to approximately 5% by early April, while Past Chipps (black) rises steeply from March 17 to near 100% and remains there through the end of the period.

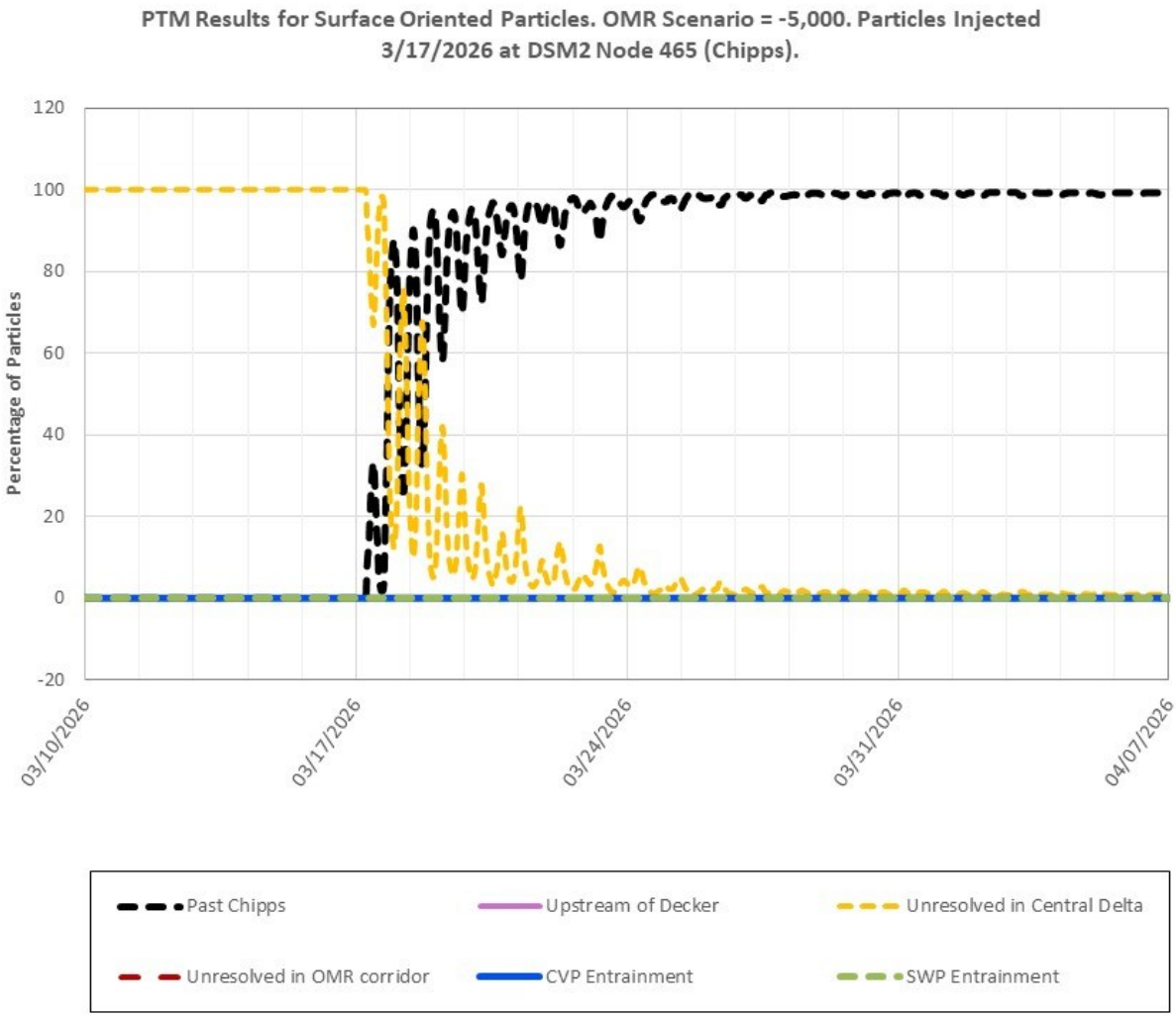

Figure 23: PTM Results for Surface Oriented Particles at Chipps Island, OMR Scenario -5,000

Figure 23 is a line graph showing the percentage of surface oriented particles over time from March 10 to April 7, 2026, injected on March 17, 2026 at DSM2 Node 465 (Chipps), under OMR Scenario -5,000. Unresolved in Central Delta (yellow) begins near 100% and declines sharply around March 17 to near 0% by March 24, while Past Chipps (black) rises steeply from March 17 to near 100% and remains there through the end of the period.

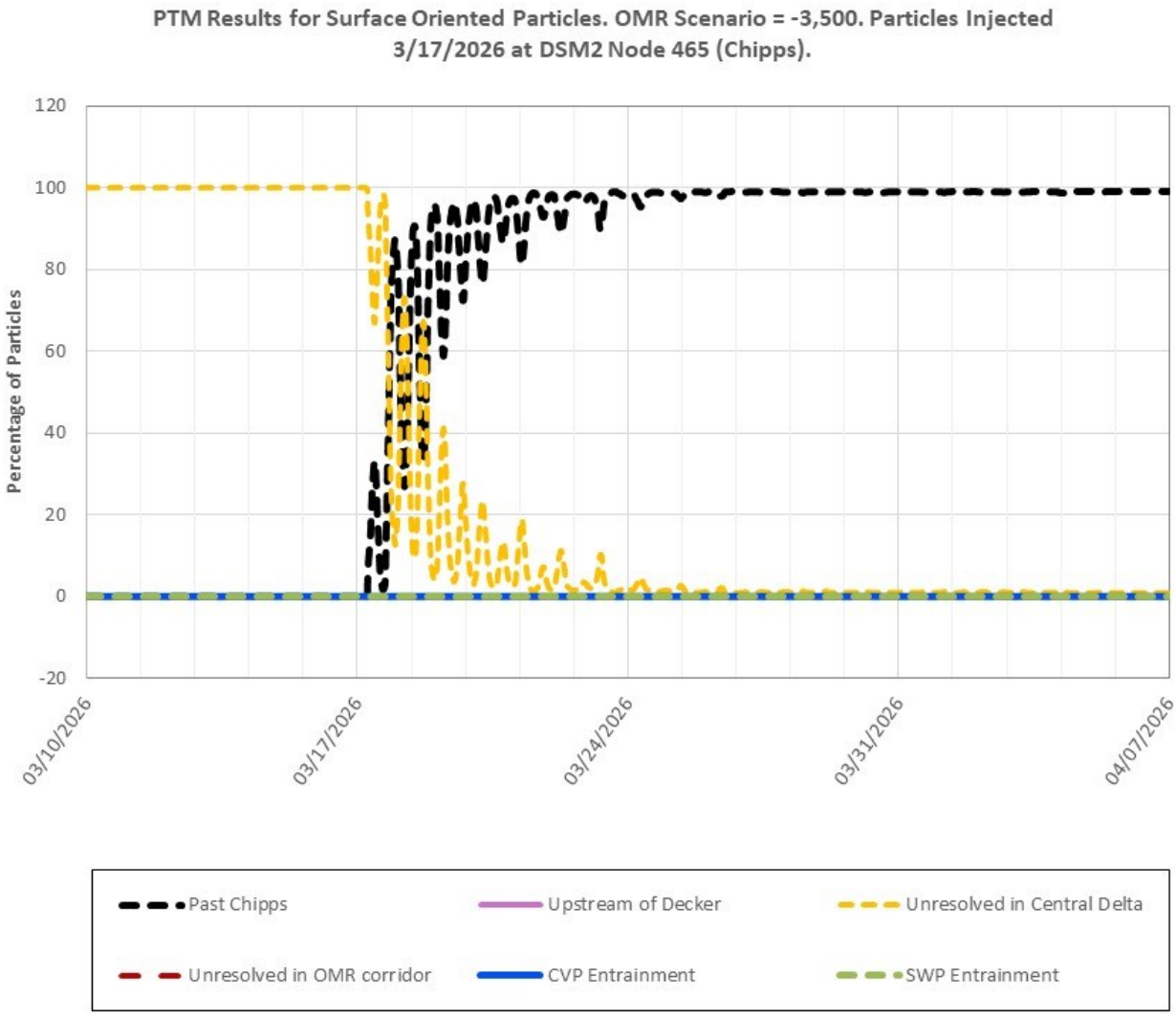

Figure 24: PTM Results for Surface Oriented Particles at Chipps Island, OMR Scenario -3,500

Figure 24 is a line graph showing the percentage of surface oriented particles over time from March 10 to April 7, 2026, injected on March 17, 2026 at DSM2 Node 465 (Chipps), under OMR Scenario -3,500. Unresolved in Central Delta (yellow) begins near 100% and declines sharply around March 17 to near 0% by March 24, while Past Chipps (black) rises steeply from March 17 to near 100% and remains there through the end of the period.

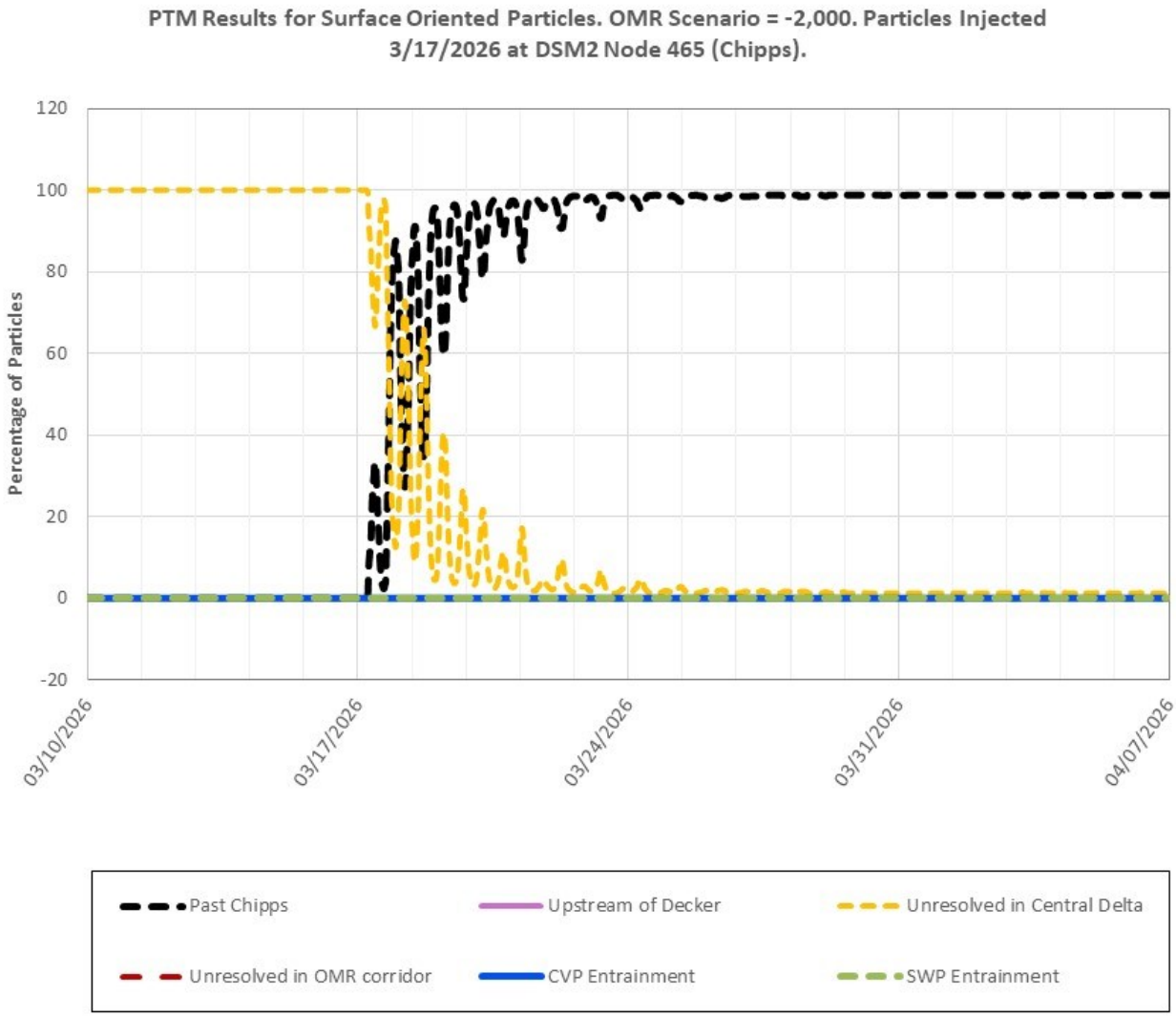

Figure 25: PTM Results for Surface Oriented Particles at Chipps Island, OMR Scenario -2,000

Figure 25 is a line graph showing the percentage of surface oriented particles over time from March 10 to April 7, 2026, injected on March 17, 2026 at DSM2 Node 465 (Chipps), under OMR Scenario -2,000. Unresolved in Central Delta (yellow) begins near 100% and declines sharply around March 17 to near 0% by March 24, while Past Chipps (black) rises steeply from March 17 to near 100% and remains there through the end of the period.

