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 16, 2026 at 8 AM

Executive Summary

ESA and CESA-listed Salmonids

- Entrainment management season is active.
- Annual Loss: 43 (0.41 % of annual loss threshold) natural winter-run, 58 (4.46 % of annual loss threshold) hatchery winter-run, 208 natural steelhead, 1315 (21.54% of annual loss threshold) hatchery steelhead, and 1058 (48.12% of annual loss threshold) spring-run surrogates.
- Single-year Incidental Take Limit (ITL) Status: 4 (0.07% of 5,922 ITL) natural winter-run; 33 (2.54% of 1,301 ITL) hatchery winter-run; 208 (3.93% 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 23,531 and 4,883 cfs respectively. Most recent Jersey Point Flow (JPF) is NA cfs. Most recent 1-day, 5-day, and 14-day OMRI measurements were -4,904, -4,948, 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.

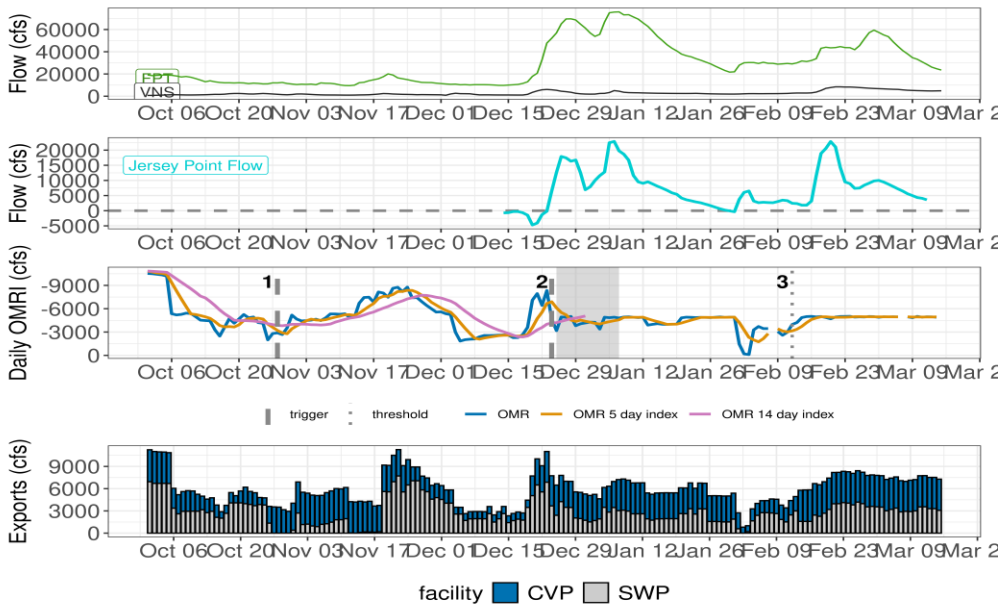

Figure 1: Operations and Action Summary, WY 2026. The numbers and lines in the OMRI plot indicate different triggers and thresholds (see Table 1), with shading representing specific action periods. Dashed and dotted vertical lines represent triggered actions and thresholds, respectively. OMRI data (colored 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 showing hydrologic and operational conditions for Water Year 2026. The first two are line charts showing flow (cfs) at Freeport (FPT) and Vernalis (VNS), and Jersey Point flow (cfs). The third graph is a line chart showing daily OMRI (cfs), including OMR, OMR 5-day index, and OMR 14-day index, with shaded regions indicating action periods and vertical lines indicating triggers and thresholds. The fourth graph is a bar chart showing exports (cfs) through the Central Valley Project (CVP) and State Water Project (SWP) facilities. The x-axis for all graphs spans October through early March.

Table 1: Summary of Actions and Triggers, WY 2026

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

Zone of Influence

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

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

The altered channel length for the current "medhi" hydrology is 55, 92 and 153 kilometers (km) across OMR bins of -2000, -3500 and -5000 respectively. The altered channel length for forecasted "medhi" hydrology is 55, 92 and 153 kilometers (km) across OMR bins of -2000, -3500 and -5000 respectively.

Change in altered channel length between OMR levels is 98 km for current conditions and 98 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 moderate (between 25th and 75th percentiles) for both current and forecasted hydrology.

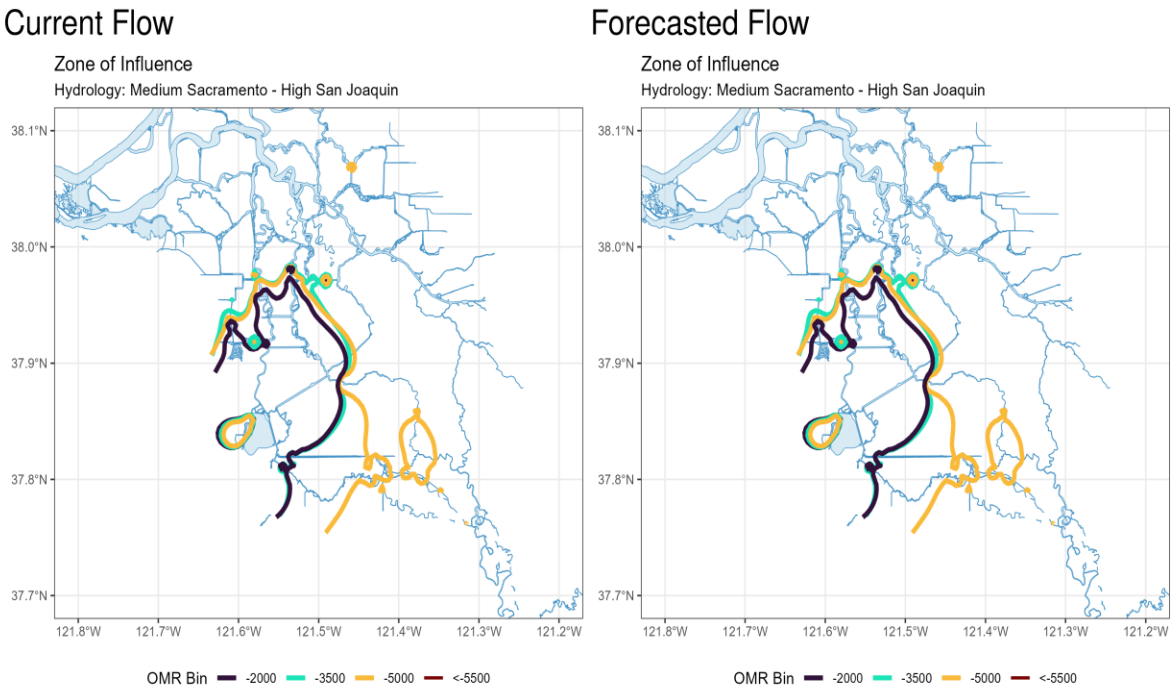

Figure 2: Modeled Zone of Influence at different OMRI scenarios based on current inflow hydrology (left) and forecasted inflow hydrology (right) from the Sacramento River and San Joaquin River

Figure 2 contains two maps showing current and forecasted flow conditions for the zone of influence. The left map represents current flow, and the right map represents forecasted flow. Each map includes lines of different colors depicting OMRI bins of -2000, -3500, -5000, and less than -5500 under modeled 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 15, 66% of length-at-date (LAD) winter-run have entered the Delta based on Knights Landing RST catch, 27% have exited the Delta based on Chipps Island Trawl Catch, and 70% 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	99%	99%	98%	66%	27%	63%
Chinook, DNA Winter-run, Unclipped (Water Year)	N/A	N/A	N/A	N/A	N/A	70%

Red Bluff Diversion Dam Passage Estimate - As of Mar 11 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 01 and Mar 09 is 22 individuals. Total catch at Sacramento Trawl and Beach Seines in the delta between Mar 01 and Mar 13 is 41 individuals. Total catch at Delta Exit at Chipps Island between Mar 02 and Mar 13 is 62 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 15, cumulative loss of genetically confirmed winter-run is 43 or 0.41% of the annual loss threshold. Cumulative loss in the past 7 days has been 0.

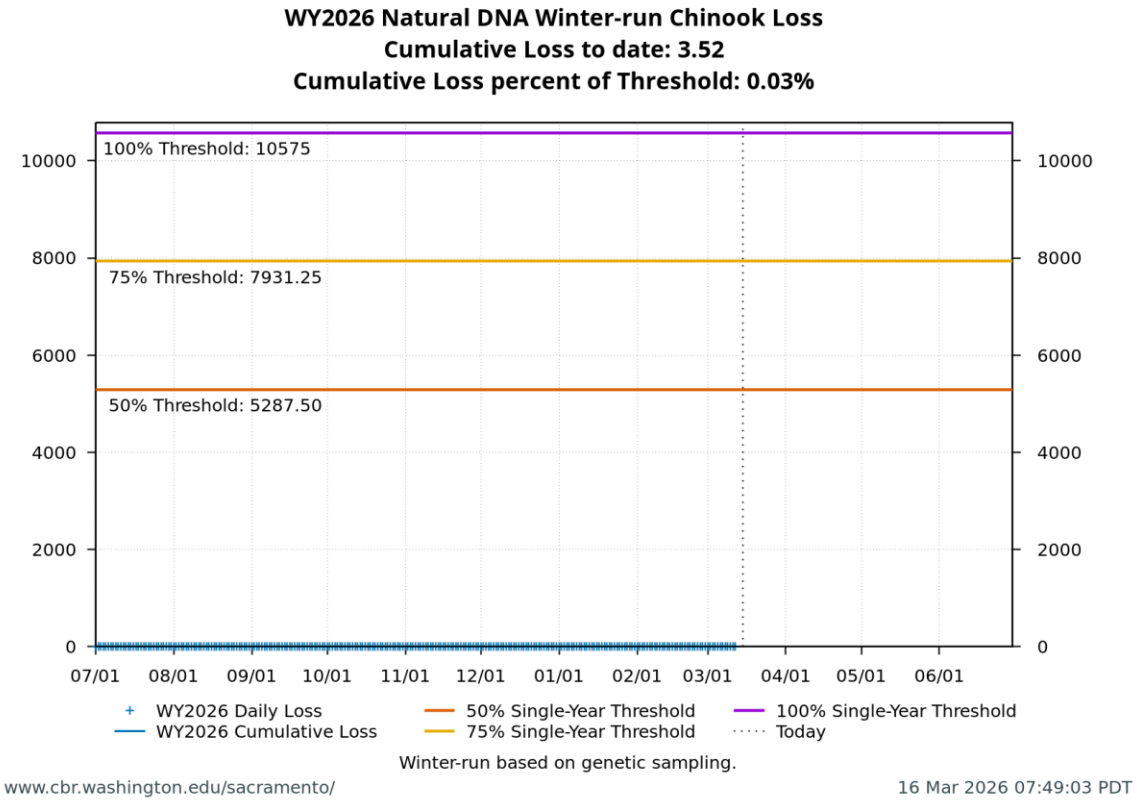

Figure 3: Cumulative loss of natural-origin winter-run for WY 2026. Cumulative loss is based on genetically confirmed winter-run captured in salvage or length-at-date winter-run in which genetic confirmation was unable to be obtained.

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 (10,575), 75% threshold (7,931.25), and 50% threshold (5,287.50) are shown as horizontal lines. As of March 16, 2026, the cumulative loss to date is 3.52 fish, representing 0.03% of the threshold.

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 14, overall through delta STARS estimated survival probability (with 80% credible intervals) is 0.44 (0.39-0.49) placing it in the 42nd 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 0.12 (0.1-0.14) and 0.21 (0.12-0.29), respectively, corresponding to the 57th and 43rd percentiles of historical March estimates (WYs 2018-2025).

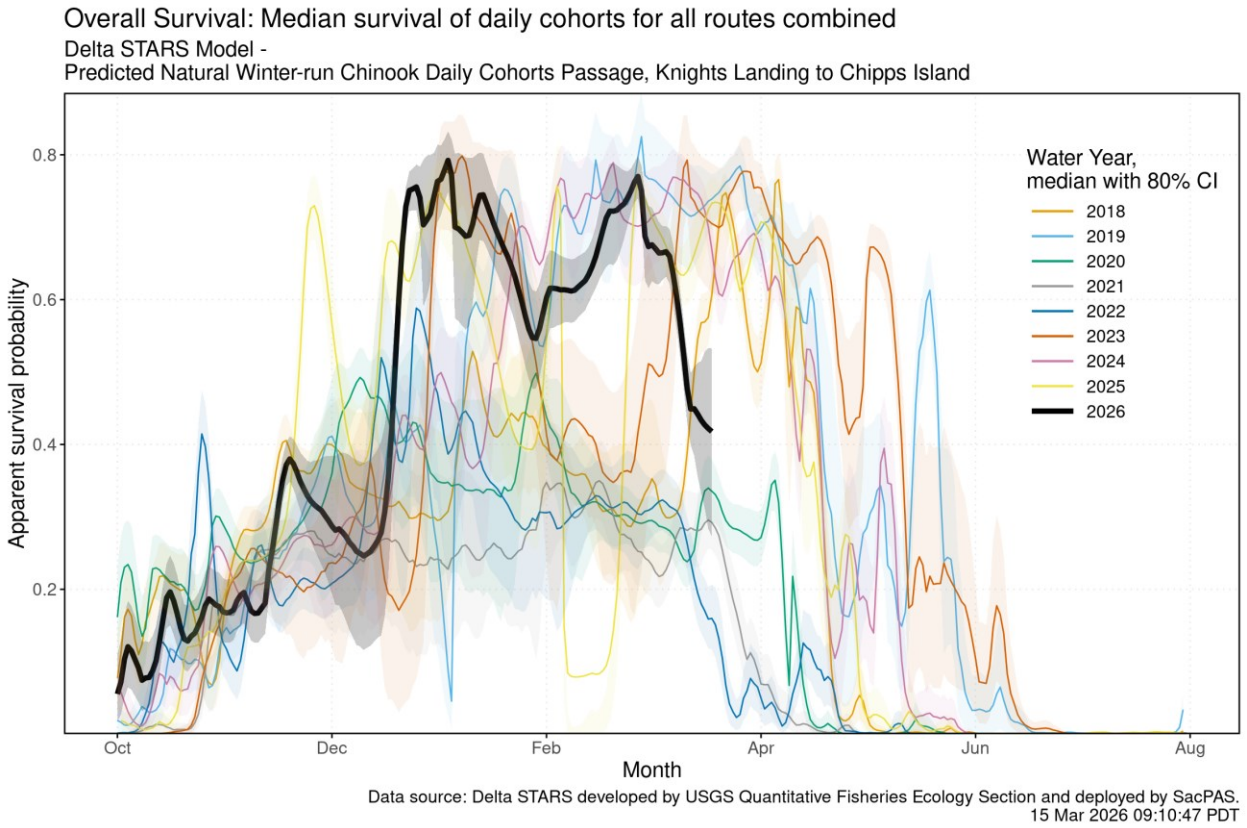

Figure 4: Estimated overall winter-run survival from Knights Landing to Chipps Island. Black line indicates the current water-year, and other colored lines correspond to past water years.

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 with an 80% confidence interval.

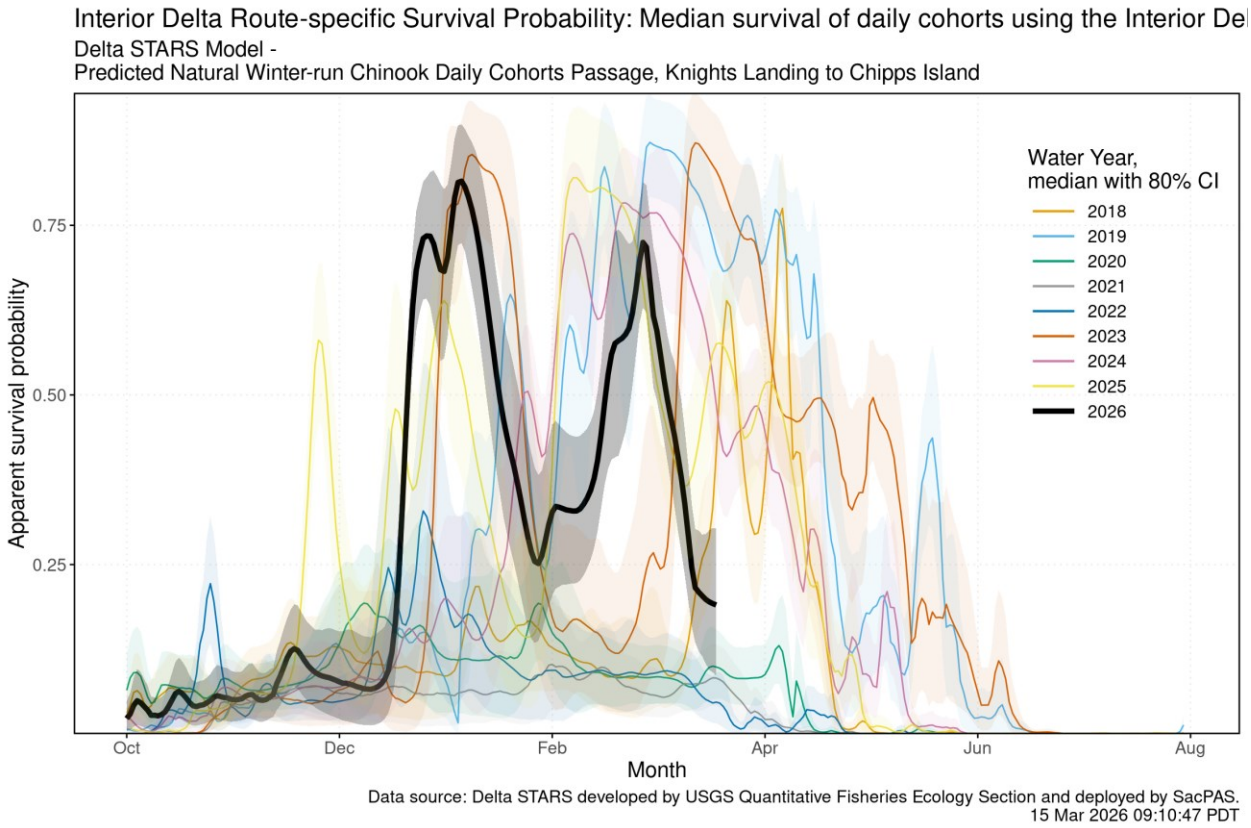

Figure 5: Estimated survival from Knights Landing to Chipps Island of simulated winter-run cohorts that route through the interior Delta. Black line indicates the current water-year, and other colored lines correspond to past water years.

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.

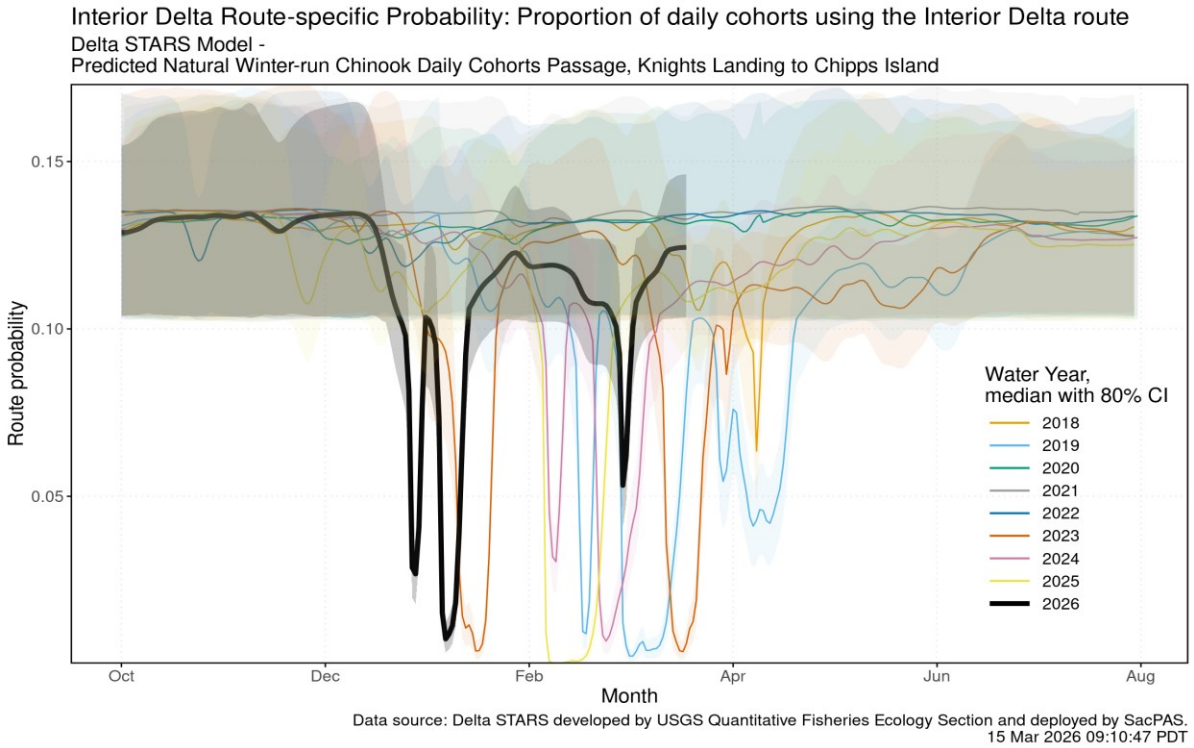

Figure 6: Estimated probability of winter-run routing into the interior Delta. Black line indicates the current water-year, and other colored lines correspond to past water years.

Figure 6 is a line graph depicting routing probability for winter-run Chinook daily cohorts using the Interior Delta route. Routing probability 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: 03/10/2026 – 03/22/2026
Particles Injected: 03/10/2026
Injection Location: Sacramento River at Freeport

Table 3. Salmon Particle Route Ratio After 3 Weeks (Ending 03/30/2026)

OMR Flow Bin	Sutter Slough Route	Steamboat Slough Route	Sacramento River (SS) Route	Sacramento River (GEO) Route	Georgiana Slough Route
-6,500	0.13	0.21	0.65	0.81	0.19
-5,000	0.13	0.22	0.65	0.81	0.19
-3,500	0.13	0.22	0.65	0.82	0.18
-2,000	0.13	0.22	0.65	0.82	0.18

Table 4. Salmon Particle Route-Specific Survival After 3 Weeks (Ending 03/30/2026)

OMR Flow Bin	Sutter Slough Route	Steamboat Slough Route	Sacramento River Route	Georgiana Slough Route	All Routes Combined
-6,500	51%	61%	57%	38%	55%
-5,000	52%	62%	59%	31%	55%
-3,500	51%	61%	58%	33%	55%
-2,000	52%	62%	58%	29%	55%

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

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 5: Livingston Stone NFH winter-run Chinook salmon releases 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 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 16, cumulative loss of Livingston Stone hatchery fish is 58 or 4.46% of the annual loss threshold (which equals the single-year ITL). Cumulative loss in the past 7 days has been 23.

Natural-origin Central Valley Steelhead

Current Status
Delta Entry Timing - Historically, as of Mar 15, 55% of CCV steelhead have entered the Delta based on Knights Landing RST catch, 42% have exited the Delta based on Chipps Island Trawl Catch, and 39% have been salvaged.

Table 6: 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	42%	51%	2%	55%	39%	47%

Delta Monitoring - Total catch of unclipped steelhead at RSTs at Delta Entry (Tisdale, Knights Landing, Lower Sacramento River) between Mar 01 and Mar 09 is 5 individuals. Total catch at Sacramento Trawl and Beach Seines in the delta between Mar 01 and Mar 13 is 0 individuals. Total catch at Delta Exit at Chipps Island between Mar 02 and Mar 13 is 0 individuals.

Annual Loss
As of March 15, cumulative loss of unclipped steelhead is 208 or 3.92% 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 228.

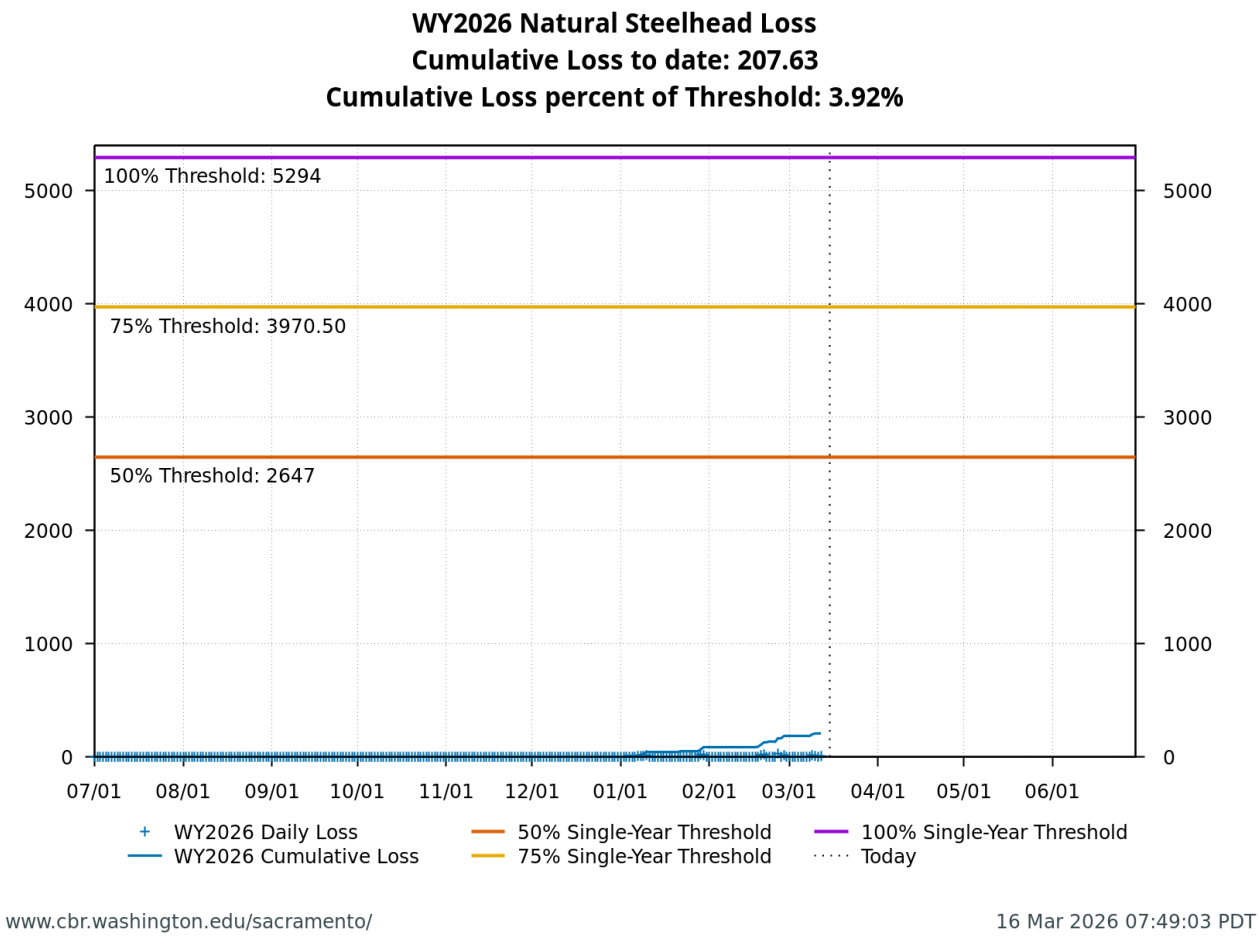

Figure 7: Cumulative loss of natural-origin steelhead for WY 2026. The 5,294 line represents the single-year incidental take limit (ITL), not a loss threshold.

Figure 7 displays daily and cumulative natural-origin 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 incidental take limit (5,294), 75% level (3,970.50), and 50% level (2,647). As of March 16, 2026, cumulative loss to date is 207.63 fish, representing 3.92% of the incidental take limit.

Hatchery-origin Central Valley Steelhead

Surrogate Releases

There have been a total of 7 releases totaling 1,451,464 steelhead in Water Year 2026. JPE for the hatchery releases as of today is 610,752 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 6,108, but is subject to change with additional steelhead releases.

Table 7: 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

Table 8: 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 1315 or 21.54% 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.

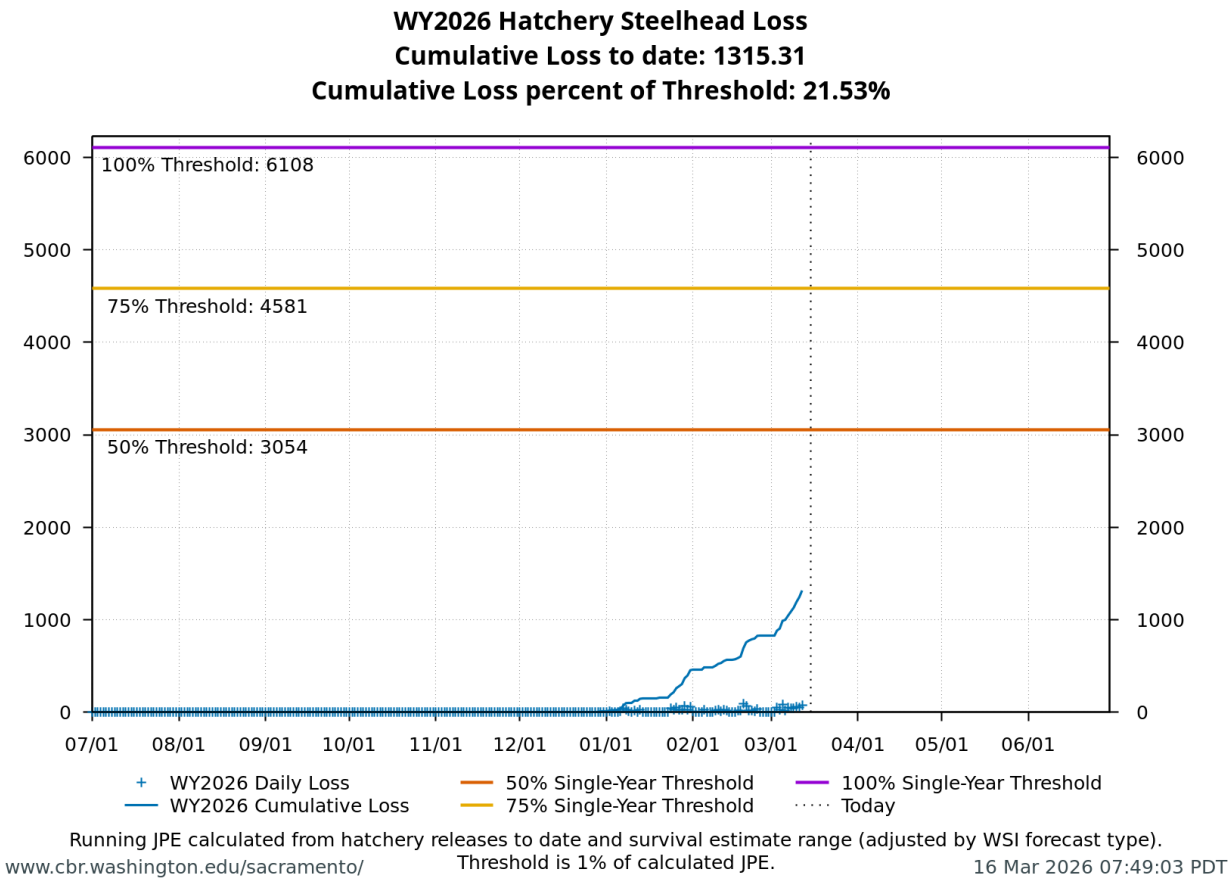

Figure 8: Cumulative loss of hatchery steelhead for WY 2026.