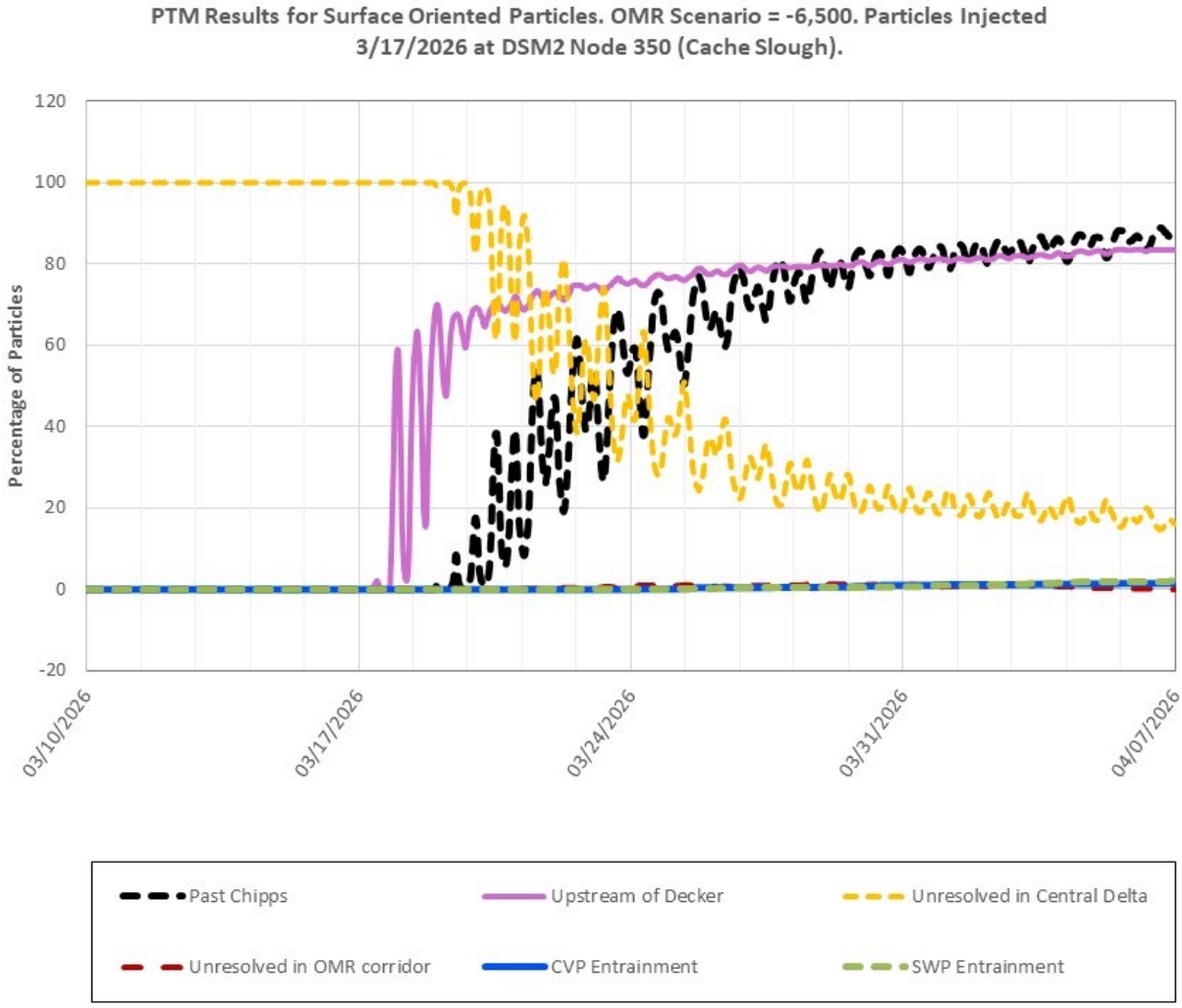

Figure 26: PTM Results for Surface Oriented Particles at Cache Slough Confluence, OMR Scenario -6,250

Figure 26 is a line graph showing the percentage of surface oriented particles over time from March 10 to April 7, 2026, injected on March 17, 2026 at DSM2 Node 350 (Cache Slough), under OMR Scenario -6,500. Upstream of Decker (pink) rises to near 80% by March 20 and stabilizes around 85%, Past Chipps (black) climbs gradually to roughly 90% by early April, and Unresolved in Central Delta (yellow) peaks near 100% before declining to approximately 15% by the end of the period.

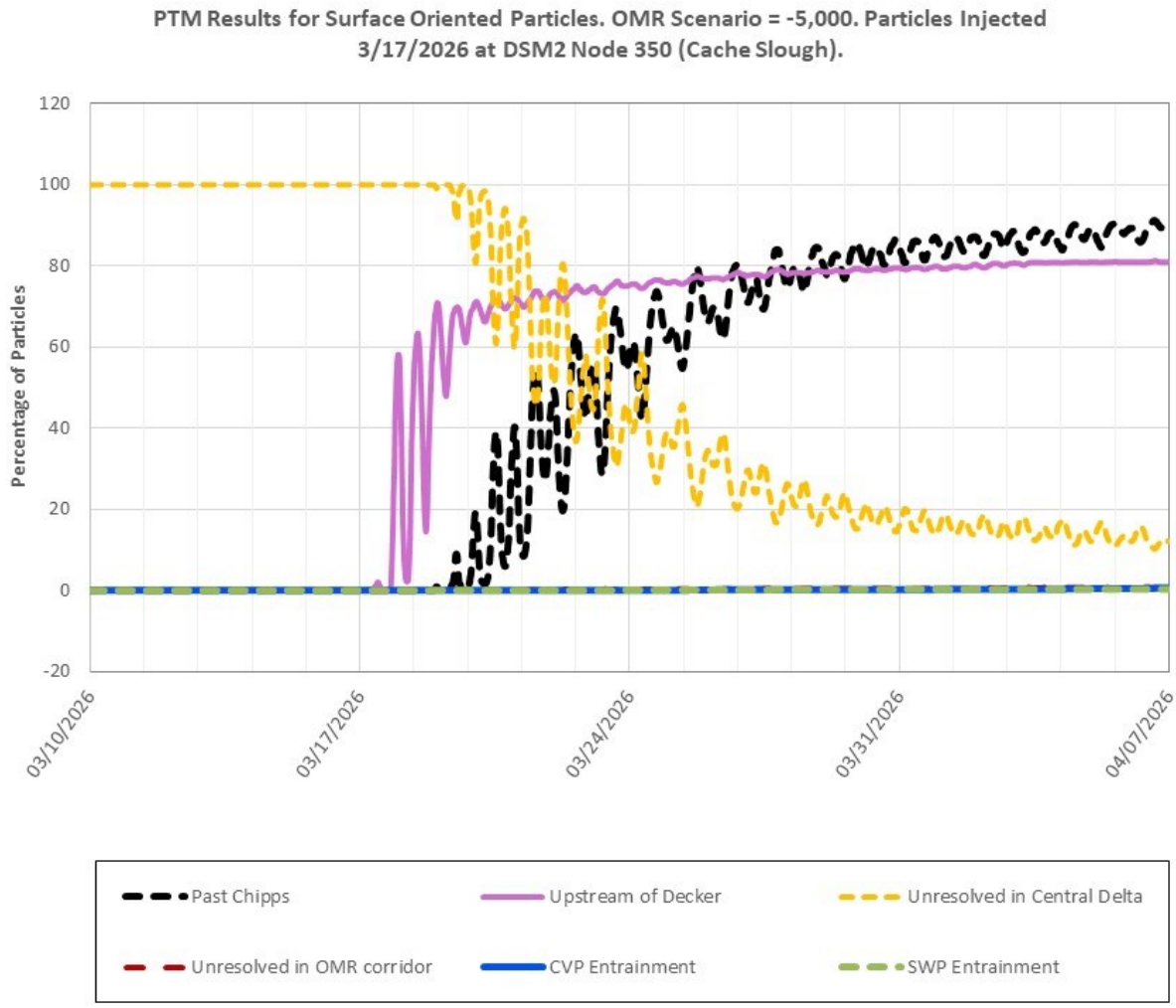

Figure 27: PTM Results for Surface Oriented Particles at Cache Slough Confluence, OMR Scenario -5,000

Figure 27 is a line graph showing the percentage of surface oriented particles over time from March 10 to April 7, 2026, injected on March 17, 2026 at DSM2 Node 350 (Cache Slough), under OMR Scenario -5,000. Upstream of Decker (pink) rises to near 75% by March 20 and stabilizes around 80%, Past Chipps (black) climbs gradually to roughly 90% by early April, and Unresolved in Central Delta (yellow) peaks near 100% before declining to approximately 10% by the end of the period.

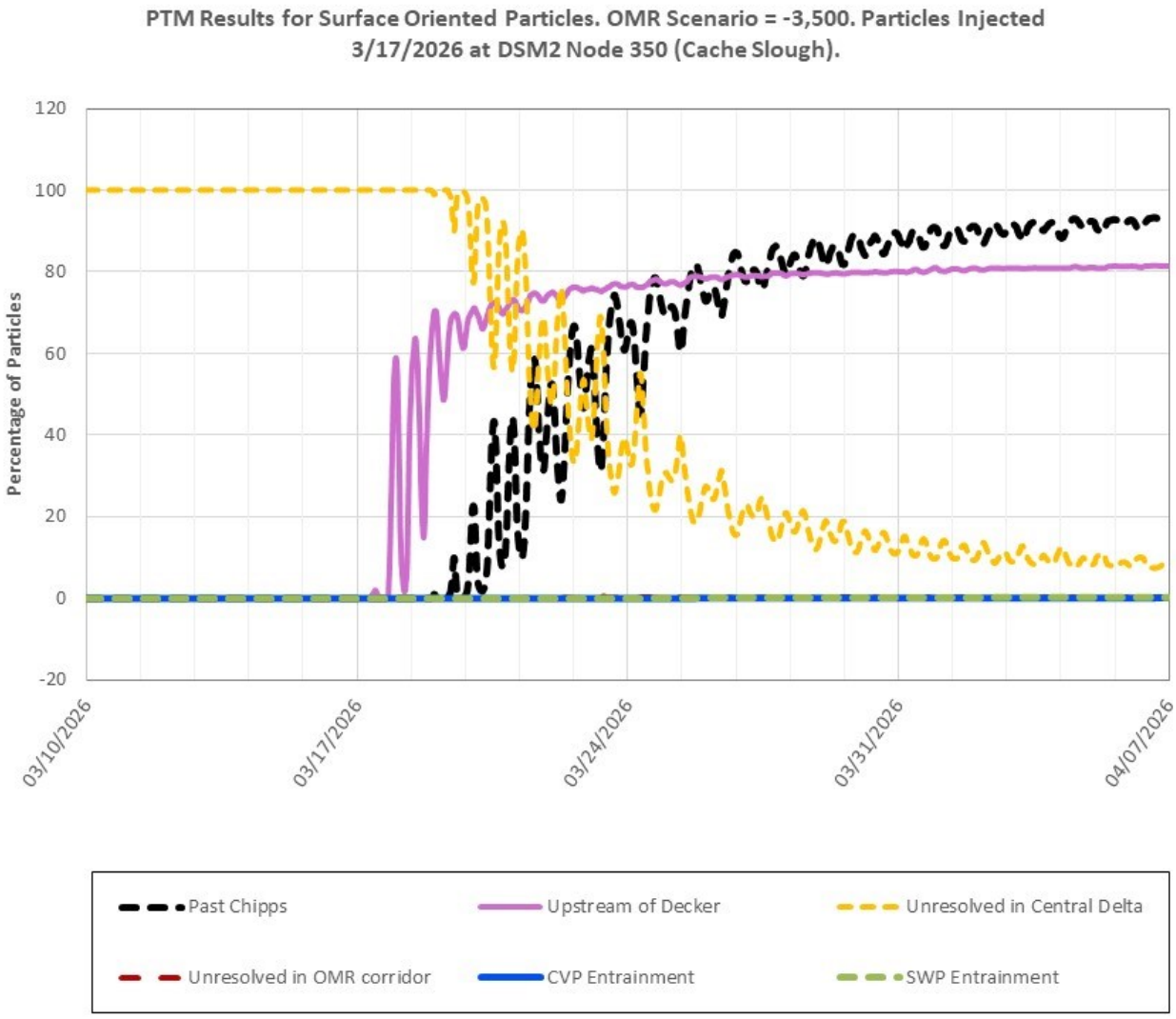

Figure 28: PTM Results for Surface Oriented Particles at Cache Slough Confluence, OMR Scenario -3,500

Figure 28 is a line graph showing the percentage of surface oriented particles over time from March 10 to April 7, 2026, injected on March 17, 2026 at DSM2 Nod...Figure 27 is a line graph showing the percentage of surface oriented particles over time from March 10 to April 7, 2026, injected on March 17, 2026 at DSM2 Node 350 (Cache Slough), under OMR Scenario -3,500. Upstream of Decker (pink) rises to near 75% by March 20 and stabilizes around 82%, Past Chipps (black) climbs gradually to roughly 93% by early April, and Unresolved in Central Delta (yellow) peaks near 100% before declining to approximately 8% by the end of the period.

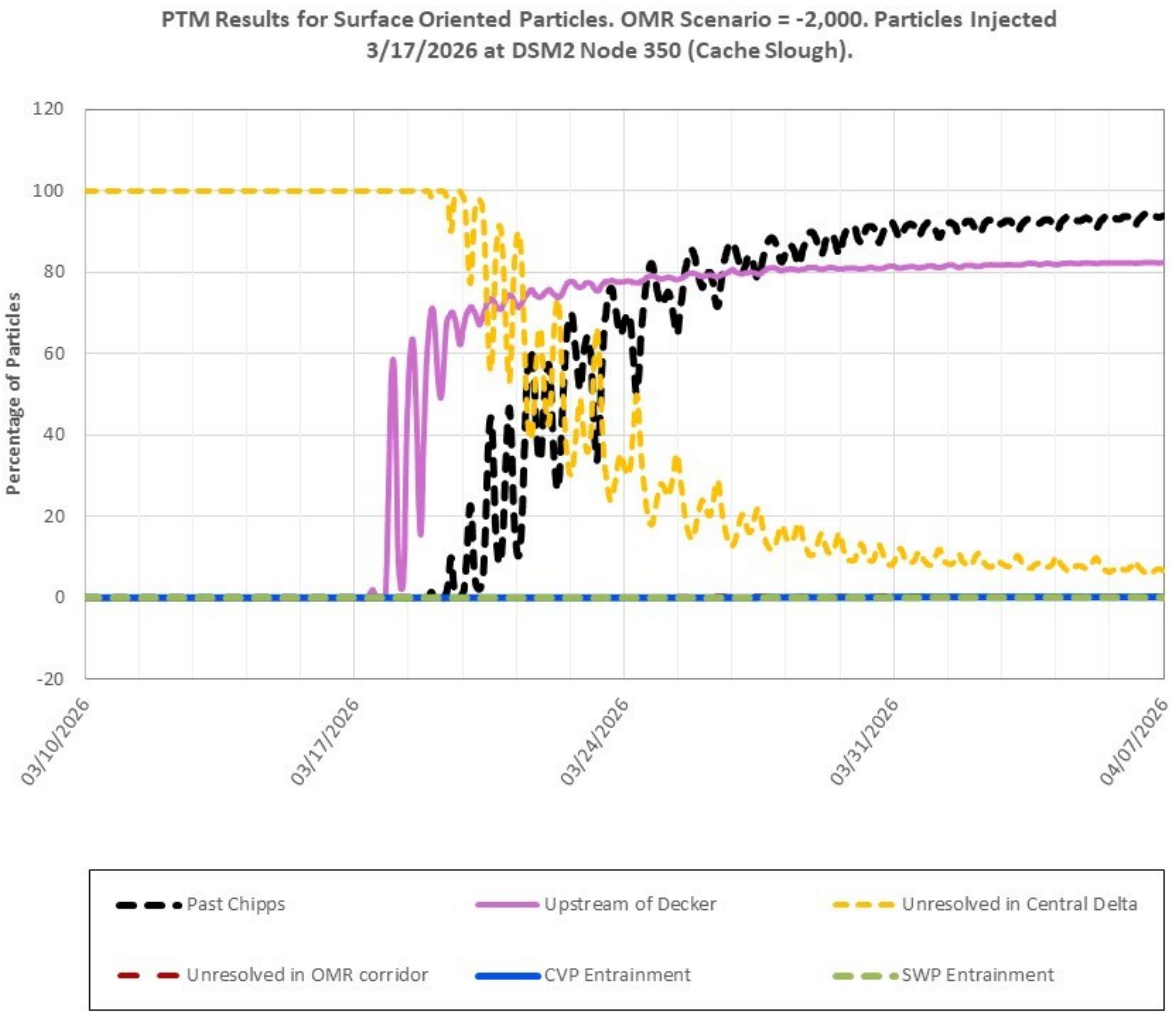

Figure 29: PTM Results for Surface Oriented Particles at Cache Slough Confluence, OMR Scenario -2,000

Figure 29 is a line graph showing the percentage of surface oriented particles over time from March 10 to April 7, 2026, injected on March 17, 2026 at DSM2 Node 350 (Cache Slough), under OMR Scenario -2,000. Upstream of Decker (pink) rises to near 75% by March 20 and stabilizes around 82%, Past Chipps (black) climbs gradually to roughly 95% by early April, and Unresolved in Central Delta (yellow) peaks near 100% before declining to approximately 7% by the end of the period.

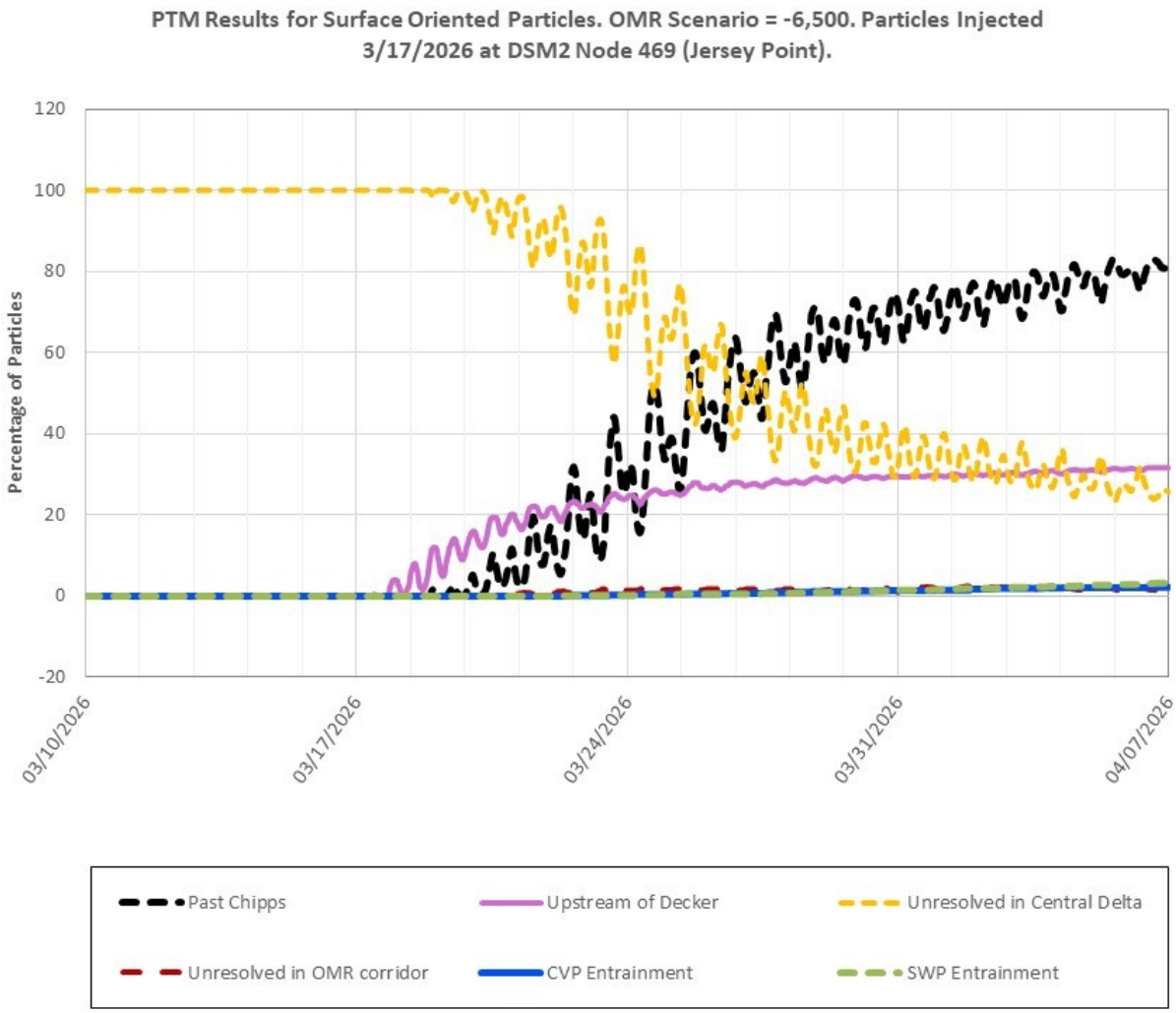

Figure 30: PTM Results for Surface Oriented Particles at Jersey Point, OMR Scenario -6,500

Figure 30 is a line graph showing the percentage of surface oriented particles over time from March 10 to April 7, 2026, injected on March 17, 2026 at DSM2 Node 469 (Jersey Point), under OMR Scenario -6,500. Unresolved in Central Delta (yellow) begins near 100% and declines gradually to approximately 25% by early April, Past Chipps (black) rises steadily from around March 22 to roughly 80% by early April, and Upstream of Decker (pink) climbs gradually to approximately 30% by the end of the period.