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 6,108, 75% threshold of 4,581, and 50% threshold of 3,054. As of March 16, 2026, cumulative loss to date is 1,315.31 fish, representing 21.53% of the threshold.

Spring-run Chinook

Current Status

Delta Entry Timing - Historically, as of Mar 15, 7% 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 2% have been salvaged.

Table 9: 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	25%	20%	32%	7%	0%	2%

Red Bluff Diversion Dam Passage Estimate - As of Mar 11 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 01 and Mar 09 is 103 individuals. Total catch at Sacramento Trawl and Beach Seines in the delta between Mar 01 and Mar 13 is 54 individuals. Total catch at Delta Exit at Chipps Island between Mar 02 and Mar 13 is 20 individuals.

Spring-run Surrogate Releases

A total of 805,323 spring-run surrogate fish have been released in Water Year 2026, with an estimated Juvenile Production Estimate (JPE) of 219,852 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 10: 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
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 2,199 fish. As of March 15, cumulative loss is 1,058 fish or 48.12% 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.

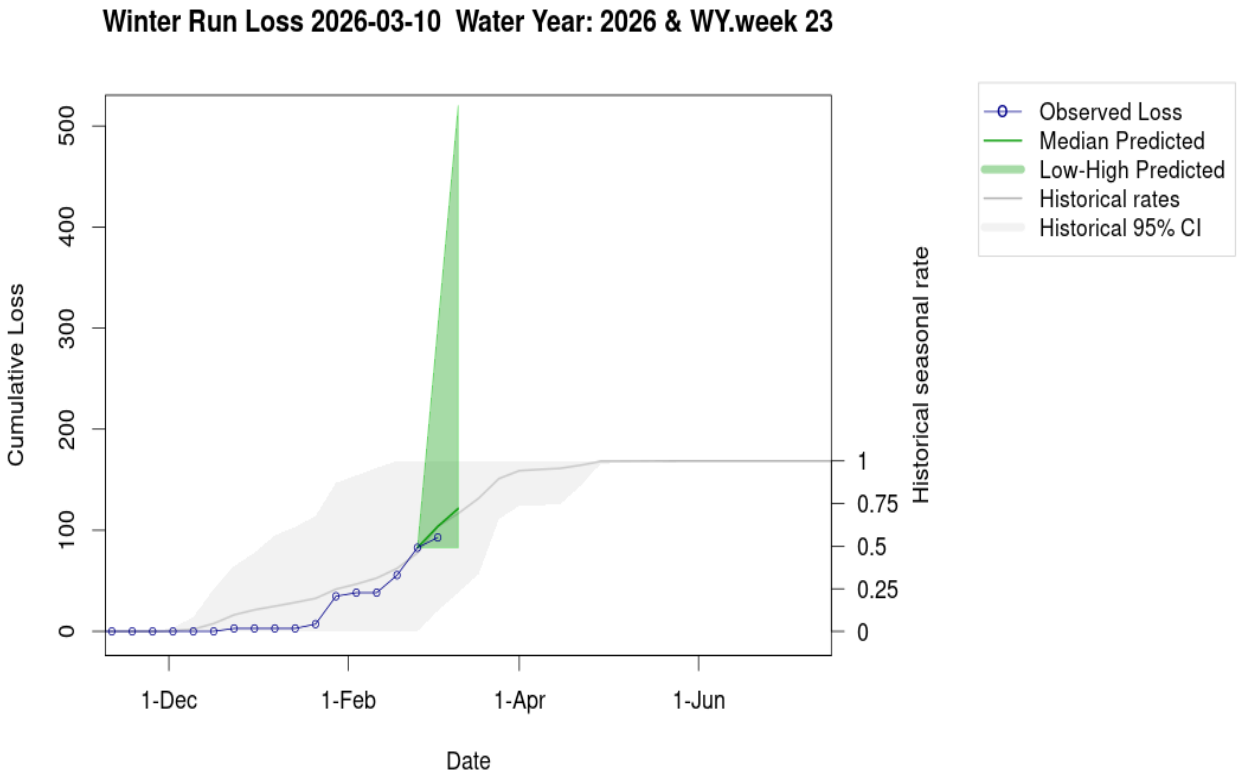

Figure 9: Estimates of winter-run Chinook loss generated by Loss and Salvage Predictor tool.

Figure 9 displays observed cumulative winter-run Chinook loss for Water Year 2026 through March 10, 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 during this portion of the water year.

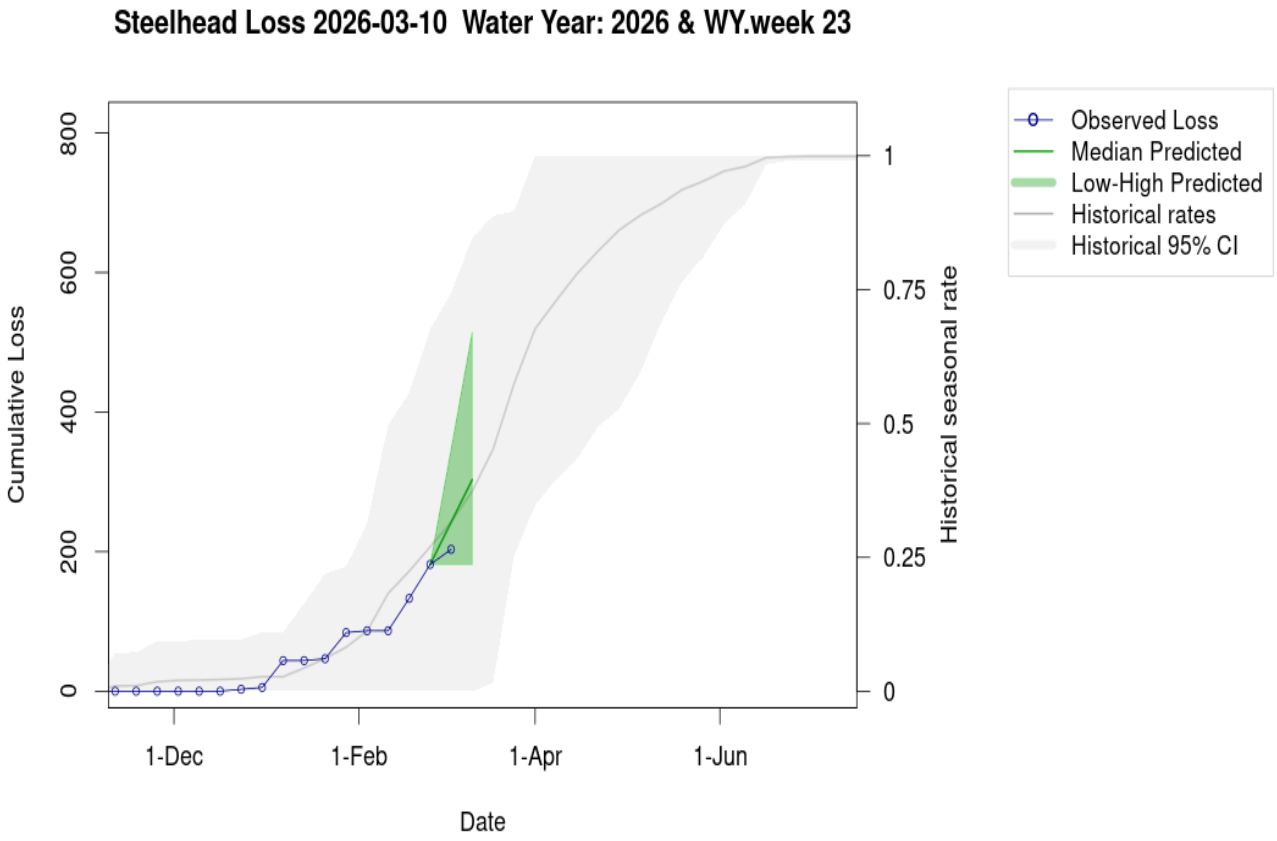

Figure 10: Estimates of steelhead loss generated by Loss and Salvage Predictor tool.

Figure 10 displays observed cumulative steelhead loss for Water Year 2026 through March 10, 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 during this portion of the water year.

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 0.41% of the threshold. **LOW RISK:** Hatchery winter-run cumulative loss is currently 4.46% 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 48.12% 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 3.92% of the threshold.
    b. **LOW RISK:** Hatchery steelhead cumulative loss is currently 21.54% 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**: 2004 (95% CL: 170 to 8,647) as of the week of March 9–13, 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**: 42 adult Delta smelt and 30 juvenile Delta smelt have been detected this water year. See Table 9 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 9 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 11: 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	2026-03-09	West	Suisun Marsh	Adult	1
salvage	2026-03-06	South	NA	Adult	1

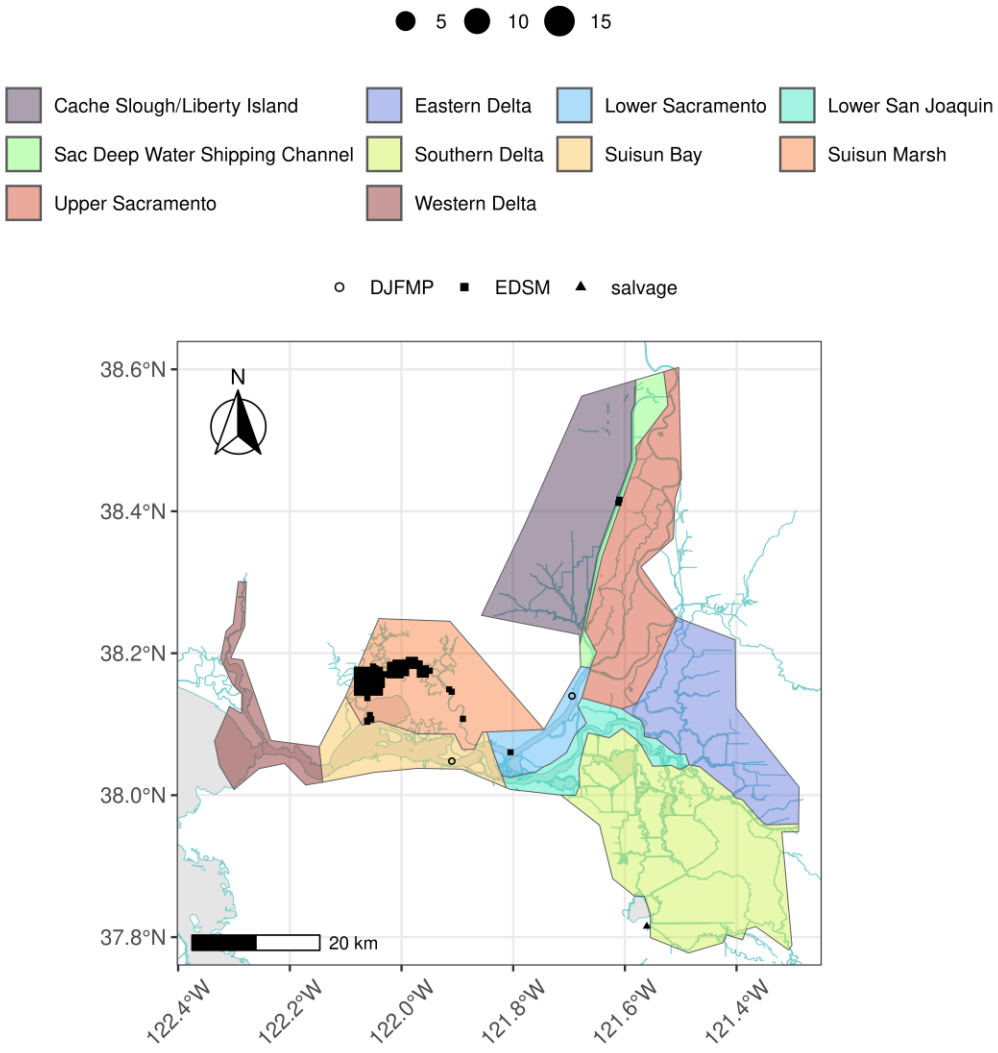

Figure 11: Delta smelt distribution for WY 2026

Figure 11 shows monitoring locations and distribution of Delta smelt 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, EDSM, and salvage monitoring programs, with symbol size representing relative sample counts.

Table 12: 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	38
EDSM	West	Juvenile	29
salvage	South	Adult	1

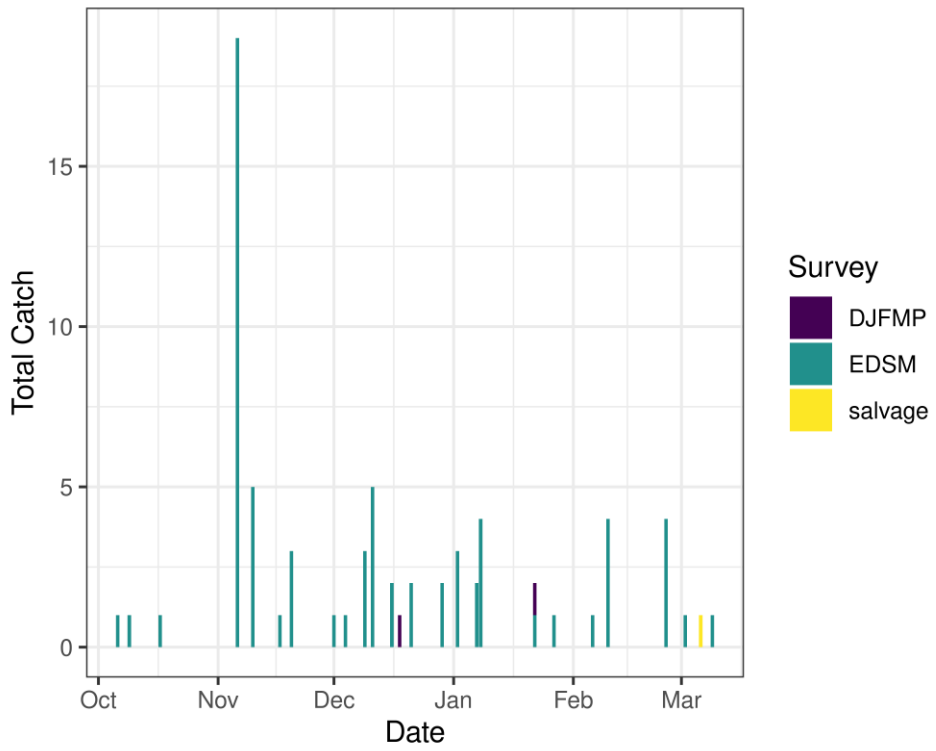

Figure 12: Time series of Delta smelt catch, WY 2026

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 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 11.2 FNU as of March 09, 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 spawning may be occurring, JPF is above 0 cfs. SLS 6 was on the water last week, and the most recent 12 station average turbidity in the south delta was 11.2 FNU on 3/9/26. Due to JPF > 0 this week, the conditions required to trigger larval and juvenile Delta smelt entrainment management will not be met.

    No Delta smelt larvae have been captured in SLS surveys in WY26 to date. PTM results for this week for neutrally buoyant particles injected at Chipps Island (most recent adult detections used as a proxy for potential larval locations) showed 0% particle entrainment at both facilities for all OMRI levels (−6,500, −5,000, −3,500, and −2,000 cfs). These results indicate that if Delta smelt larvae were present, the risk of entrainment is low.