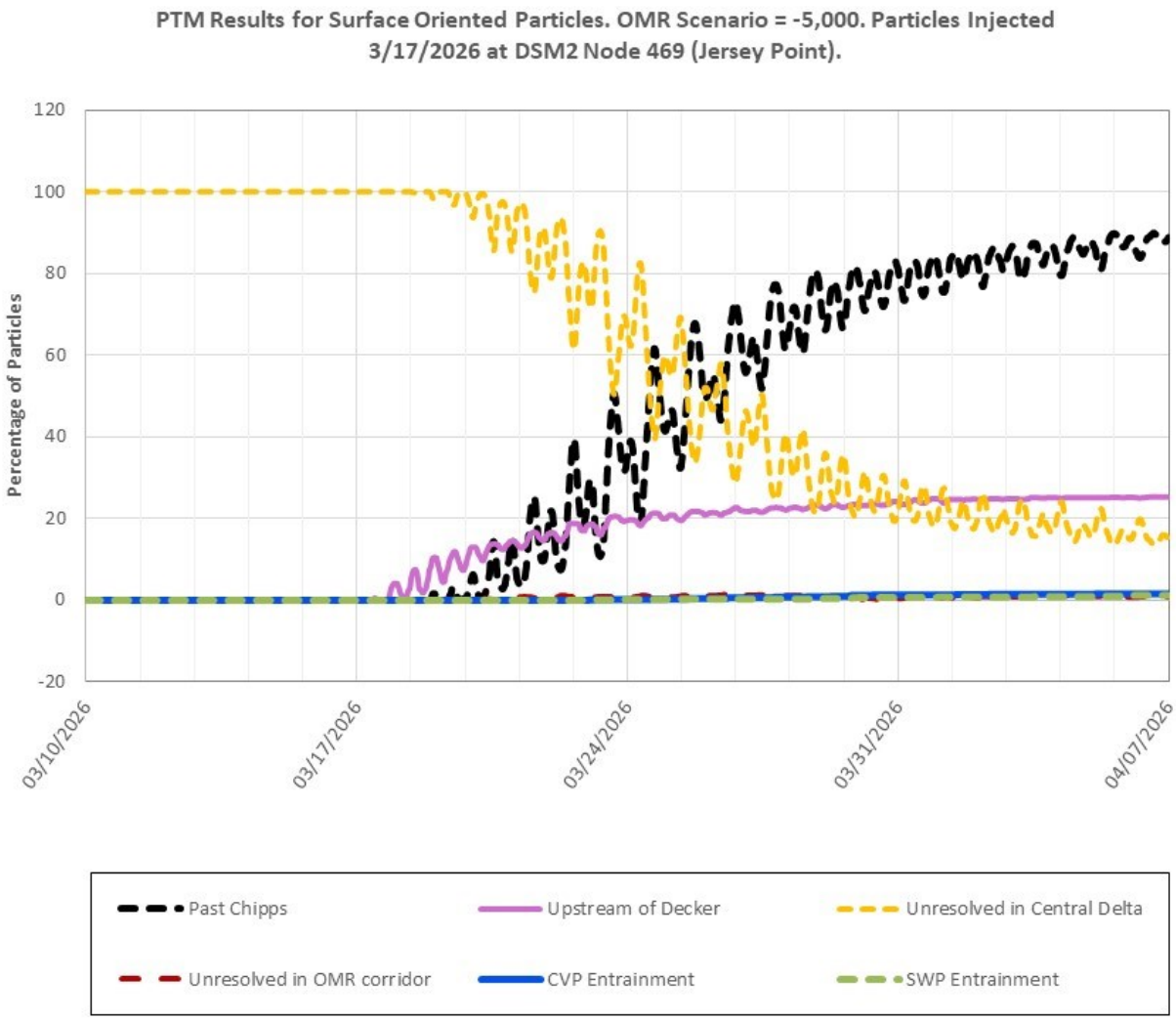

Figure 31: PTM Results for Surface Oriented Particles at Jersey Point, OMR Scenario -5,000

Figure 31 is a line graph showing the percentage of surface oriented particles over time from March 10 to April 7, 2026, injected on March 17, 2026 at DSM2 Node 469 (Jersey Point), under OMR Scenario -5,000. Unresolved in Central Delta (yellow) begins near 100% and declines gradually to approximately 15% by early April, Past Chipps (black) rises steadily from around March 22 to roughly 90% by early April, and Upstream of Decker (pink) climbs gradually to approximately 25% by the end of the period.

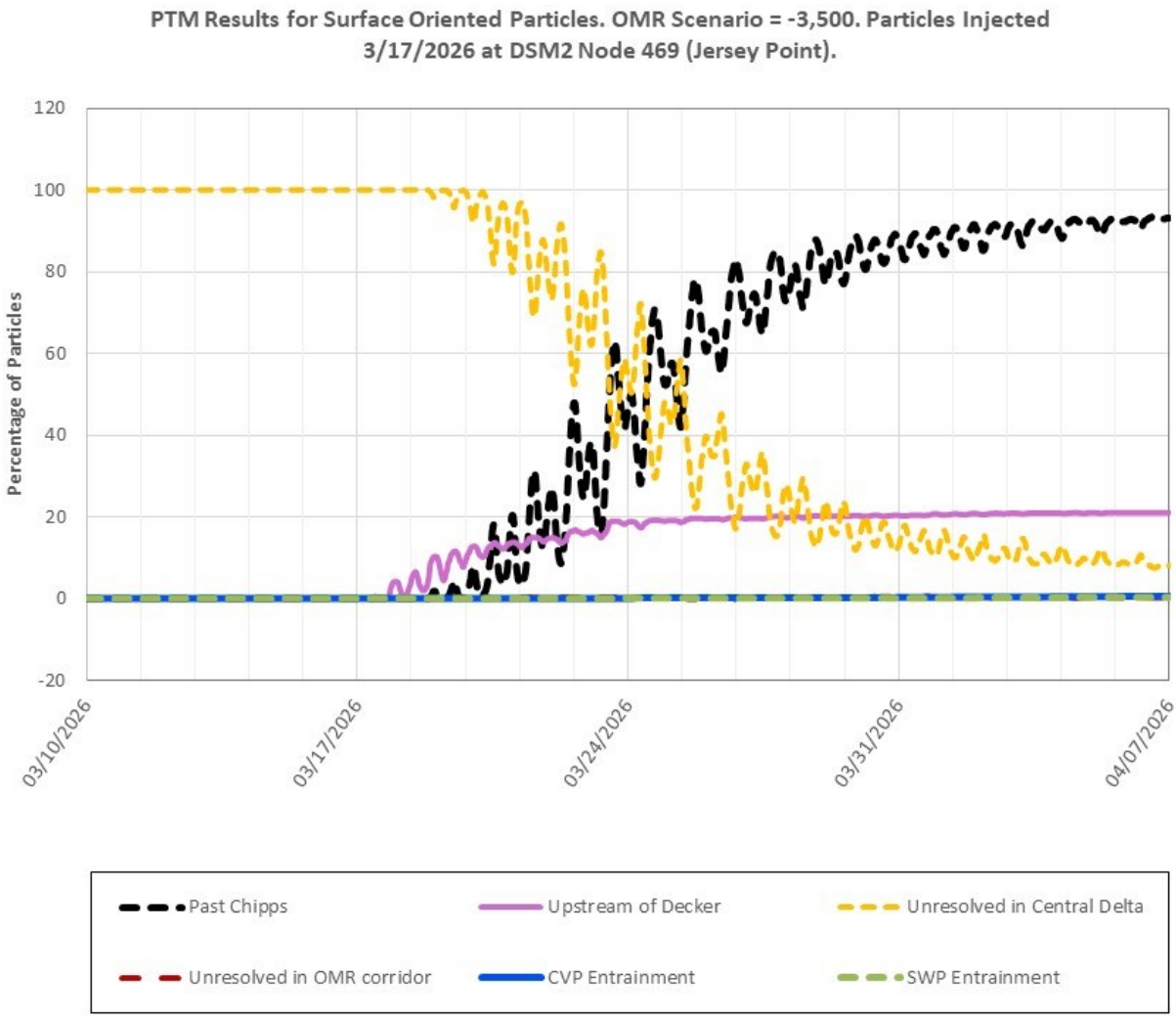

Figure 32: PTM Results for Surface Oriented Particles at Jersey Point, OMR Scenario -3,500

Figure 32 is a line graph showing the percentage of surface oriented particles over time from March 10 to April 7, 2026, injected on March 17, 2026 at DSM2 Node 469 (Jersey Point), under OMR Scenario -3,500. Unresolved in Central Delta (yellow) begins near 100% and declines gradually to approximately 10% by early April, Past Chipps (black) rises steadily from around March 20 to roughly 93% by early April, and Upstream of Decker (pink) climbs gradually to approximately 20% by the end of the period.

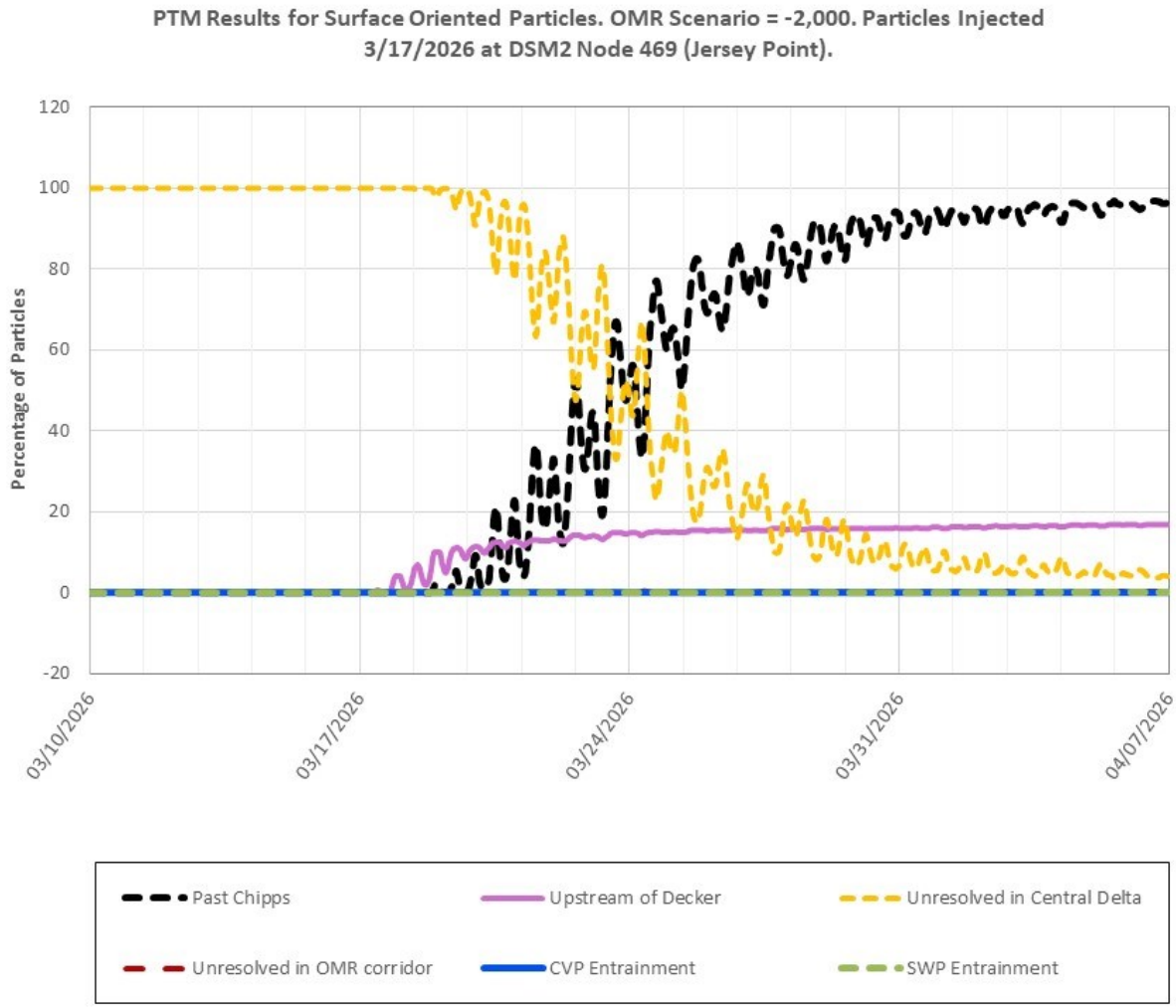

Figure 33: PTM Results for Surface Oriented Particles at Jersey Point, OMR Scenario -2,000

Figure 33 is a line graph showing the percentage of surface oriented particles over time from March 10 to April 7, 2026, injected on March 17, 2026 at DSM2 Node 469 (Jersey Point), under OMR Scenario -2,000. Unresolved in Central Delta (yellow) begins near 100% and declines gradually to approximately 5% by early April, Past Chipps (black) rises steadily from around March 20 to roughly 97% by early April, and Upstream of Decker (pink) climbs gradually to approximately 16% by the end of the period.

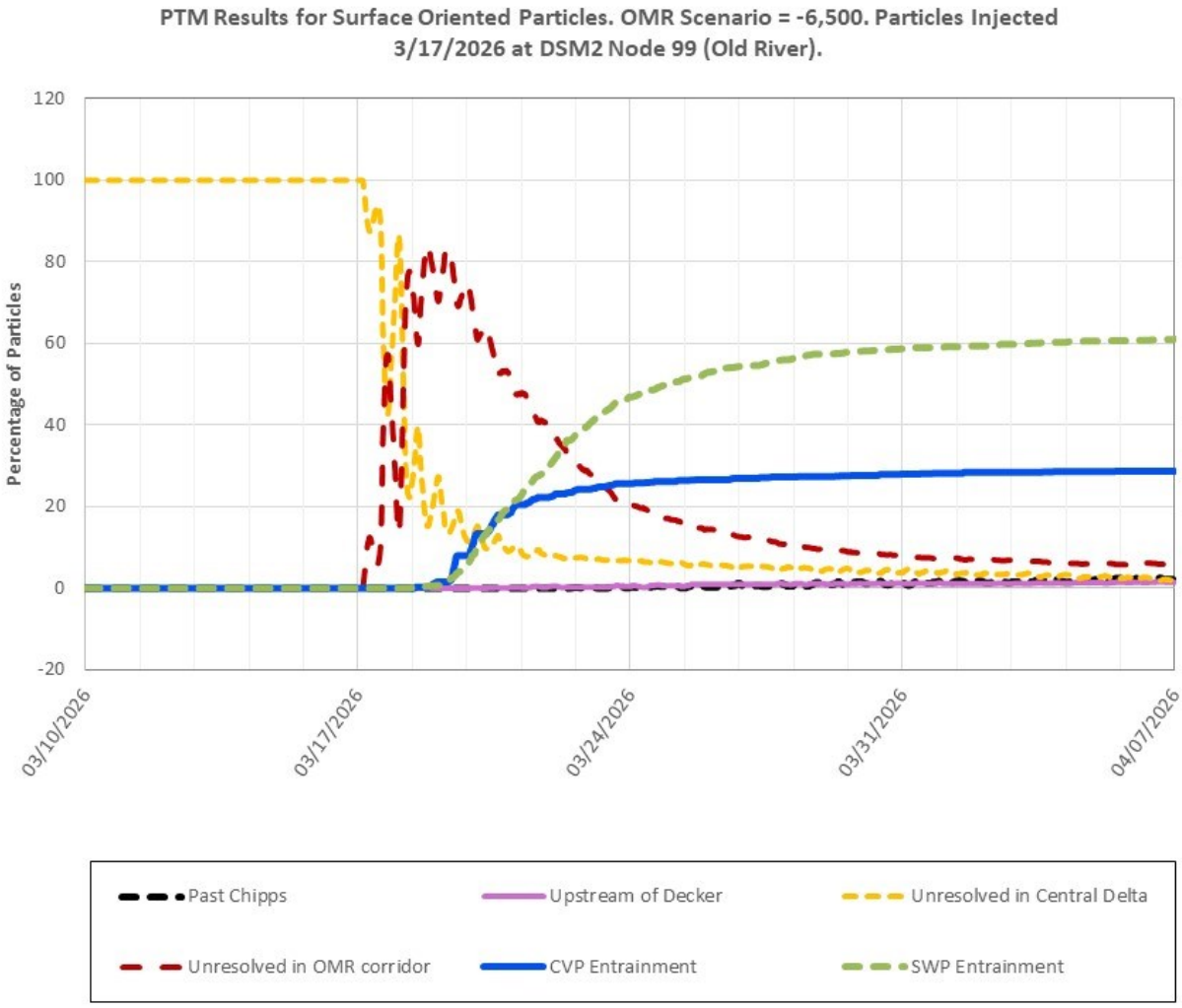

Figure 34: PTM Results for Surface Oriented Particles at Old River, OMR Scenario -6,250

Figure 34 is a line graph showing the percentage of surface oriented particles over time from March 10 to April 7, 2026, injected on March 17, 2026 at DSM2 Node 99 (Old River), under OMR Scenario -6,500. Unresolved in Central Delta (yellow) begins near 100% and declines rapidly to approximately 5% by March 24, Unresolved in OMR corridor (red) peaks near 80% around March 19 before declining to approximately 5% by early April, SWP Entrainment (green) rises steadily from March 22 to roughly 62% by early April, and CVP Entrainment (blue) stabilizes at approximately 28% by March 24 and remains steady through the end of the period.

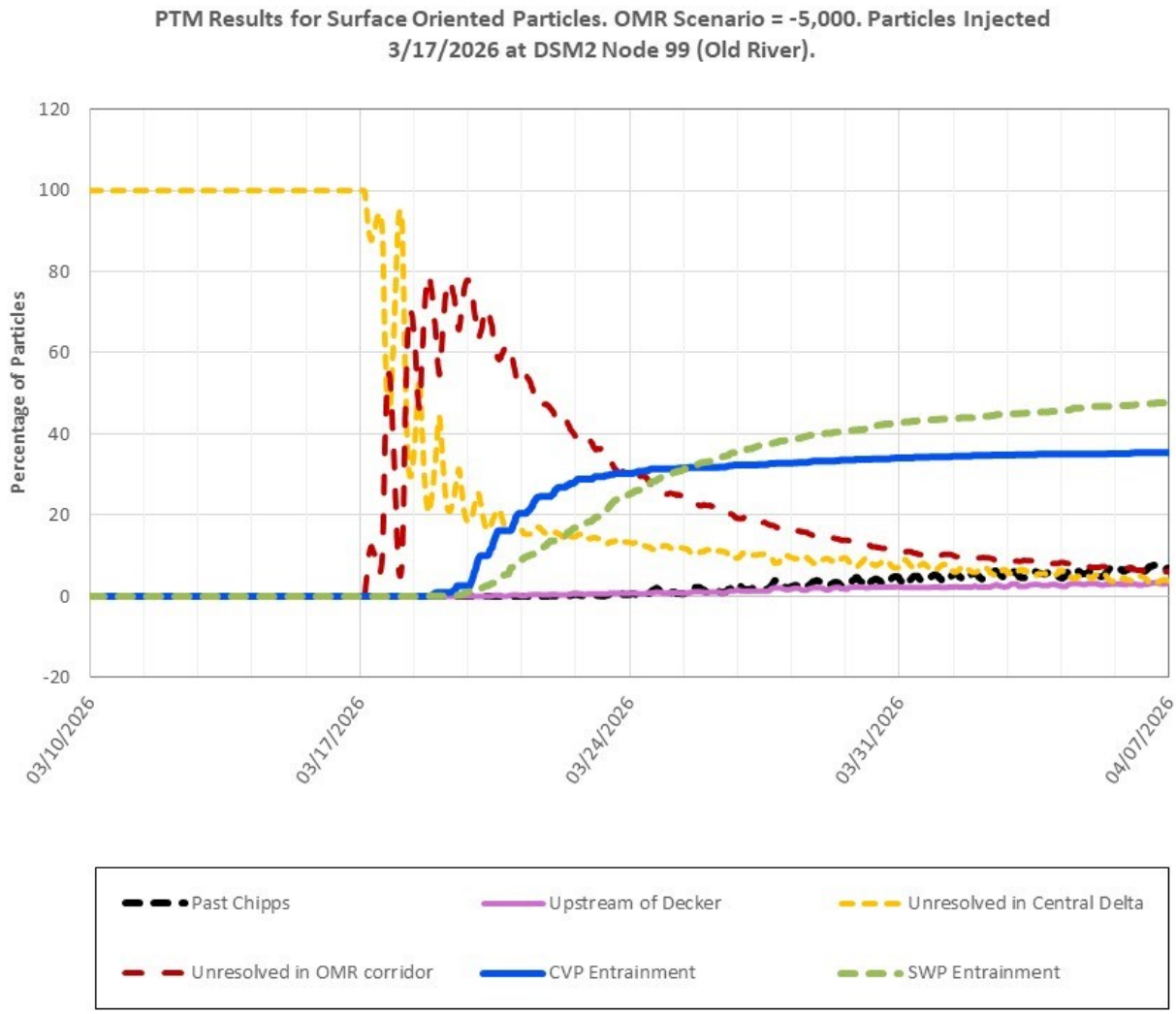

Figure 35: PTM Results for Surface Oriented Particles at Old River, OMR Scenario -5,000

Figure 35 is a line graph showing the percentage of surface oriented particles over time from March 10 to April 7, 2026, injected on March 17, 2026 at DSM2 Node 99 (Old River), under OMR Scenario -5,000. Unresolved in Central Delta (yellow) begins near 100% and declines rapidly to approximately 5% by March 24, Unresolved in OMR corridor (red) peaks near 80% around March 19 before declining to approximately 5% by early April, CVP Entrainment (blue) rises steadily to approximately 35% by March 24 and remains stable through the end of the period, and SWP Entrainment (green) climbs gradually to roughly 48% by early April.

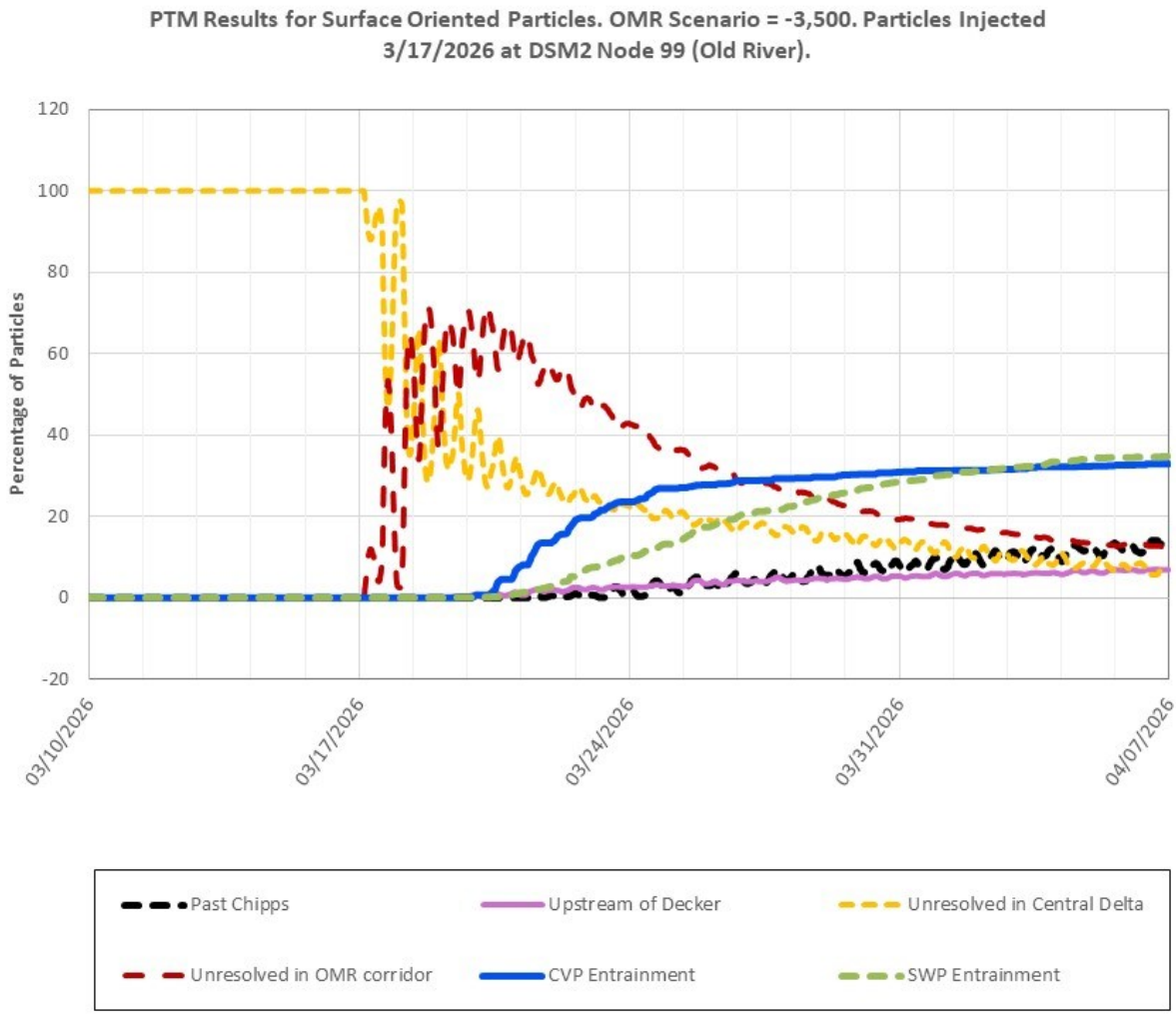

Figure 36: PTM Results for Surface Oriented Particles at Old River, OMR Scenario -3,500

Figure 36 is a line graph showing the percentage of surface oriented particles over time from March 10 to April 7, 2026, injected on March 17, 2026 at DSM2 Nod...Figure 35 is a line graph showing the percentage of surface oriented particles over time from March 10 to April 7, 2026, injected on March 17, 2026 at DSM2 Node 99 (Old River), under OMR Scenario -3,500. Unresolved in Central Delta (yellow) begins near 100% and declines rapidly to approximately 5% by March 24, Unresolved in OMR corridor (red) peaks near 70% around March 19 before declining to approximately 5% by early April, CVP Entrainment (blue) rises steadily to approximately 33% by early April, and SWP Entrainment (green) climbs gradually to roughly 33% by early April, with Past Chipps (black) and Upstream of Decker (pink) rising modestly to approximately 13% and 5% respectively by the end of the period.