Longfin smelt

Biological

- **Longfin smelt life stages**: Adult, Juvenile, Larva
- **Longfin smelt count**: 441 adult, 1023 juvenile, and 5446 larval longfin smelt have been detected this water year. See Table 11 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 13: 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
DJFMP	2026-03-04	N/A	Chipps Island	Adult	3
DJFMP	2026-03-04	N/A	Chipps Island	Juvenile	1
DJFMP	2026-03-05	N/A	Chipps Island	Adult	1
DJFMP	2026-03-05	N/A	Chipps Island	Juvenile	1
DJFMP	2026-03-08	N/A	Chipps Island	Adult	3
DJFMP	2026-03-08	N/A	Chipps Island	Juvenile	2
DJFMP	2026-03-09	N/A	Chipps Island	Adult	4
DJFMP	2026-03-09	N/A	Chipps Island	Juvenile	2
DJFMP	2026-03-10	N/A	Chipps Island	Adult	4
DJFMP	2026-03-10	N/A	Chipps Island	Juvenile	3
DJFMP	2026-03-12	N/A	Chipps Island	Adult	1
DJFMP	2026-03-12	N/A	Chipps Island	Juvenile	1
EDSM	2026-03-05	Far West	Western Delta	Adult	2
EDSM	2026-03-05	Far West	Western Delta	Juvenile	3
EDSM	2026-03-09	West	Suisun Marsh	Adult	2
EDSM	2026-03-10	Far West	Western Delta	Juvenile	1
sls	2026-03-09	South	Lower San Joaquin	Larva	3
sls	2026-03-09	West	Suisun Bay	Larva	7
sls	2026-03-10	North	Cache Slough/Liberty Island	Larva	1

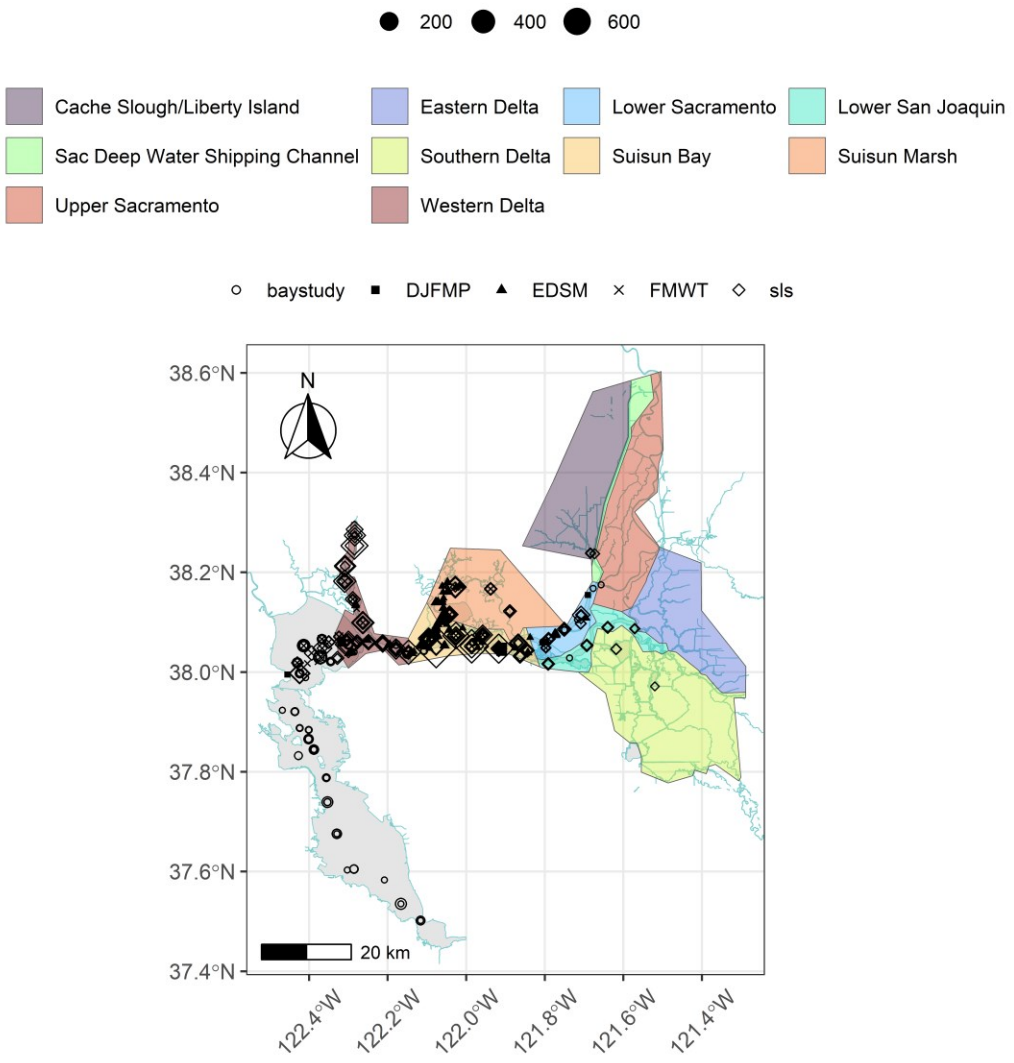

Figure 13: Longfin Smelt Distribution for WY 2026

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 14: Longfin smelt water year totals by life stage

Survey	Region	Life Stage	Total
DJFMP	Bay	Juvenile	1
DJFMP	N/A	Adult	267
DJFMP	N/A	Juvenile	31
DJFMP	NA	Adult	1
EDSM	Far West	Adult	23
EDSM	Far West	Juvenile	92
EDSM	North	Juvenile	1
EDSM	West	Adult	82
EDSM	West	Juvenile	200
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

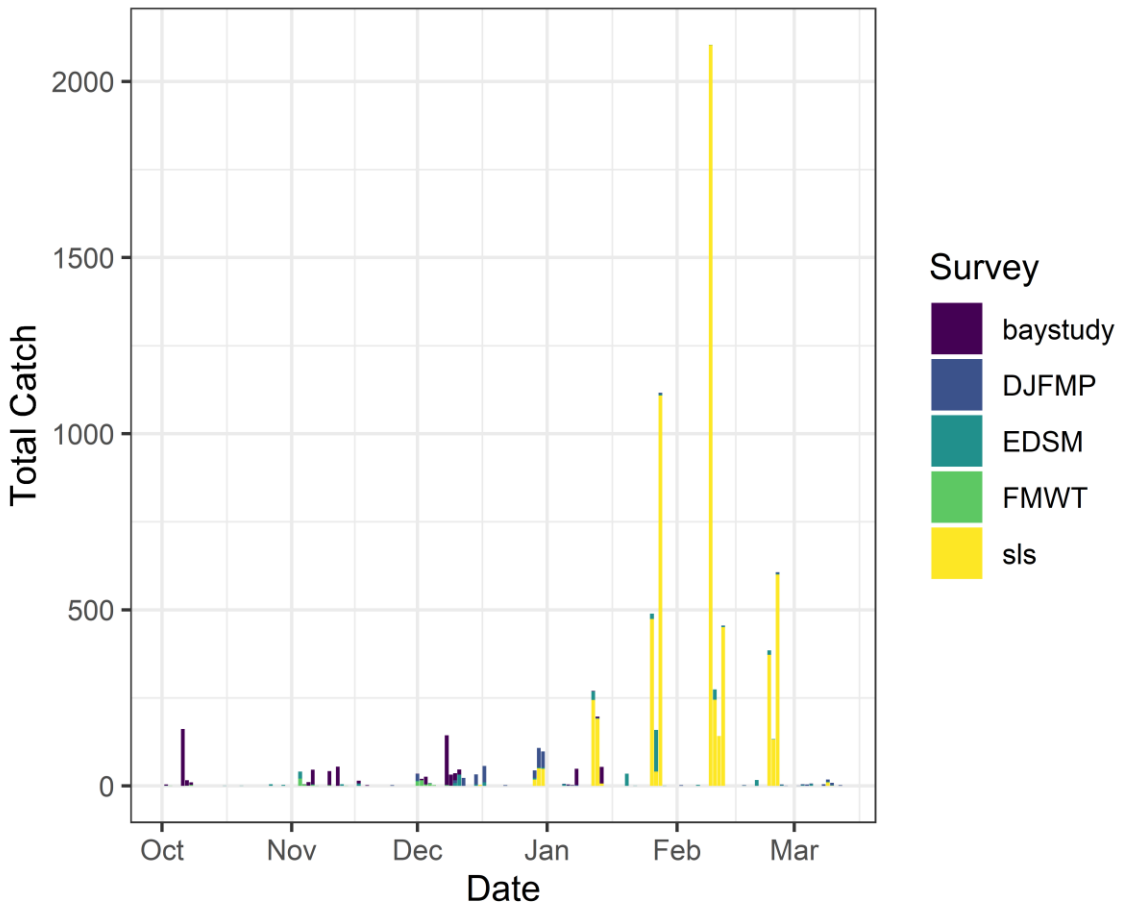

Figure 14: Time series of longfin smelt catch, WY 2026

Figure 14 displays total catch observations over time from October through March for multiple survey programs, including Bay Study, DJFMP, EDSM, FMWT, and SLS. Bars represent total catch recorded on individual sampling dates, with colors distinguishing the survey type. The figure shows relatively low catch early in the water year, with substantially higher catch totals observed during SLS surveys in February and March, and increased observations across DJFMP and EDSM during this period.

Real-time Assessment Thresholds

Start of Entrainment Management (Adult Longfin Smelt)

- This action was not taken in WY26

Adult longfin smelt

- **Threshold**: JPF < 0 cfs, annual loss is on a trajectory to exceed 5% of the adult population abundance, and reduced exports will reduce entrainment in the south Delta
    - Daily average JPF: 2,465 cfs as of Mar 16, 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: 2,465 cfs as of Mar 16, 2026

Evaluation

Longfin smelt:

1. If JPF < 0, what is the trajectory of annual loss of adult longfin smelt and is it likely to exceed 5% of the adult population estimate? Is South Delta entrainment expected to decrease due to a reduction in export pumping?
    a. JPF is > 0 cfs and 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. JPF is currently not less than 0 cfs and is not predicted to drop below 0 cfs this week. Zone of Influence modeling indicates moderate differences in the hydrodynamic footprint across OMRI scenarios, with no change between current and forecasted conditions. Population-based PTM results, summarized in Appendix A, project low larval entrainment relative to estimated abundance the week ending 03/23/2026. Projected larval entrainment is 0.1% for OMRI of -6,500, and <0.1% for all other modeled

OMRI levels. These projected losses remain below levels suggesting significant population decline.

3. Is there additional information or other analyses that should be considered in this evaluation?

    a. Please see Appendix A for additional information.

End of smelt Entrainment Management

- Not relevant

References

Brodsky, A., Zeug, S. C., Nelson, J., Hannon, J., Anders, P. J., & Cavallo, B. J. (2020). Does broodstock source affect post-release survival of steelhead? Implications of replacing a non-native hatchery stock for recovery. Environmental Biology of Fishes, 103(5), 437–453.

Damon, L. J., Slater, S. B., Baxter, R. D., & Fujimura, R. W. (2016). Fecundity and reproductive potential of wild female delta smelt in the upper san francisco estuary, california. California Fish and Game, 102(4), 188–210.

Del Real, S. C., Workman, M., & Merz, J. (2012). Migration characteristics of hatchery and natural-origin oncorhynchus mykiss from the lower mokelumne river, california. Environmental Biology of Fishes, 94(2), 363–375.

Grimaldo, L. F., Smith, W. E., & Nobriga, M. L. (2021). Re-examining factors that affect delta smelt (hypomesus transpacificus) entrainment at the state water project and central valley project in the sacramento–san joaquin delta. San Francisco Estuary and Watershed Science, 19(1).

Grimaldo, L. F., Sommer, T., Van Ark, N., Jones, G., Holland, E., Moyle, P. B., Herbold, B., & Smith, P. (2009). Factors affecting fish entrainment into massive water diversions in a tidal freshwater estuary: Can fish losses be managed? North American Journal of Fisheries Management, 29(5), 1253–1270.

Kurth, R. (2013). Downstream migration success of feather river fish hatchery steelhead smolts under different release strategies.

Sandstrom, P. T., Ammann, A. J., Michel, C., et al. (2020). Low river survival of juvenile steelhead in the sacramento river watershed. Environmental Biology of Fishes, 103(5), 531–541.

Sommer, T., Mejia, F. H., Nobriga, M. L., Feyrer, F., & Grimaldo, L. (2011). The spawning migration of delta smelt in the upper san francisco estuary. San Francisco Estuary and Watershed Science, 9(2).

Appendix A: Delta Real-Time Forecast Summary

Date: 03/16/2026

Forecast Period: 03/10/2026 – 03/30/2026

Forecast Week 1: 03/10/2026 – 03/16/2026

Forecast Week 2: 03/17/2026 – 03/23/2026

Forecast Week 3: 03/24/2026 – 03/30/2026

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Common Assumptions

The model run results cover the period March 10, 2026 through March 30, 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 5019 cfs at the beginning of the forecast period and is estimated to decrease to 4000 cfs by the end of the forecast period.
5. San Joaquin River EC at Vernalis is at 347 umhos/cm at the beginning of the forecast period and is estimated to increase to 395 umhos/cm at the end of the forecast period.
6. Sacramento River flow at Freeport is at 39212 cfs at the beginning of the forecast period and is expected to decrease to 19200 cfs by the end of the forecast period.

7. CCFB inflow is at 3691 cfs at the beginning of the forecast period and is expected to decrease to 2900 cfs by the end of the forecast period.
8. Export at Jones Pumping Plant is at 4233 cfs at the beginning of the forecast period and is expected to decrease to 4200 cfs to the end the forecast period.

As shown in the next section, assumptions 4 and 6 have been 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 03/10/2026 - 03/16/2026	31,203	hi	4,632	hi	hihi
Week 2 03/17/2026 - 03/23/2026	26,519	hi	2,743	med	himed
Week 3 03/24/2026 - 03/30/2026	25,500	hi	2,400	med	himed

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: 03/10/2026 - 03/16/2026	-6,250	4,208	5,095	9,302	45%	55%
Week 1: 03/10/2026 - 03/16/2026	-5,000	4,208	3,463	7,671	55%	45%
Week 1: 03/10/2026 - 03/16/2026	-3,500	3,606	2,404	6,011	60%	40%

Week	OMR Bin (cfs)	CVP Exports (cfs)	SWP Exports (cfs)	Total Exports (cfs)	CVP Exports (% of total)	SWP Exports (% of total)
Week 1: 03/10/2026 - 03/16/2026	-2,000	2,919	1,445	4,365	67%	33%
Week 2: 03/10/2026 - 03/16/2026	-6,250	4,208	4,093	8,300	51%	49%
Week 2: 03/10/2026 - 03/16/2026	-5,000	3,606	3,048	6,655	54%	46%
Week 2: 03/10/2026 - 03/16/2026	-3,500	2,705	2,290	4,994	54%	46%
Week 2: 03/10/2026 - 03/16/2026	-2,000	1,932	1,417	3,349	58%	42%
Week 3: 03/10/2026 - 03/16/2026	-6,250	4,208	3,807	8,014	53%	47%
Week 3: 03/10/2026 - 03/16/2026	-5,000	3,506	2,805	6,311	56%	44%
Week 3: 03/10/2026 - 03/16/2026	-3,500	2,705	2,004	4,708	57%	43%
Week 3: 03/10/2026 - 03/16/2026	-2,000	1,803	1,202	3,005	60%	40%

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.