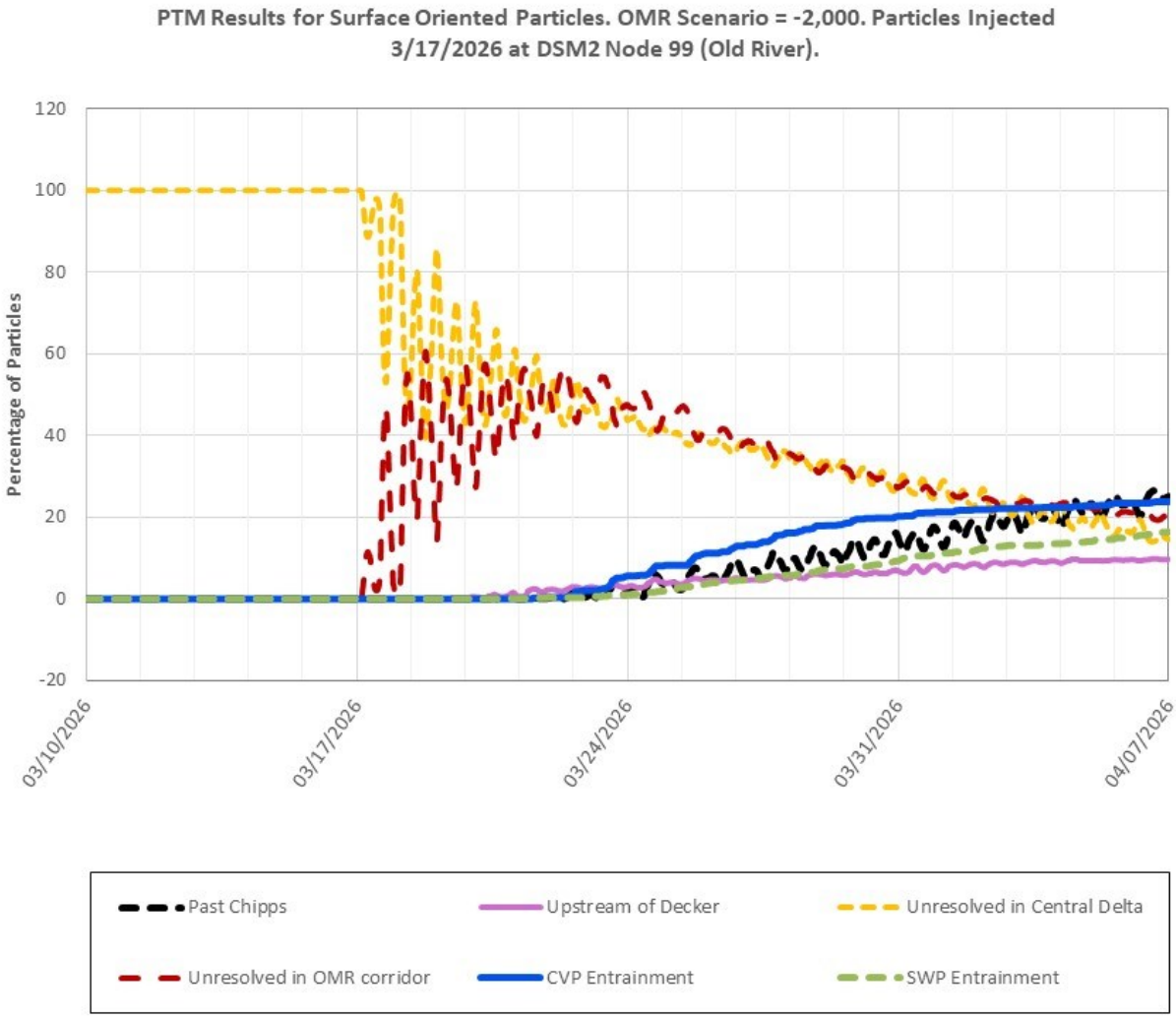

Figure 37: PTM Results for Surface Oriented Particles at Old River, OMR Scenario -2,000

Figure 37 is a line graph showing the percentage of surface oriented particles over time from March 10 to April 7, 2026, injected on March 17, 2026 at DSM2 Node 99 (Old River), under OMR Scenario -2,000. Unresolved in Central Delta (yellow) begins near 100% and declines gradually to approximately 25% by early April, Unresolved in OMR corridor (red) peaks near 60% around March 19 before declining to approximately 25% by early April, while CVP Entrainment (blue), SWP Entrainment (green), Past Chipps (black), and Upstream of Decker (pink) all rise modestly and converge near 10-25% by the end of the period.

ECO-PTM (Ecological Particle Tracking Model)

ECO-PTM Results Evaluation Period: 03/17/2026 – 04/06/2026
Particles Injected: 03/17/2026
Injection Location: Sacramento River at Freeport

Table 12. Salmon Particle Route Ratio After 3 Weeks (Ending 04/06/2026)

OMR Flow Bin	Sutter Slough Route	Steamboat Slough Route	Sacramento River (SS) Route	Sacramento River (GEO) Route	Georgiana Slough Route
-6,500	0.12	0.18	0.70	0.71	0.29
-5,000	0.12	0.17	0.70	0.70	0.30
-3,500	0.13	0.16	0.71	0.71	0.29
-2,000	0.13	0.18	0.69	0.72	0.28

Table 13. Salmon Particle Route-Specific Survival After 3 Weeks (Ending 04/06/2026)

OMR Flow Bin	Sutter Slough Route	Steamboat Slough Route	Sacramento River (SS) Route	Sacramento River (GEO) Route	Georgiana Slough Route
-6,500	51%	58%	53%	25%	48%
-5,000	49%	57%	51%	26%	47%
-3,500	50%	57%	52%	25%	47%
-2,000	50%	58%	52%	26%	48%

Notes:

- 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).

Longfin Smelt Larval Population and PTM Analysis

PTM Results Evaluation Period: 03/17/2026 – 04/06/2026
Particles Injected: 03/17/2026
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. 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 identified on the map below.

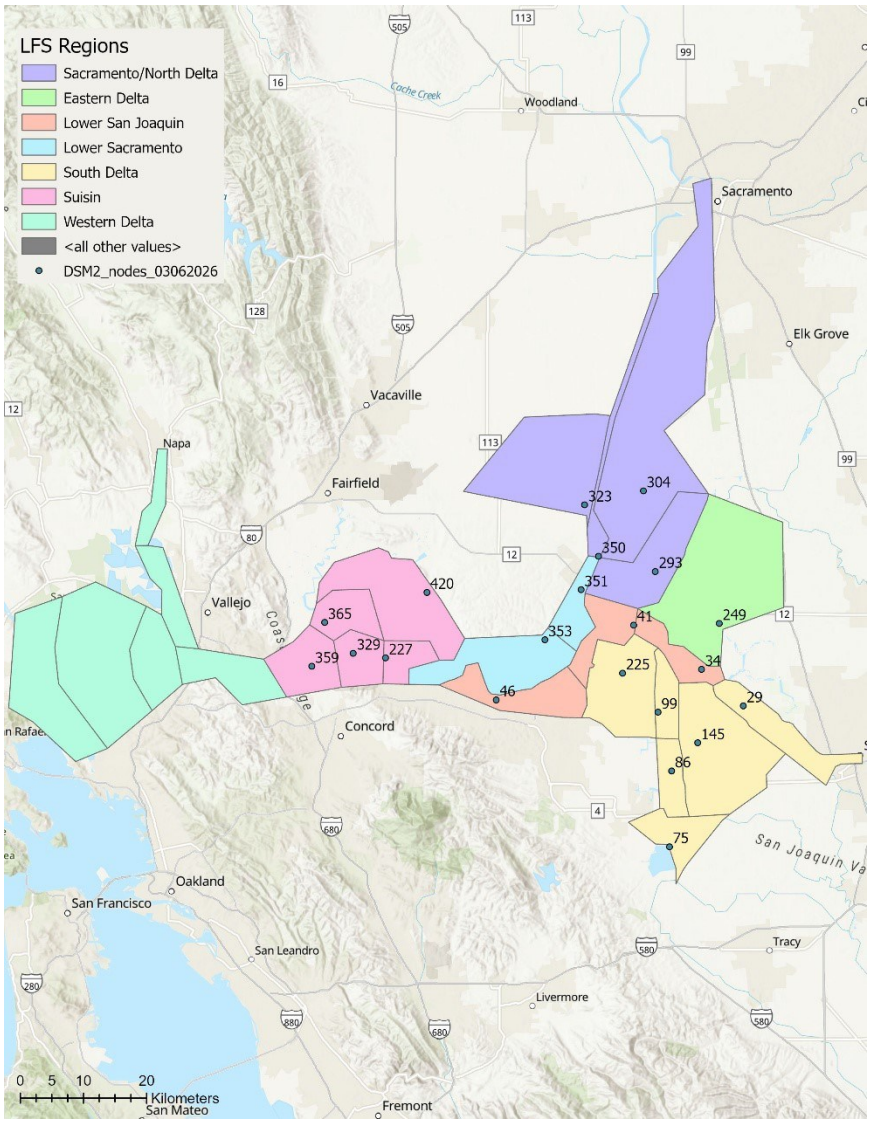

Figure 38: DSM2 PTM Regions in the Sacramento-San Joaquin Delta

Figure 37 is a map of the Sacramento-San Joaquin Delta showing the seven DSM2 PTM regions — Sacramento/North Delta, Eastern Delta, Lower San Joaquin, Lower Sacramento, South Delta, Suisun, and Western Delta — each distinguished by a different color. DSM2 channels and node locations are also displayed, with node numbers labeled throughout the map.

Notes:

- EDSM subregions and their corresponding injection node are shown in the figure below.
- 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.

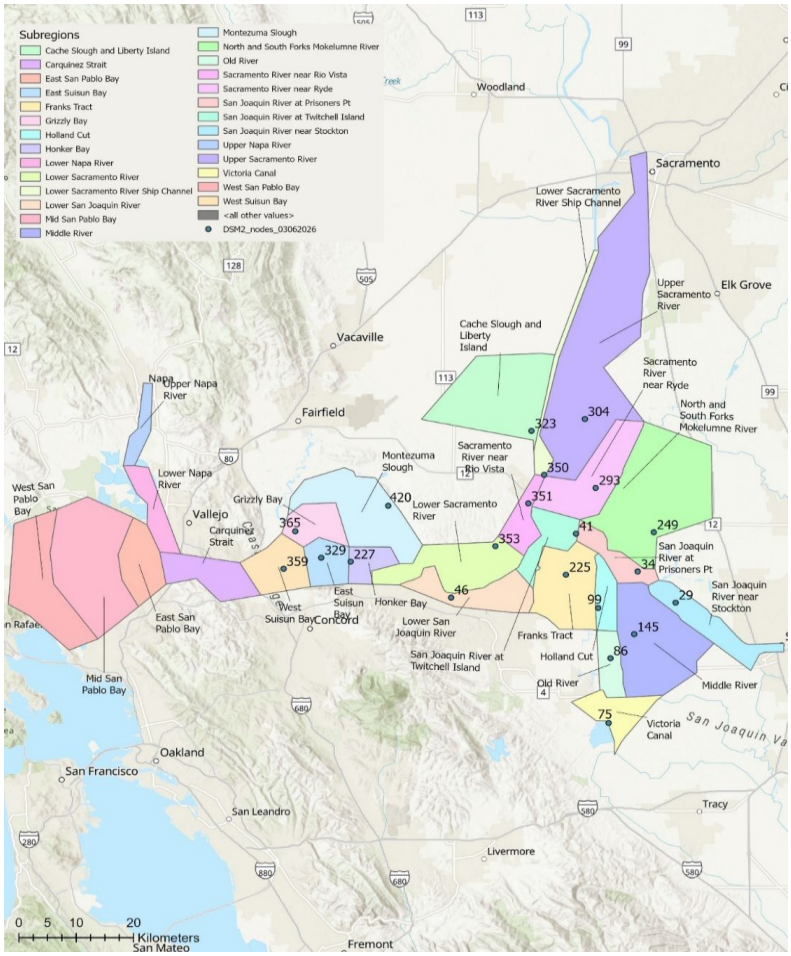

Figure 39: EDSM Subregions and DSM2 Node Locations in the Sacramento-San Joaquin Delta

Figure 39 is a map of the Sacramento-San Joaquin Delta showing the 27 EDSM program subregions, each distinguished by a different color, spanning waterways from the Upper Sacramento River and North Delta down through the South Delta, Suisun Marsh, and San Pablo Bay. DSM2 node locations are displayed throughout the map with node numbers labeled, representing the injection points used to estimate cumulative particle flux into CVP and SWP facilities for each corresponding subregion. The map reflects node locations as of March 6, 2026.

Notes:

- Regional and Delta-wide longfin smelt (LFS) larval population is estimated using SLS survey data from Survey 5 (2/23/2026-2/25/2026) and volumetric expansion methods developed by the SixAgency Monitoring Survey Design Team. The percent of samples processed as of 03/17/2026 for each survey is shown in the table below. Results from Survey 5 are used because no catch data from the Western Delta or Suisun regions from Survey 6 have been processed, and these areas have over the past few surveys contained the highest LFS abundance. Using abundance data from Survey 6 would likely significantly overestimate proportional entrainment for this week.

Table 14: Percent Coverage of LFS Regions by SLS Survey Date

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%	86%	100%	100%	100%	100%	100%
5	2/23/2026	100%	57%	100%	100%	100%	89%	40%
6	3/9/2026	0%	0%	57%	33%	100%	0%	0%

Table 15: DSM2 Injection Node Assignments by 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

DSM2 Injection Node	EDSM Subregion	LFS Region
145	Middle River	South Delta
75	Victoria Canal	South Delta

Table 16: LFS Entrainment Estimate using PTM with Surface Oriented Particles: Week 1 ending 03/23/2026

OMR (cfs)	Combined Exports (cfs)	Region Metric	West	Suisun	Sacra-mento/ North Delta	Lower San Joaquin	Lower Sacra-mento	South Delta	East	Total (#)	Total (%)
N/A	N/A	LFS Larva Abundance (Survey 5: 2/23/2026)	92,127,619	110,331,533	914,595	4,403,423	14,782,703	0	0	225,559,873	0
-6,500	9,274	PTM Entrained (%)	0.0	0.0	0.0	0.2	<0.1	0.0	0.0	N/A	N/A
-5,000	7,614	PTM Entrained (%)	0.0	0.0	0.0	<0.1	0.0	0.0	0.0	N/A	N/A
-3,500	5,968	PTM Entrained (%)	0.0	0.0	0.0	<0.1	0.0	0.0	0.0	N/A	N/A
-2,000	4,350	PTM Entrained (%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	N/A	N/A
-6,500	9,274	LFS Larva Entrained (#)	0	0	0	10,314	1,615	0	0	11,929	<0.1%
-5,000	7,614	LFS Larva Entrained (#)	0	0	0	1,719	0	0	0	1,719	<0.1%
-3,500	5,968	LFS Larva Entrained (#)	0	0	0	859	0	0	0	859	<0.1%
-2,000	4,350	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

Table 16: LFS Entrainment Estimate using PTM with Surface Oriented Particles: Week 2 ending 03/30/2026

OMR (cfs)	Combined Exports (cfs)	Region Metric	West	Suisun	Sacra-mento/ North Delta	Lower San Joaquin	Lower Sacra-mento	South Delta	East	Total (#)	Total (%)
N/A	N/A	LFS Larva Abundance (Survey 5: 2/23/2026)	92,127,619	110,331,533	914,595	4,403,423	14,782,703	0	0	225,559,873	0
-6,500	9,059	PTM Entrained (%)	0.0	0.0	0.0	2.4	0.2	0.0	0.0	N/A	N/A
-5,000	7,385	PTM Entrained (%)	0.0	0.0	0.0	1.5	0.2	0.0	0.0	N/A	N/A
-3,500	5,753	PTM Entrained (%)	0.0	0.0	0.0	0.5	<0.1	0.0	0.0	N/A	N/A
-2,000	4,136	PTM Entrained (%)	0.0	0.0	0.0	<0.1	0.0	0.0	0.0	N/A	N/A
-6,500	9,059	LFS Larva Entrained (#)	0	0	7,317	104,854	22,858	0	0	135,029	<0.1%
-5,000	7,385	LFS Larva Entrained (#)	0	0	6,402	67,038	32,796	0	0	106,236	<0.1%
-3,500	5,753	LFS Larva Entrained (#)	0	0	1,829	23,312	13,168	0	0	38,308	<0.1%
-2,000	4,136	LFS Larva Entrained (#)	0	0	0	3,438	0	0	0	3,438	<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

Table 17: LFS Entrainment Estimate using PTM with Surface Oriented Particles: Week 3 ending 04/06/2026

OMR (cfs)	Combined Exports (cfs)	Region Metric	West	Suisun	Sacra-mento/ North Delta	Lower San Joaquin	Lower Sacra-mento	South Delta	East	Total (#)	Total (%)
N/A	N/A	LFS Larva Abundance (Survey 5: 2/23/2026)	92,127,619	110,331,533	914,595	4,403,423	14,782,703	0	0	225,559,873	0
-6,500	9,016	PTM Entrained (%)	0.0	0.0	1.7	5.4	0.8	0.0	0.0	N/A	N/A
-5,000	7,313	PTM Entrained (%)	0.0	0.0	1.3	3.4	0.2	0.0	0.0	N/A	N/A
-3,500	5,710	PTM Entrained (%)	0.0	0.0	0.3	1.3	0.2	0.0	0.0	N/A	N/A
-2,000	4,107	PTM Entrained (%)	0.0	0.0	0.1	0.3	0.0	0.0	0.0	N/A	N/A
-6,500	9,016	LFS Larva Entrained (#)	0	0	15,548	239,248	119,630	0	0	374,426	0.2%
-5,000	7,313	LFS Larva Entrained (#)	0	0	11,890	147,933	34,411	0	0	194,234	<0.1%
-3,500	5,710	LFS Larva Entrained (#)	0	0	2,744	57,690	31,181	0	0	91,614	<0.1%
-2,000	4,107	LFS Larva Entrained (#)	0	0	915	14,611	0	0	0	15,525	<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

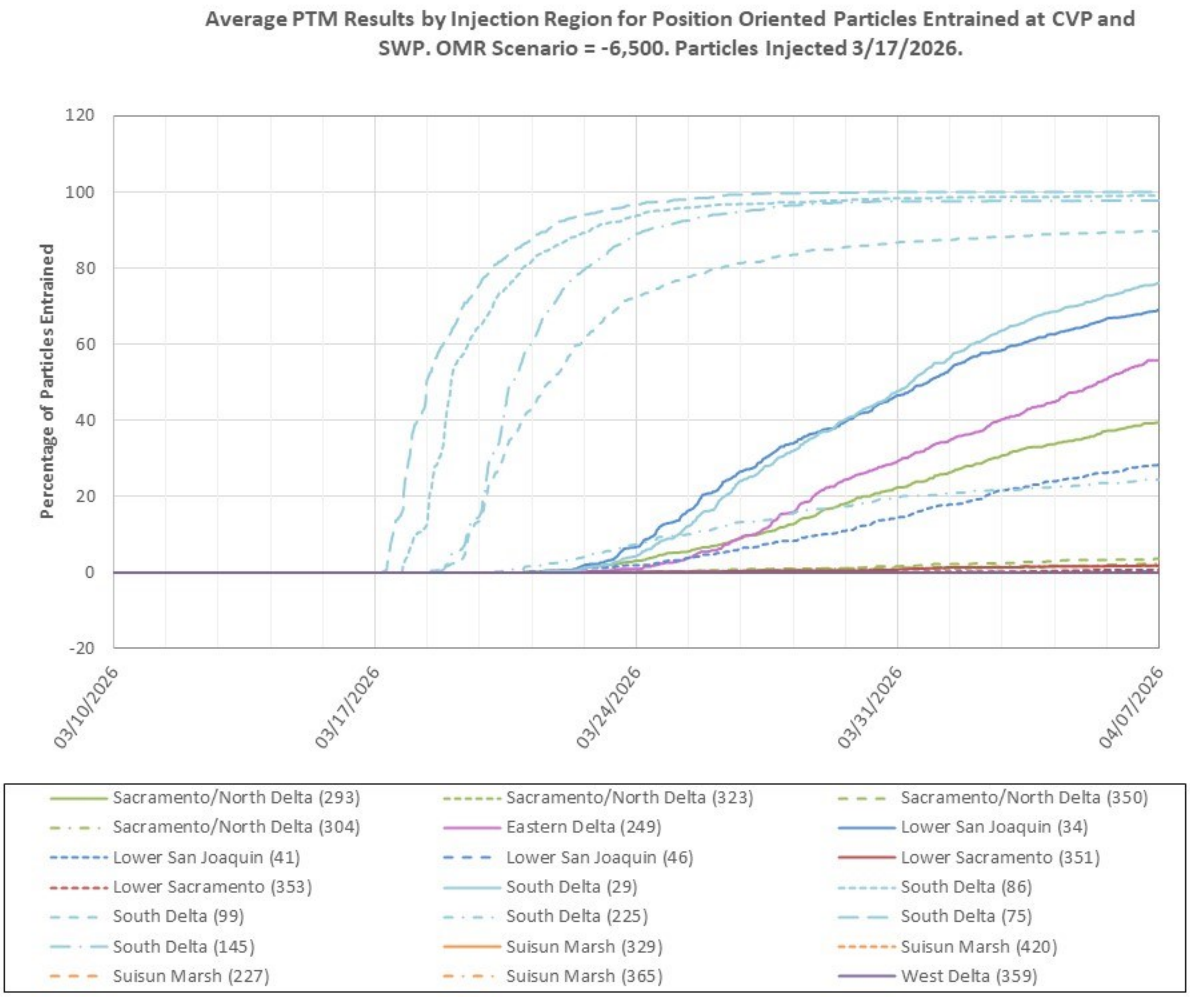

Figure 40: Average PTM Results by Injection Region for Position Oriented Particles Entrained at CVP and SWP, OMR Scenario -6,250

Figure 40 is a line graph showing the average cumulative percentage of position oriented particles entrained at CVP and SWP facilities from March 10 to April 7, 2026, injected on March 17, 2026 under OMR Scenario -6,500, across 20 injection nodes representing seven regions. South Delta nodes show the highest entrainment, with nodes 29, 86, and 75 reaching near 100% by late March, while Lower San Joaquin and Eastern Delta nodes show moderate entrainment of 30–75% by early April. Sacramento/North Delta nodes reach approximately 5–40%, while Lower Sacramento, Suisun Marsh, and West Delta nodes remain near zero throughout the period.