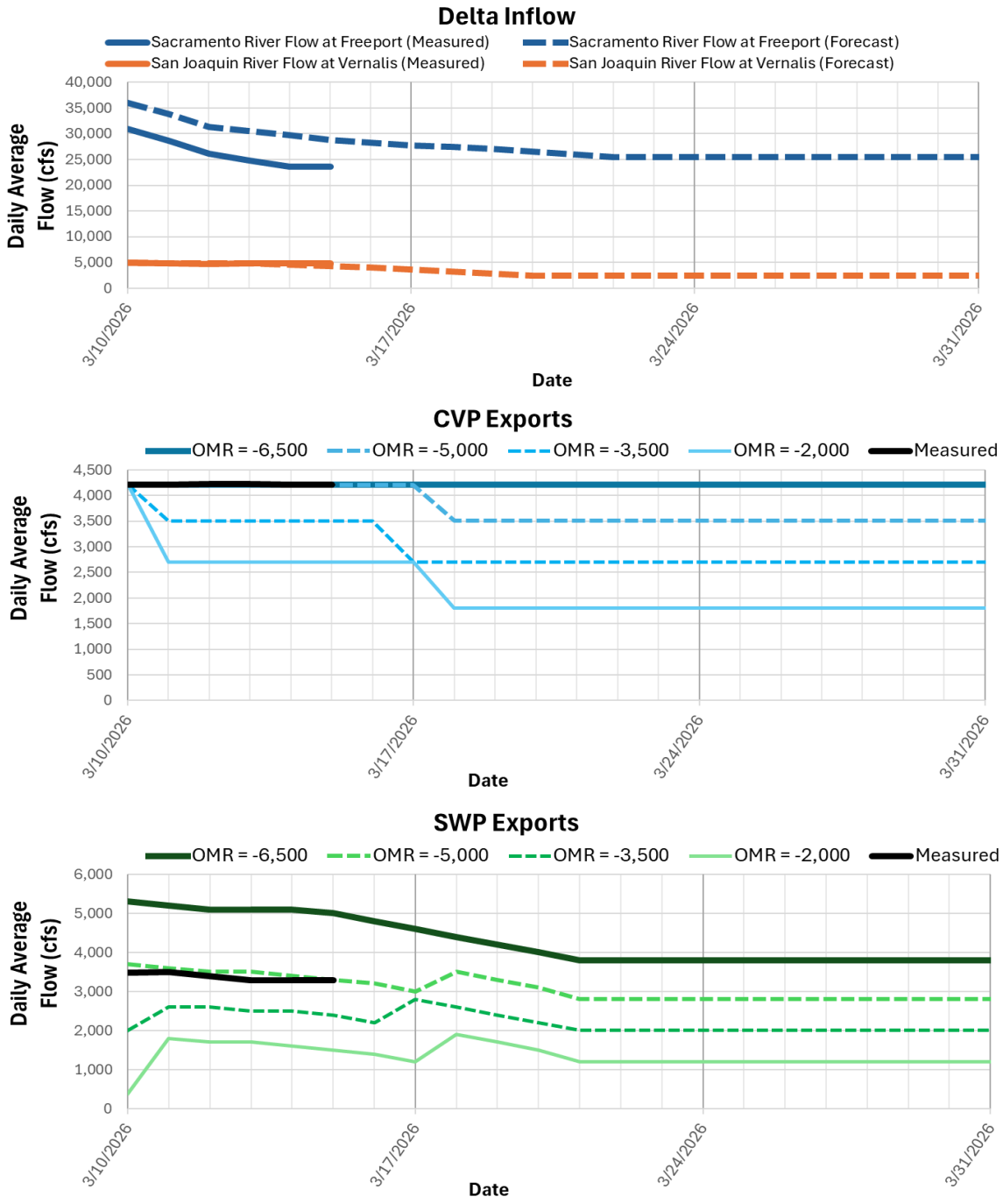

Figure 1: Delta Inflow, CVP Exports, and SWP Exports Summary

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 10, 2026 to March 31, 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, along with measured exports, in different colors and line styles for March 10, 2026 to March 31, 2026.

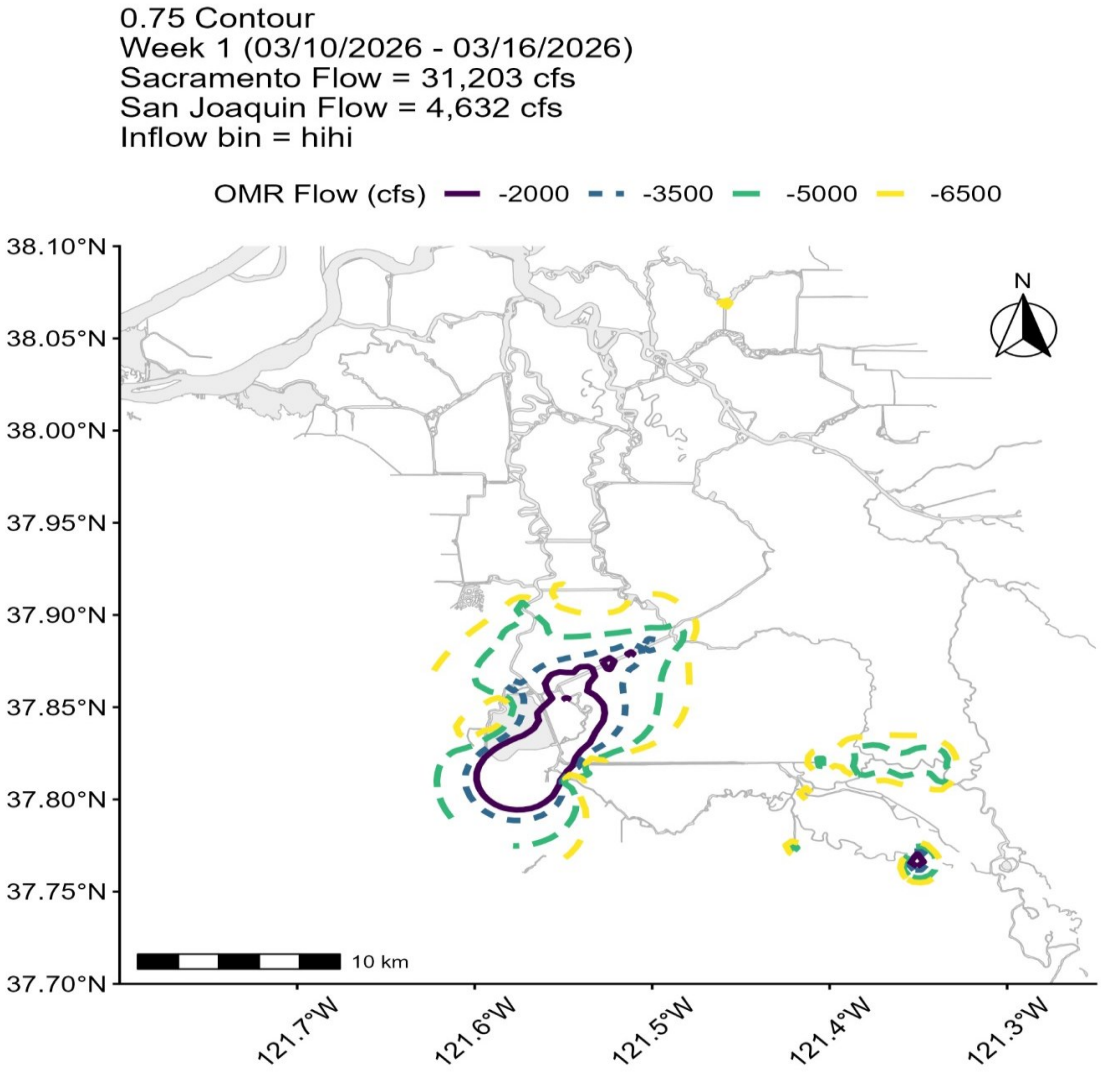

Figure 2: Delta Export Zone of Influence Week 1

Figure 2 is a map of the Delta showing zones of influence under different OMR flow rates (-2,000, -3,500, -5,000, and -6,500) represented by different colors and line styles. The map was developed using a 0.75 contour for Week 1 (March 10–16, 2026), with Sacramento River flow at 31,203 cfs, San Joaquin River flow at 4,632 cfs, and a hihi 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)

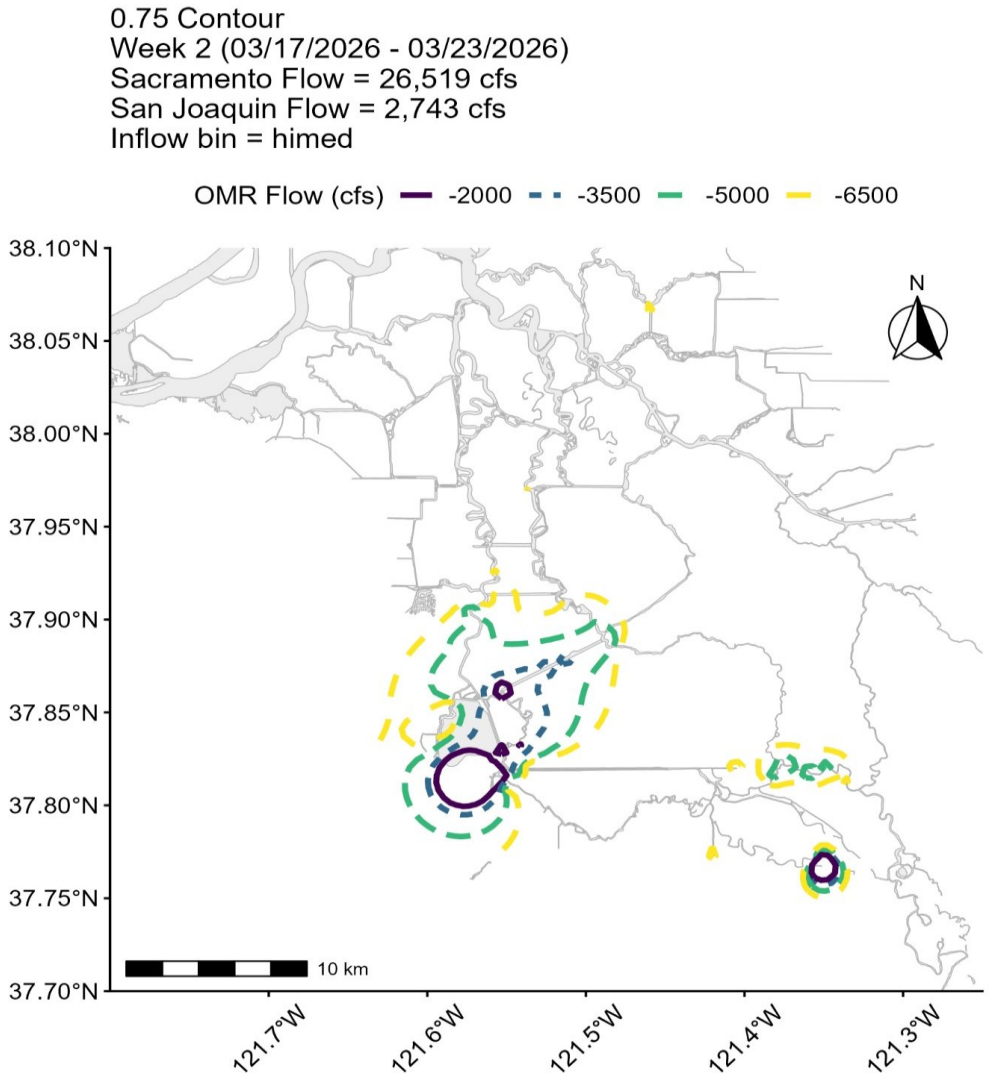

Figure 3: Delta Export Zone of Influence Week 2

Figure 3 is a map of the Delta showing zones of influence under different OMR flow rates (-2,000, -3,500, -5,000, and -6,500) represented by different colors and line styles. The map was developed using a 0.75 contour for Week 2 (March 17–23, 2026), with Sacramento River flow at 26,519 cfs, San Joaquin River flow at 2,743 cfs, and a himed 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)

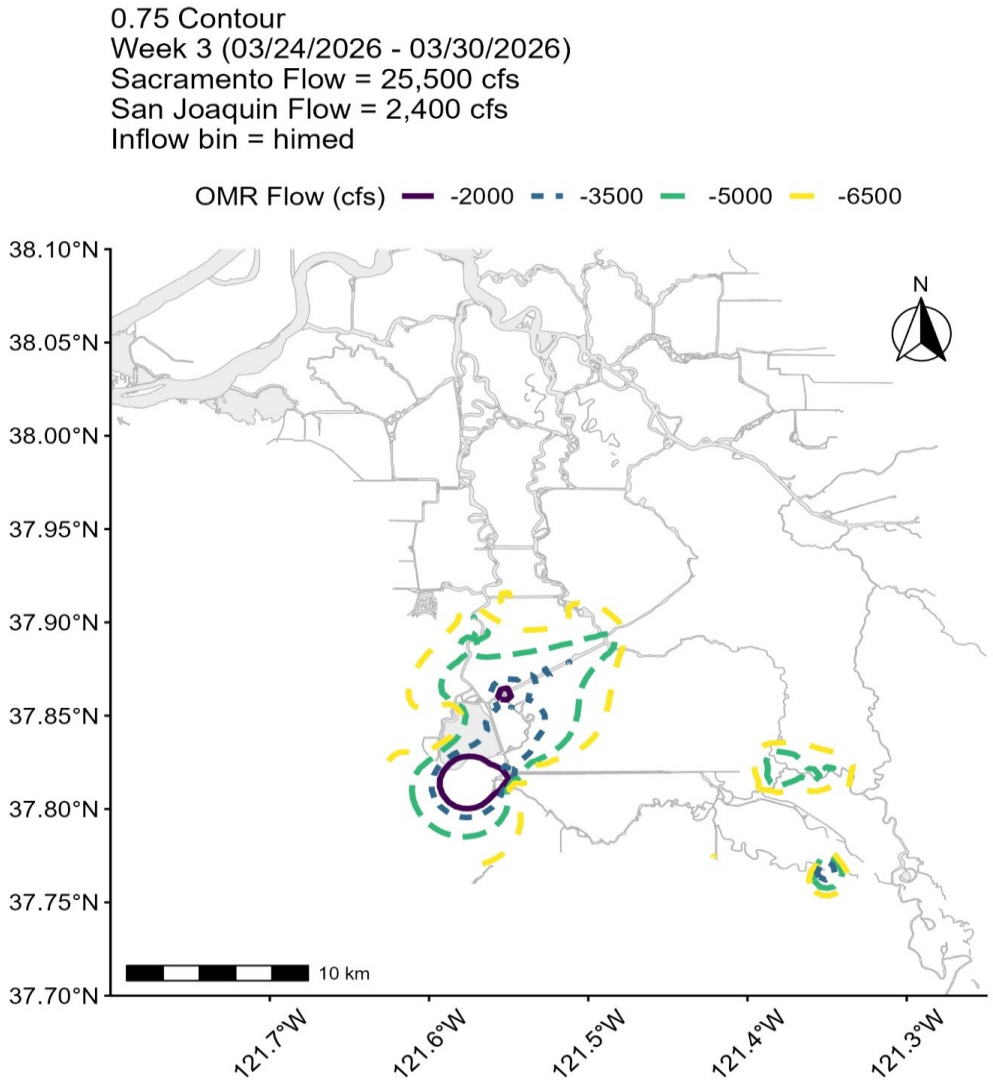

Figure 4: Delta Export Zone of Influence Week 3

Figure 4 is a map of the Delta showing zones of influence under different OMR flow rates (-2,000, -3,500, -5,000, and -6,500) represented by different colors and line styles. The map was developed using a 0.75 contour for Week 3 (March 24–30, 2026), with Sacramento River flow at 25,500 cfs, San Joaquin River flow at 2,400 cfs, and a himed 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

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: 03/10/2026 - 03/16/2026	6,250	637.1	94.8%	34.0	5.1%	0.9	0.1%
Week 1: 03/10/2026 - 03/16/2026	5,000	655.3	97.5%	15.8	2.4%	0.9	0.1%
Week 1: 03/10/2026 - 03/16/2026	3,500	659.5	98.1%	11.6	1.7%	0.9	0.1%
Week 1: 03/10/2026 - 03/16/2026	2,000	633.0	94.2%	38.1	5.7%	0.9	0.1%
Week 2: 03/17/2026 - 03/23/2026	6,250	642.7	95.6%	27.5	4.1%	1.7	0.3%
Week 2: 03/17/2026 - 03/23/2026	5,000	657.0	97.8%	13.2	2.0%	1.7	0.3%
Week 2: 03/17/2026 - 03/23/2026	3,500	666.7	99.2%	4.4	0.7%	0.9	0.1%
Week 2: 03/17/2026 - 03/23/2026	2,000	629.0	93.6%	41.2	6.1%	1.7	0.3%
Week 3: 03/24/2026 - 03/30/2026	6,250	640.2	95.3%	30.9	4.6%	0.9	0.1%
Week 3: 03/24/2026 - 03/30/2026	5,000	659.0	98.1%	12.1	1.8%	0.9	0.1%
Week 3: 03/24/2026 - 03/30/2026	3,500	668.8	99.5%	2.4	0.3%	0.9	0.1%
Week 3: 03/24/2026 - 03/30/2026	2,000	624.0	92.9%	47.1	7.0%	0.9	0.1%