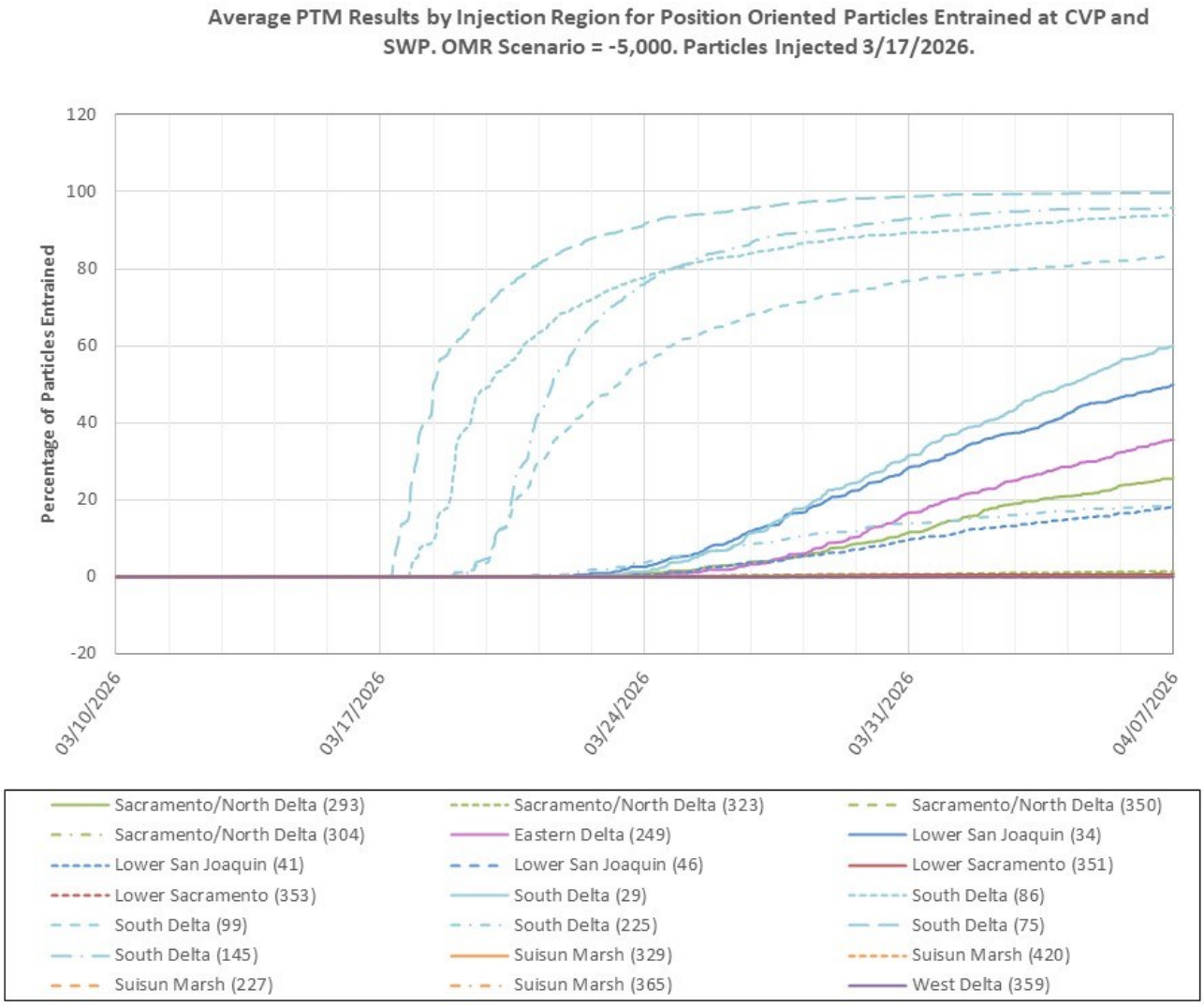

Figure 41: Average PTM Results by Injection Region for Position Oriented Particles Entrained at CVP and SWP, OMR Scenario -5,000

Figure 41 is a line graph showing the average cumulative percentage of position oriented particles entrained at CVP and SWP facilities from March 10 to April 7, 2026, injected on March 17, 2026 under OMR Scenario -5,000, across 20 injection nodes representing seven regions. South Delta nodes show the highest entrainment, with nodes 29, 86, and 75 reaching near 95-100% by early April, while Lower San Joaquin and Eastern Delta nodes show moderate entrainment of 18–60% by early April. Sacramento/North Delta nodes reach approximately 5–25%, while Lower Sacramento, Suisun Marsh, and West Delta nodes remain near zero throughout the period.

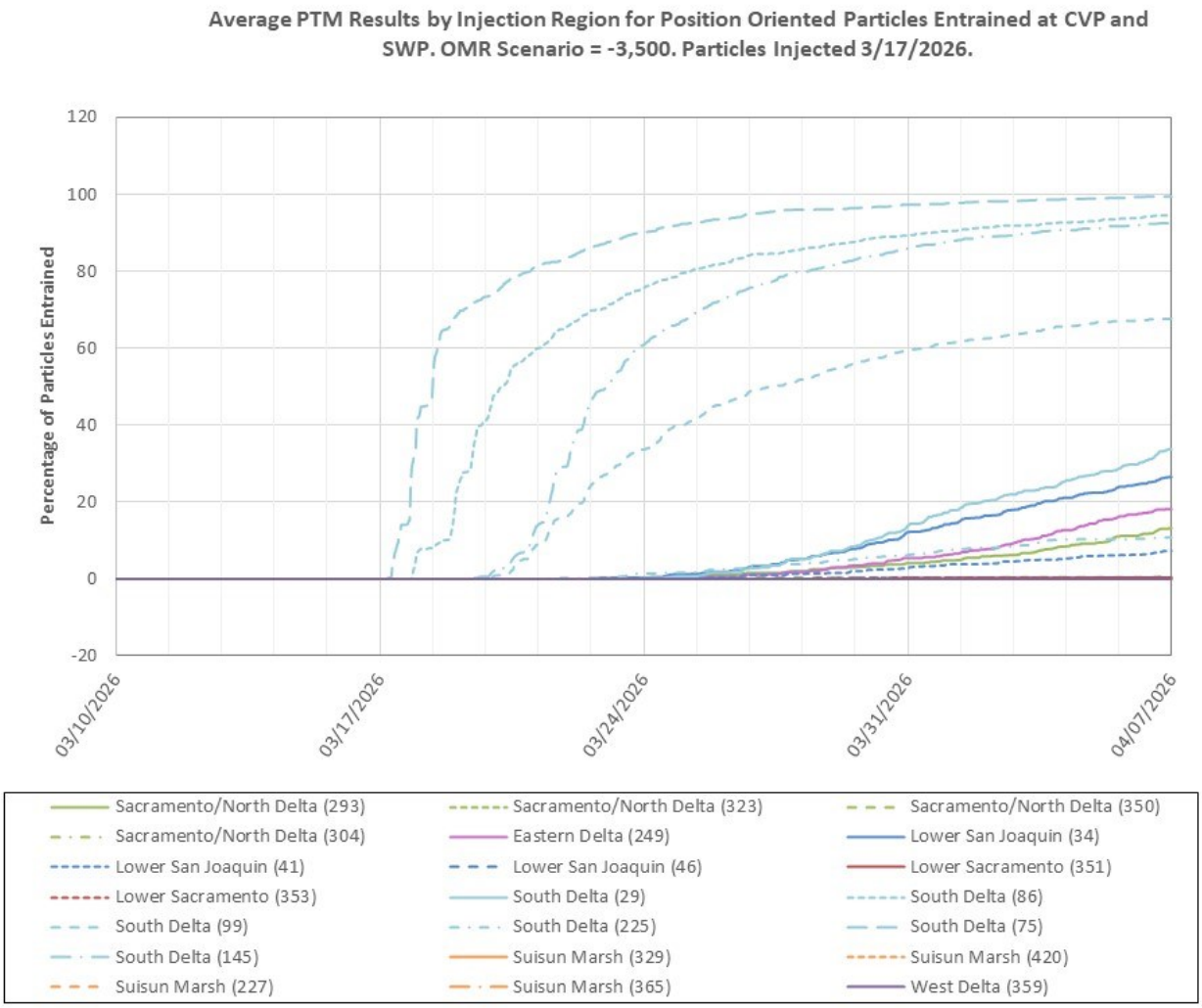

Figure 42: Average PTM Results by Injection Region for Position Oriented Particles Entrained at CVP and SWP, OMR Scenario -3,500

Figure 42 is a line graph showing the average cumulative percentage of position oriented particles entrained at CVP and SWP facilities from March 10 to April 7…Figure 41 is a line graph showing the average cumulative percentage of position oriented particles entrained at CVP and SWP facilities from March 10 to April 7, 2026, injected on March 17, 2026 under OMR Scenario -3,500, across 20 injection nodes representing seven regions. South Delta nodes show the highest entrainment, with nodes 29, 86, and 75 reaching 65–100% by early April, while Lower San Joaquin and Eastern Delta nodes show moderate entrainment of 15–30% by early April. Sacramento/North Delta nodes reach approximately 5–13%, while Lower Sacramento, Suisun Marsh, and West Delta nodes remain near zero throughout the period.

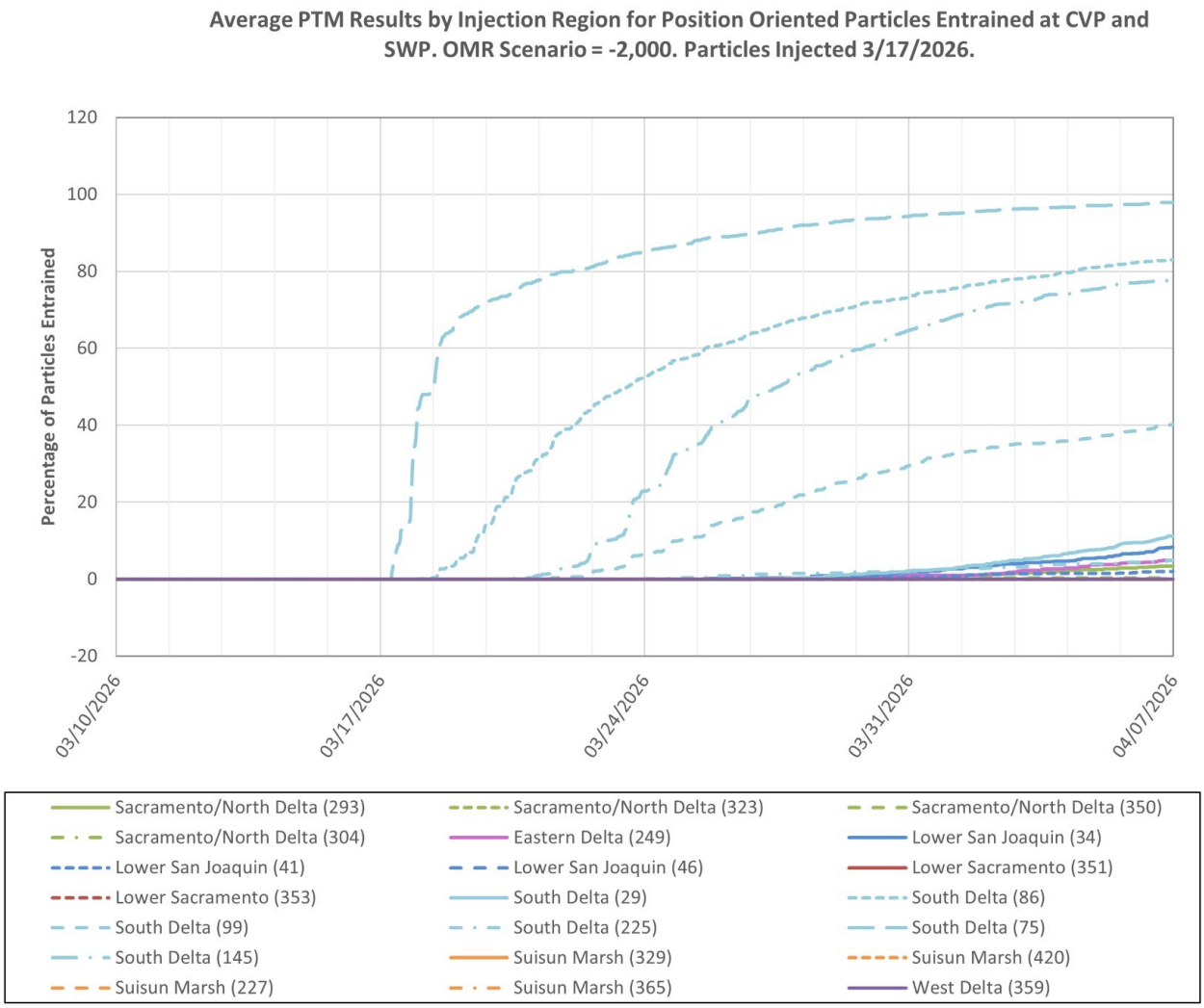

Figure 43: Average PTM Results by Injection Region for Position Oriented Particles Entrained at CVP and SWP, OMR Scenario -2,000

Figure 43 is a line graph showing the average cumulative percentage of position oriented particles entrained at CVP and SWP facilities from March 10 to April 7…Figure 42 is a line graph showing the average cumulative percentage of position oriented particles entrained at CVP and SWP facilities from March 10 to April 7, 2026, injected on March 17, 2026 under OMR Scenario -2,000, across 20 injection nodes representing seven regions. South Delta nodes show the highest entrainment, with nodes 29, 86, and 75 reaching 78–99% by early April, while Lower San Joaquin, Eastern Delta, Sacramento/North Delta, and Lower Sacramento nodes all remain below 10% by early April. Suisun Marsh and West Delta nodes remain near zero throughout the period.