Notes:

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

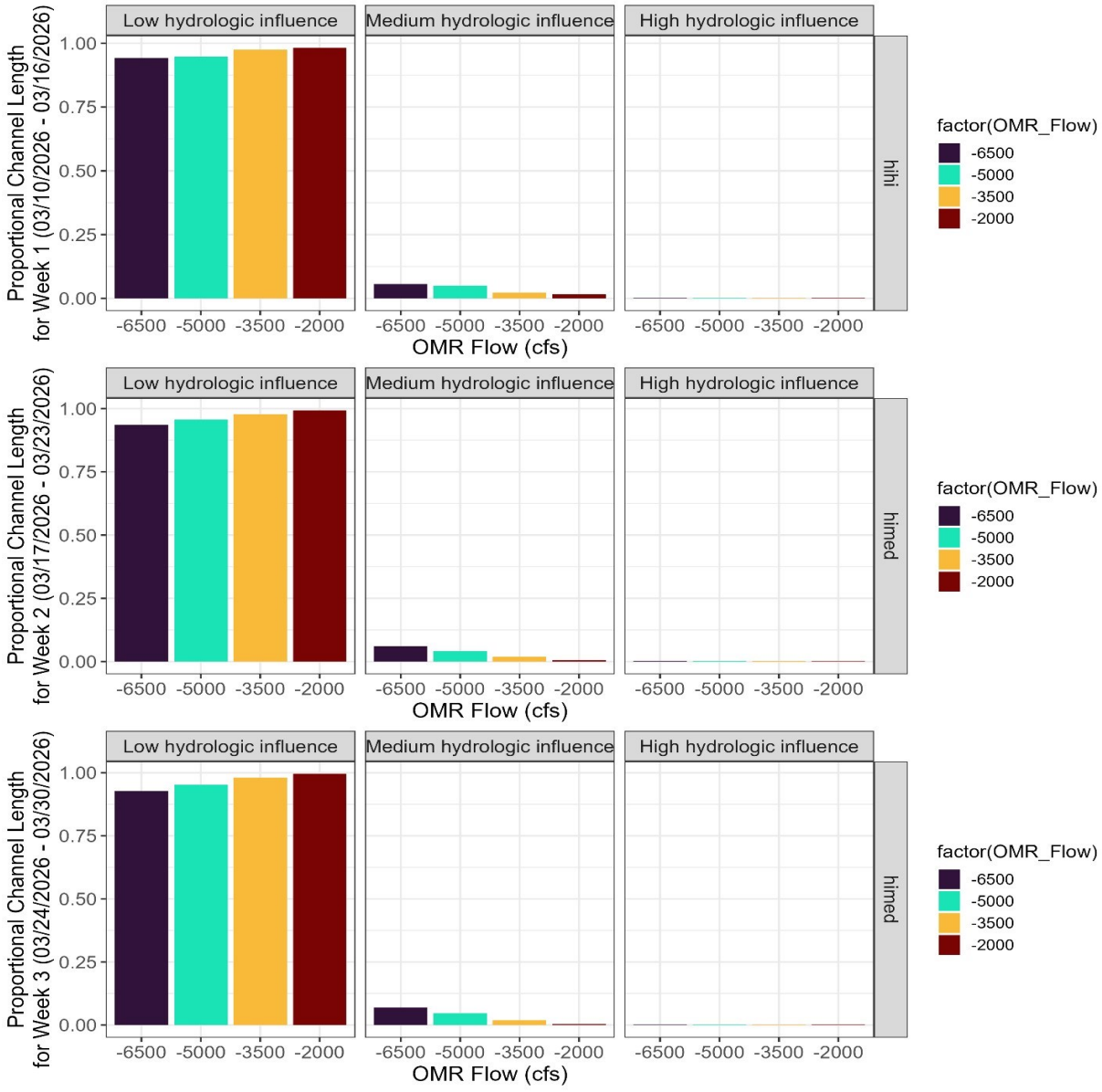

Figure 5: Proportional DSM2 Channel Length Altered from Pumping by Hydrologic Influence Category, Weeks 1–3

Figure 5 is a collection of three grouped bar charts, one for each weekly model run from March 10 to March 30, 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.

PTM (Particle Tracking Model) Results

PTM Flux Evaluation Period: 03/10/2026 – 03/22/2026

Particles Injected: 03/10/2026

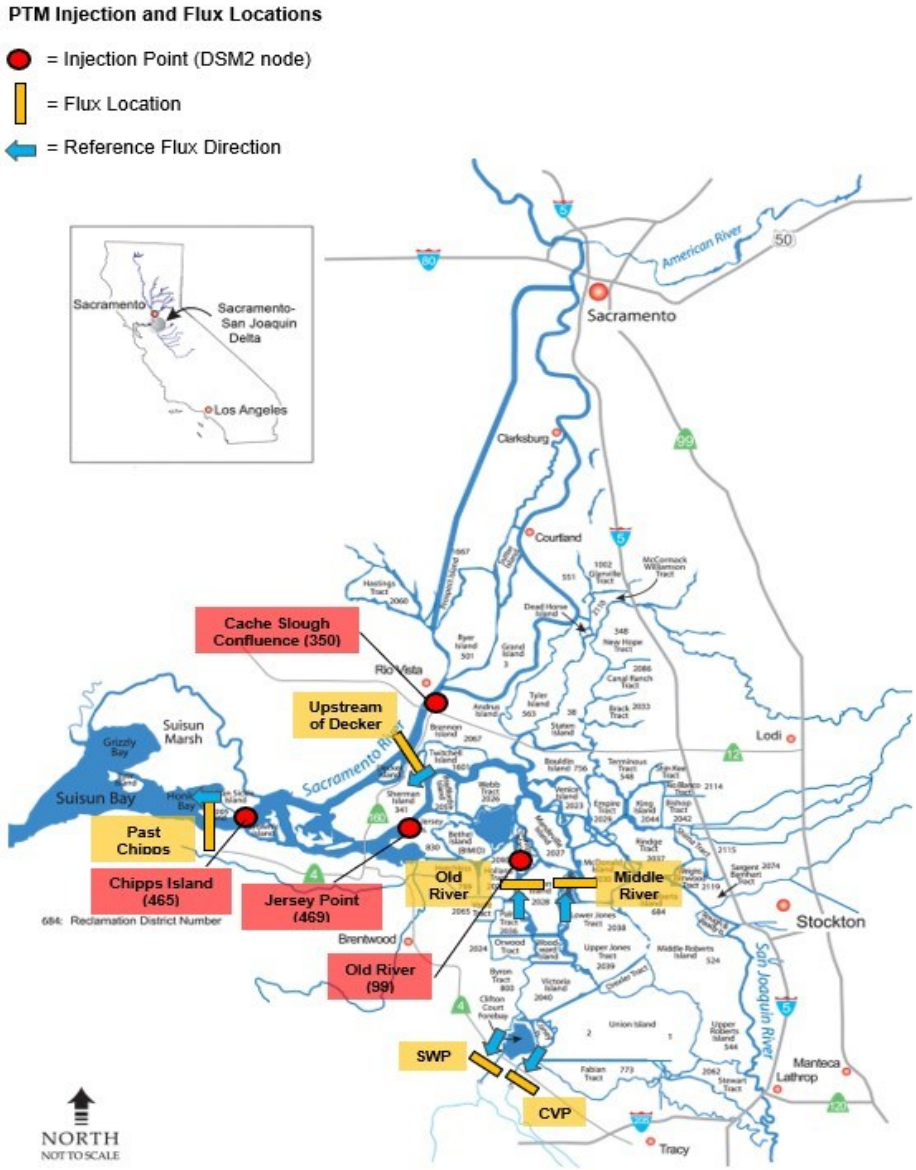

Figure 6: PTM Injection and Flux Locations in the Sacramento–San Joaquin Delta

Figure 6 is a map of the Sacramento–San Joaquin Delta showing PTM injection points (DSM2 nodes) and flux locations used for the evaluation period. Injection points are marked with red circles and flux locations with yellow bars, with blue arrows indicating reference flux direction. Key locations include Cache Slough Confluence, Upstream of Decker, Past Chipps, Chipps Island, Jersey Point, Old River, and Middle River, as well as SWP and CVP export locations. An inset map 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: 03/16/2026	-6,250	98.8	0.0	1.3	0.0	0.0	0.0
Week 1 End: 03/16/2026	-5,000	98.8	0.0	1.2	0.0	0.0	0.0
Week 1 End: 03/16/2026	-3,500	98.9	0.0	1.1	0.0	0.0	0.0
Week 1 End: 03/16/2026	-2,000	99.4	0.0	0.6	0.0	0.0	0.0
Week 2 End: 03/23/2026	-6,250	99.2	0.0	0.8	0.0	0.0	0.0
Week 2 End: 03/23/2026	-5,000	99.2	0.0	0.8	0.0	0.0	0.0
Week 2 End: 03/23/2026	-3,500	99.2	0.0	0.8	0.0	0.0	0.0
Week 2 End: 03/23/2026	-2,000	99.5	0.0	0.5	0.0	0.0	0.0
Week 3 End: 03/30/2026	-6,250	99.3	0.0	0.7	0.0	0.0	0.0
Week 3 End: 03/30/2026	-5,000	99.2	0.0	0.8	0.0	0.0	0.0
Week 3 End: 03/30/2026	-3,500	99.3	0.0	0.8	0.0	0.0	0.0
Week 3 End: 03/30/2026	-2,000	99.5	0.0	0.5	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: 03/16/2026	-6,250	65.3	84.5	34.7	0.0	0.0	0.0
Week 1 End: 03/16/2026	-5,000	68.3	85.1	31.7	0.0	0.0	0.0
Week 1 End: 03/16/2026	-3,500	69.3	84.4	30.7	0.0	0.0	0.0
Week 1 End: 03/16/2026	-2,000	73.1	83.1	26.9	0.0	0.0	0.0
Week 2 End: 03/23/2026	-6,250	86.0	86.4	14.9	0.3	0.3	0.3
Week 2 End: 03/23/2026	-5,000	89.5	87.5	10.7	0.1	0.1	0.0
Week 2 End: 03/23/2026	-3,500	91.5	86.1	8.8	0.3	0.0	0.0
Week 2 End: 03/23/2026	-2,000	95.0	84.4	5.0	0.0	0.0	0.0
Week 3 End: 03/30/2026	-6,250	91.0	87.3	10.2	0.1	0.4	0.7
Week 3 End: 03/30/2026	-5,000	94.1	88.9	6.3	0.1	0.2	0.1
Week 3 End: 03/30/2026	-3,500	96.1	86.6	4.2	0.1	0.0	0.2
Week 3 End: 03/30/2026	-2,000	98.5	84.9	1.5	0.0	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: 03/16/2026	-6,500	15.6	12.1	84.9	0.5	0.0	0.0
Week 1 End: 03/16/2026	-5,000	22.1	12.1	77.9	0.0	0.0	0.0
Week 1 End: 03/16/2026	-3,500	27.9	9.8	72.4	0.3	0.0	0.0
Week 1 End: 03/16/2026	-2,000	36.6	9.5	63.4	0.0	0.0	0.0
Week 2 End: 03/23/2026	-6,500	60.5	19.3	41.6	1.0	0.4	0.7
Week 2 End: 03/23/2026	-5,000	71.9	16.6	29.2	0.5	0.3	0.3
Week 2 End: 03/23/2026	-3,500	80.8	11.7	20.1	0.5	0.0	0.3
Week 2 End: 03/23/2026	-2,000	86.7	11.1	13.4	0.1	0.0	0.0
Week 3 End: 03/30/2026	-6,500	76.2	21.8	27.5	0.8	1.3	1.6
Week 3 End: 03/30/2026	-5,000	86.3	18.3	15.7	0.7	1.0	0.3
Week 3 End: 03/30/2026	-3,500	91.7	12.5	9.2	0.3	0.3	0.3
Week 3 End: 03/30/2026	-2,000	94.8	11.4	5.3	0.0	0.1	0.0

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: 03/16/2026	-6,500	0.0	0.2	10.7	31.8	24.2	33.3
Week 1 End: 03/16/2026	-5,000	0.1	0.5	18.8	40.1	25.5	15.5
Week 1 End: 03/16/2026	-3,500	0.1	1.2	32.0	48.7	15.2	4.0
Week 1 End: 03/16/2026	-2,000	0.4	1.3	52.7	46.1	0.7	0.1
Week 2 End: 03/23/2026	-6,500	1.8	1.6	5.7	8.6	28.4	55.5
Week 2 End: 03/23/2026	-5,000	2.1	2.1	11.7	16.4	30.6	39.2
Week 2 End: 03/23/2026	-3,500	6.4	4.5	16.0	24.3	27.7	25.6
Week 2 End: 03/23/2026	-2,000	8.9	6.0	29.8	41.2	13.6	6.5
Week 3 End: 03/30/2026	-6,500	3.1	2.2	4.1	4.3	29.9	58.6
Week 3 End: 03/30/2026	-5,000	4.9	2.9	6.8	9.6	32.9	45.8
Week 3 End: 03/30/2026	-3,500	11.2	5.3	9.6	14.9	30.4	33.9
Week 3 End: 03/30/2026	-2,000	20.5	8.1	16.6	27.9	19.3	15.7

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

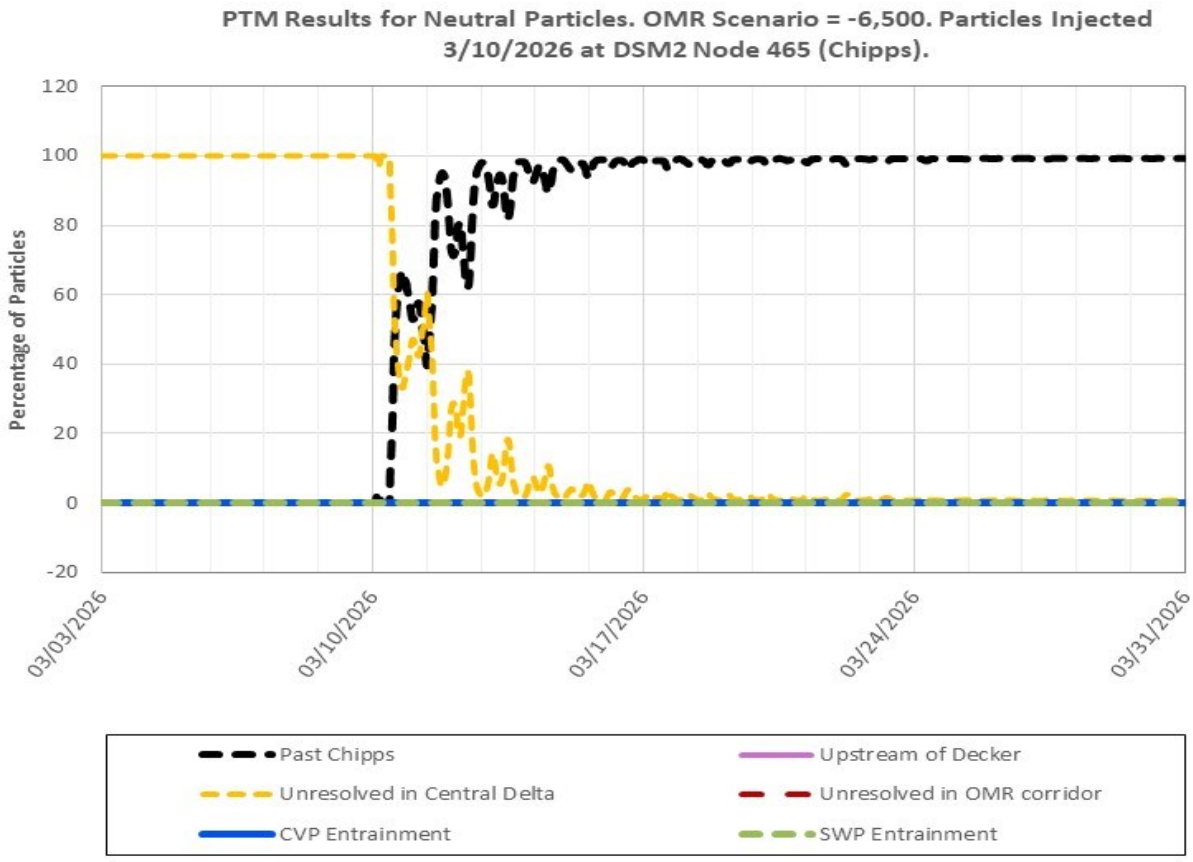

Figure 7: PTM Results for Neutral Particles at Chipps Island, OMR Scenario -6,500

Figure 7 is a line graph showing the percentage of neutral particles over time from March 3 to March 31, 2026, injected on March 10, 2026 at DSM2 Node 465 (Chipps). Six flux locations are represented by different colored dashed lines, with Past Chipps (black) and Unresolved in Central Delta (yellow) showing the most notable particle percentages across the evaluation period.

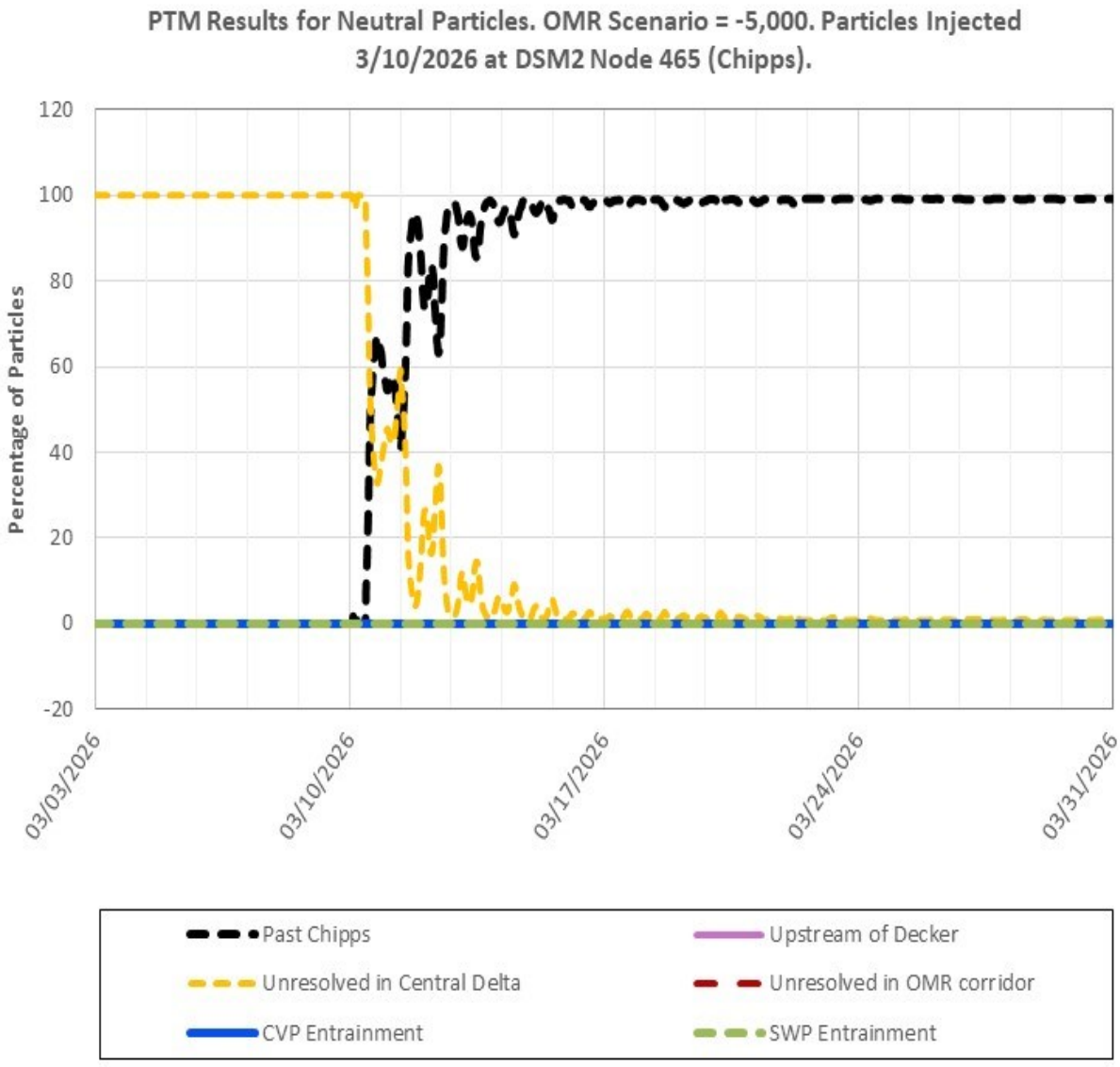

Figure 8: PTM Results for Neutral Particles at Chipps Island, OMR Scenario -5,000

Figure 8 is a line graph showing the percentage of neutral particles over time from March 3 to March 31, 2026, injected on March 10, 2026 at DSM2 Node 465 (Chipps). Six flux locations are represented by different colored dashed lines, with Past Chipps (black) and Unresolved in Central Delta (yellow) showing the most notable particle percentages across the evaluation period.

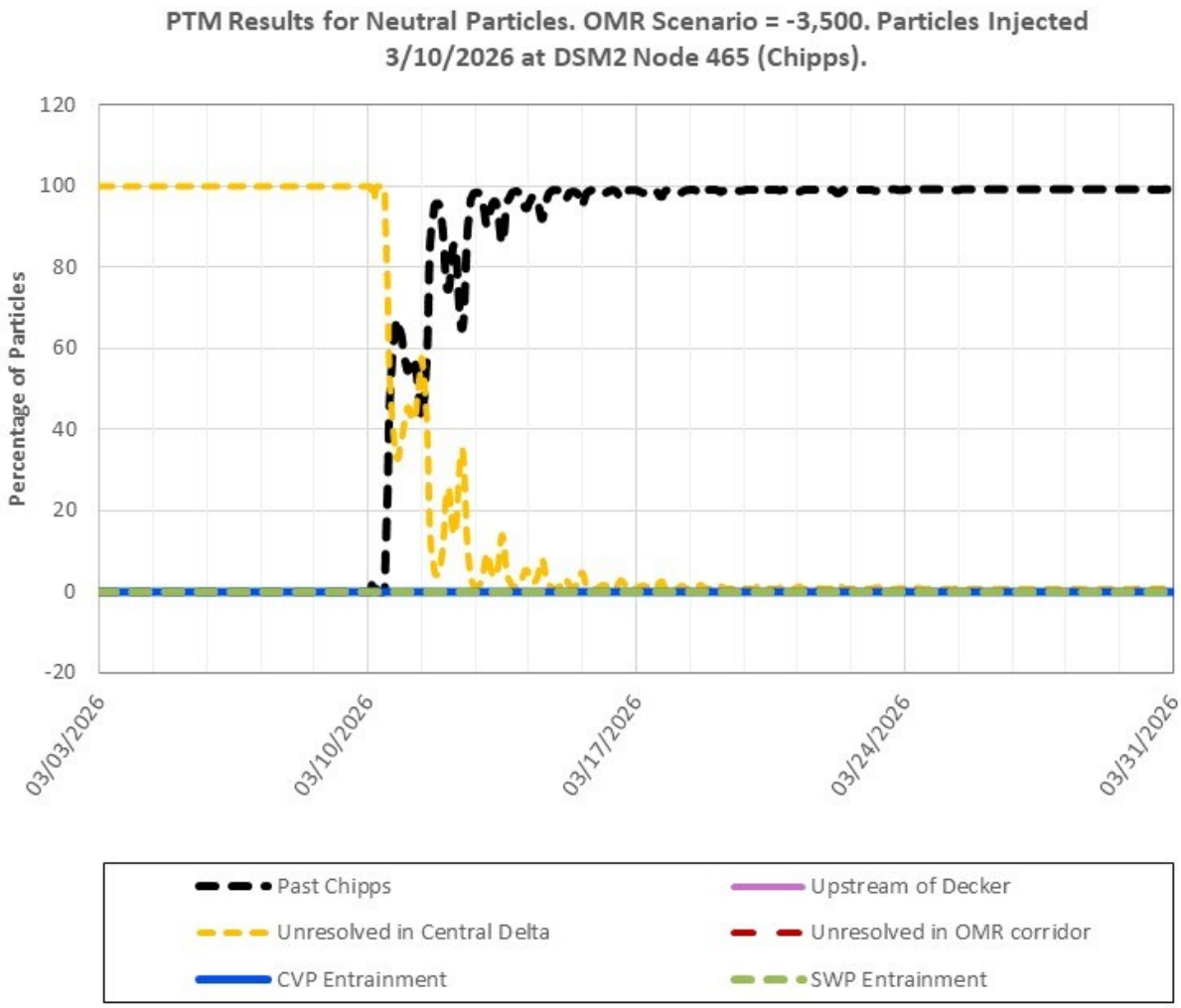

Figure 9: PTM Results for Neutral Particles at Chipps Island, OMR Scenario -3,500

Figure 9 is a line graph showing the percentage of neutral particles over time from March 3 to March 31, 2026, injected on March 10, 2026 at DSM2 Node 465 (Chipps) under the OMR scenario of -3,500 cfs. Six flux locations are represented by different colored dashed lines, with Past Chipps (black) rising to near 100% shortly after injection and Unresolved in Central Delta (yellow) peaking around 40% before declining to near zero by mid-March.

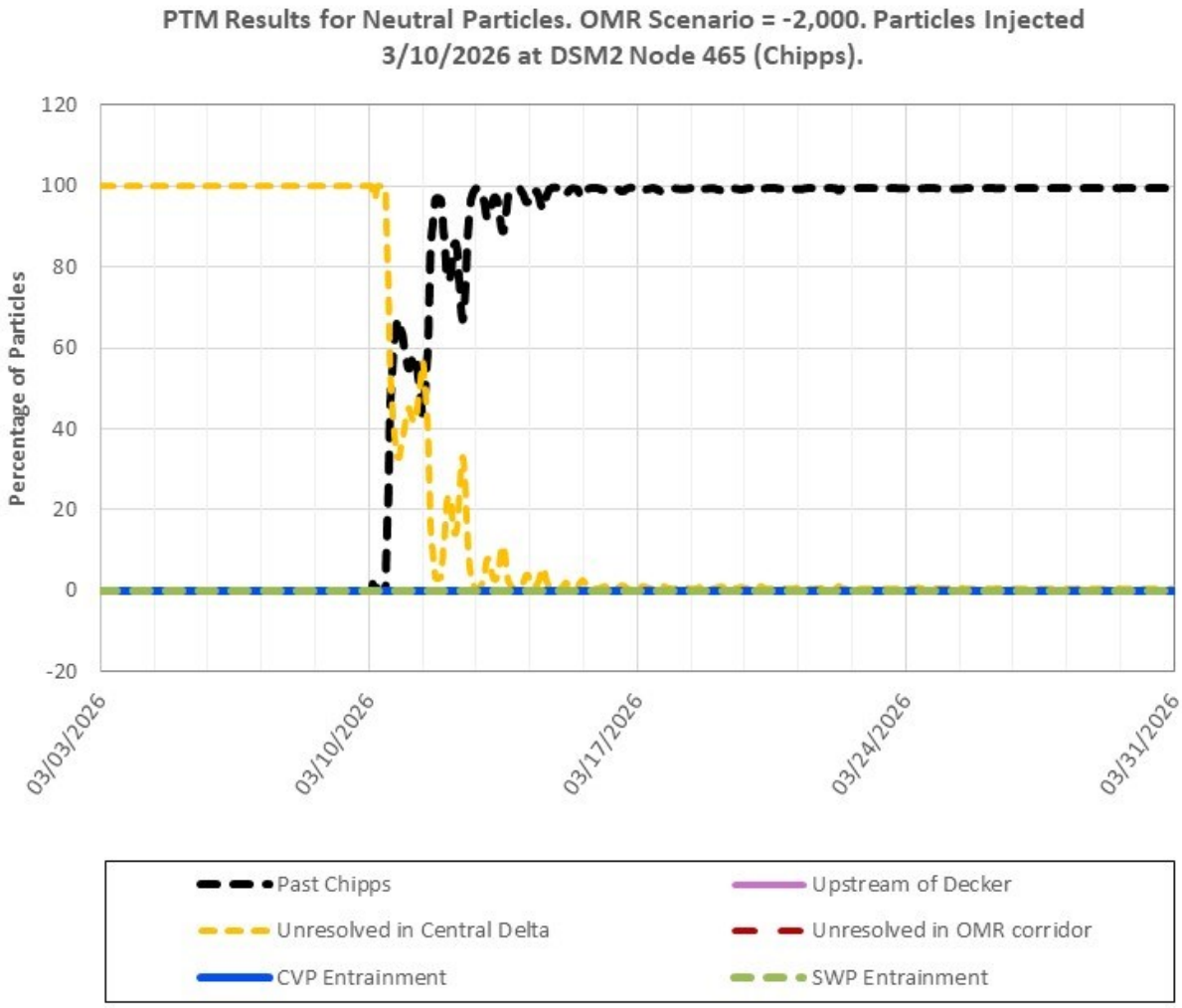

Figure 10: PTM Results for Neutral Particles at Chipps Island, OMR Scenario -2,000

Figure 10 is a line graph showing the percentage of neutral particles over time from March 3 to March 31, 2026, injected on March 10, 2026 at DSM2 Node 465 (Chipps) under the OMR scenario of -2,000 cfs. Six flux locations are represented by different colored dashed lines, with Past Chipps (black) rising to near 100% shortly after injection and Unresolved in Central Delta (yellow) peaking around 40% before declining to near zero by mid-March.

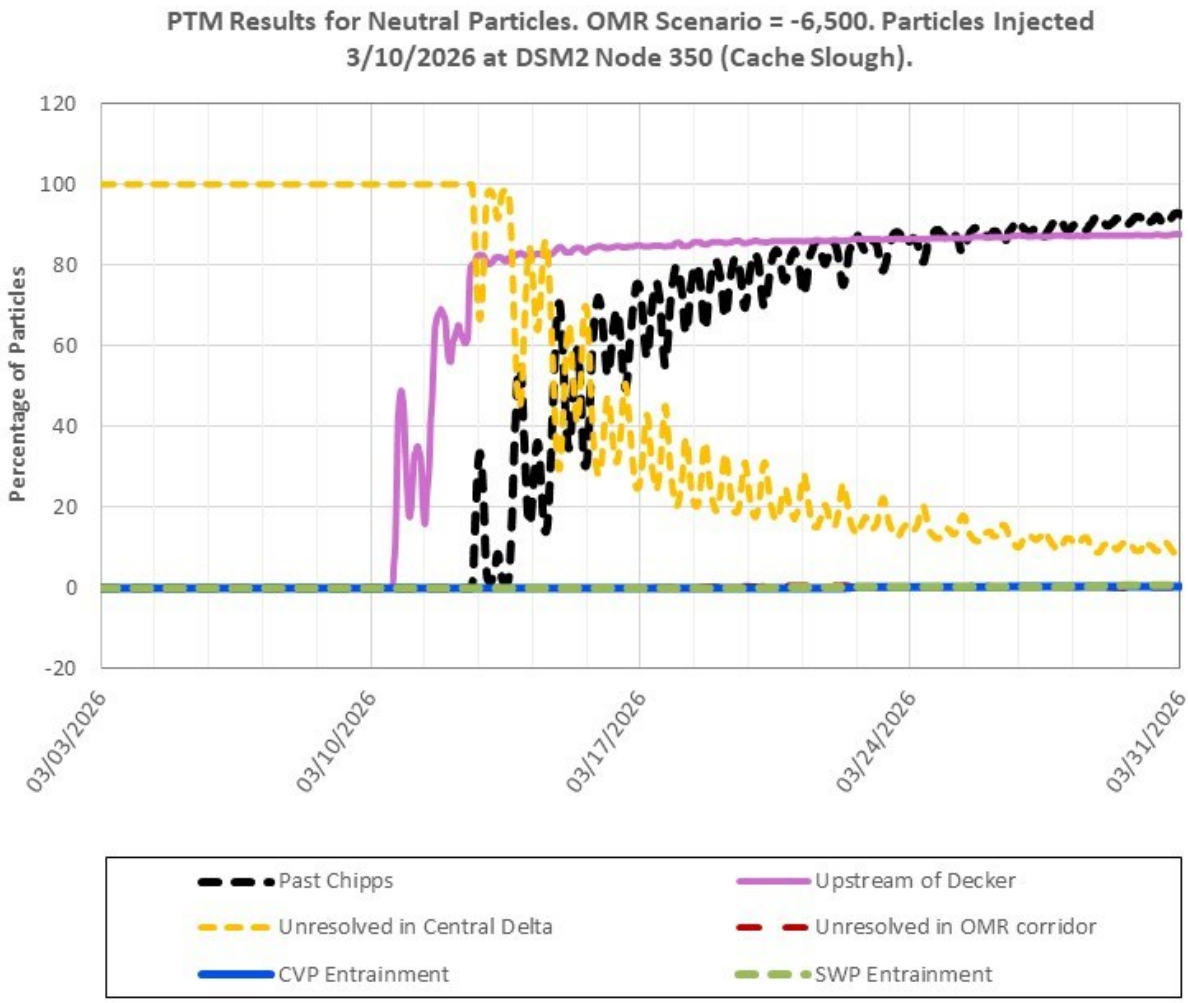

Figure 11: PTM Results for Neutral Particles at Cache Slough Confluence, OMR Scenario -6,500

Figure 11 is a line graph showing the percentage of neutral particles over time from March 3 to March 31, 2026, injected on March 10, 2026 at DSM2 Node 350 (Cache Slough) under the OMR scenario of -6,500 cfs. Upstream of Decker (pink) rises rapidly to around 85% by mid-March and remains elevated, Past Chipps (black) gradually increases to roughly 90% by the end of the period, and Unresolved in Central Delta (yellow) peaks near 100% before declining to approximately 10–15% by late March.

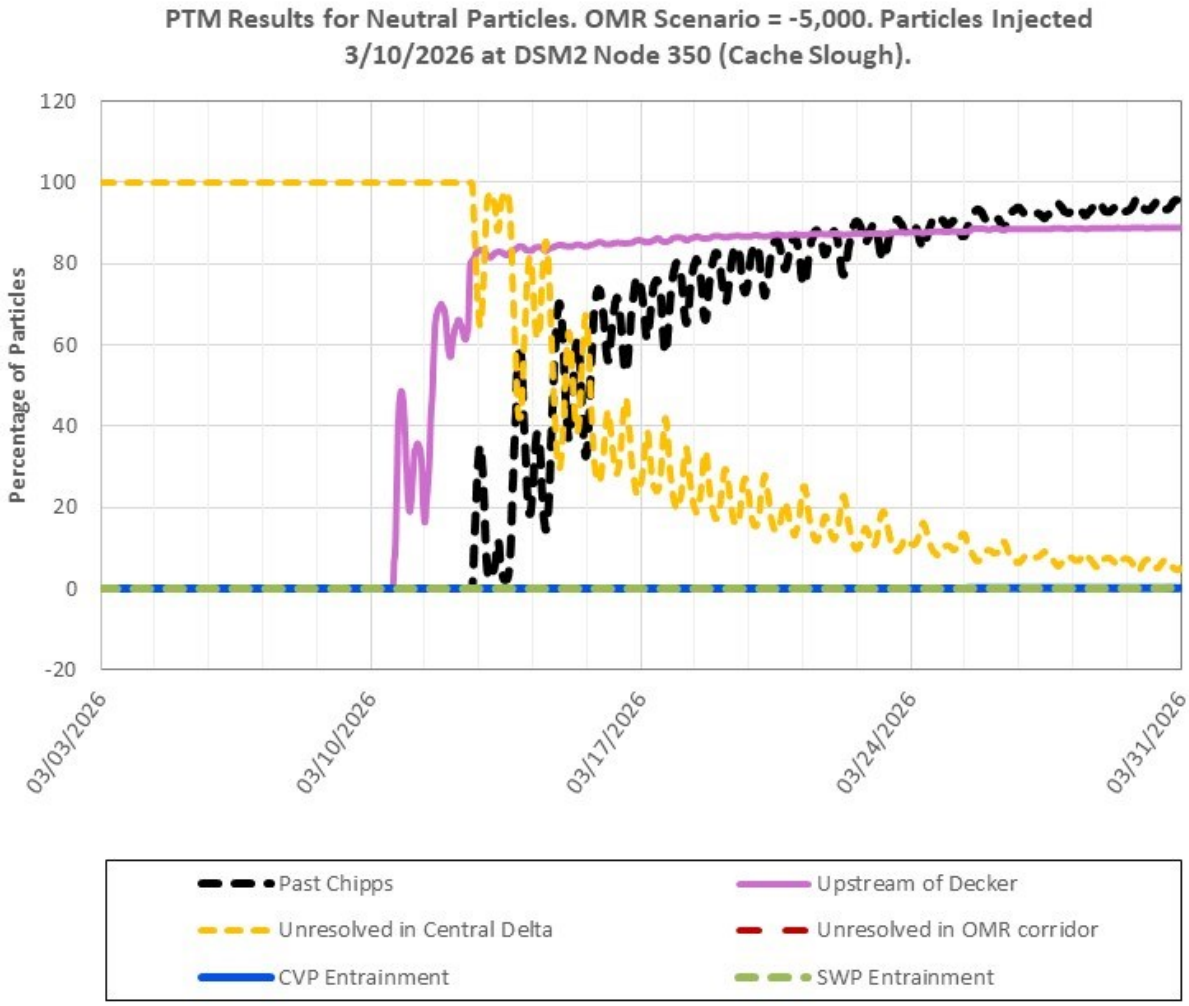

Figure 12: PTM Results for Neutral Particles at Cache Slough Confluence, OMR Scenario -5,000

Figure 12 is a line graph showing the percentage of neutral particles over time from March 3 to March 31, 2026, injected on March 10, 2026 at DSM2 Node 350 (Cache Slough) under the OMR scenario of -5,000 cfs. Upstream of Decker (pink) rises to approximately 85–90% by mid-March and remains elevated, Past Chipps (black) gradually increases to roughly 95% by the end of the period, and Unresolved in Central Delta (yellow) peaks near 100% before declining to around 5–10% by late March.

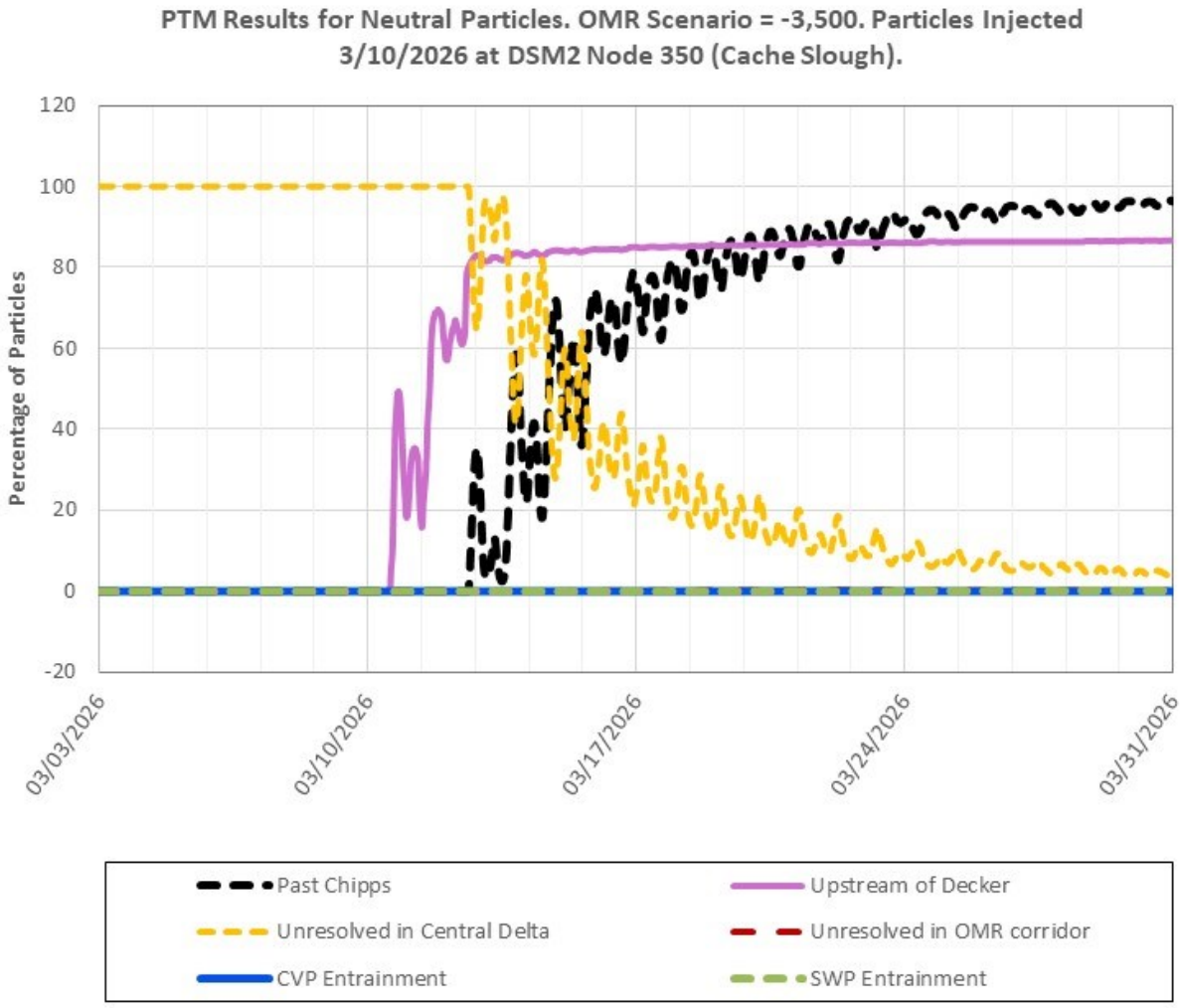

Figure 13: PTM Results for Neutral Particles at Cache Slough Confluence, OMR Scenario -3,500

Figure 13 is a line graph showing the percentage of neutral particles over time from March 3 to March 31, 2026, injected on March 10, 2026 at DSM2 Node 350 (Cache Slough) under the OMR scenario of -3,500 cfs. Upstream of Decker (pink) rises to approximately 85–90% by mid-March and remains elevated, Past Chipps (black) gradually increases to roughly 95–97% by the end of the period, and Unresolved in Central Delta (yellow) peaks near 100% before declining to around 5–10% by late March.

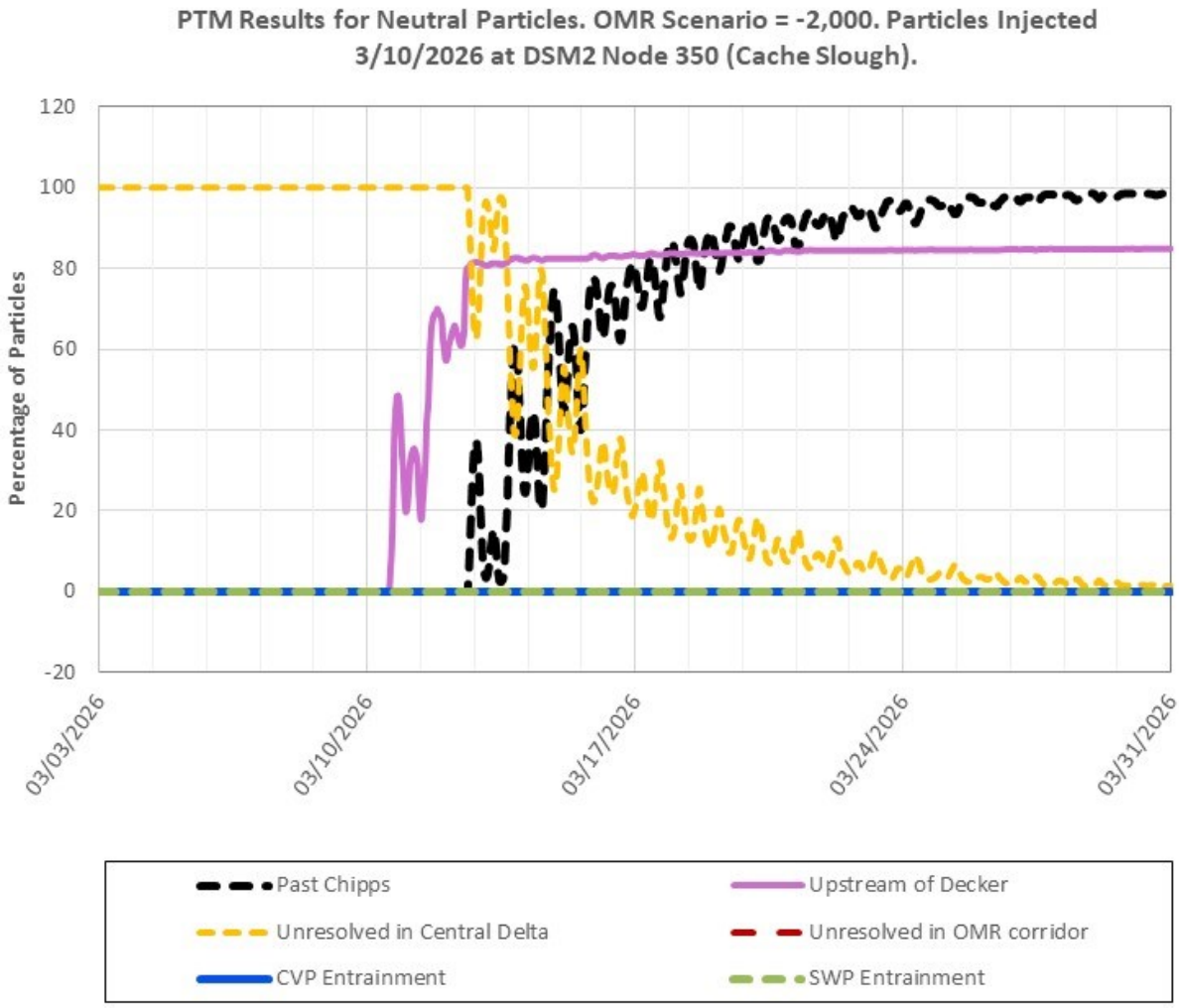

Figure 14: PTM Results for Neutral Particles at Cache Slough Confluence, OMR Scenario -2,000

Figure 14 is a line graph showing the percentage of neutral particles over time from March 3 to March 31, 2026, injected on March 10, 2026 at DSM2 Node 350 (Cache Slough) under the OMR scenario of -2,000 cfs. Upstream of Decker (pink) rises to approximately 80–85% by mid-March and remains elevated, Past Chipps (black) gradually increases to roughly 95–98% by the end of the period, and Unresolved in Central Delta (yellow) peaks near 100% before declining to near zero by late March.

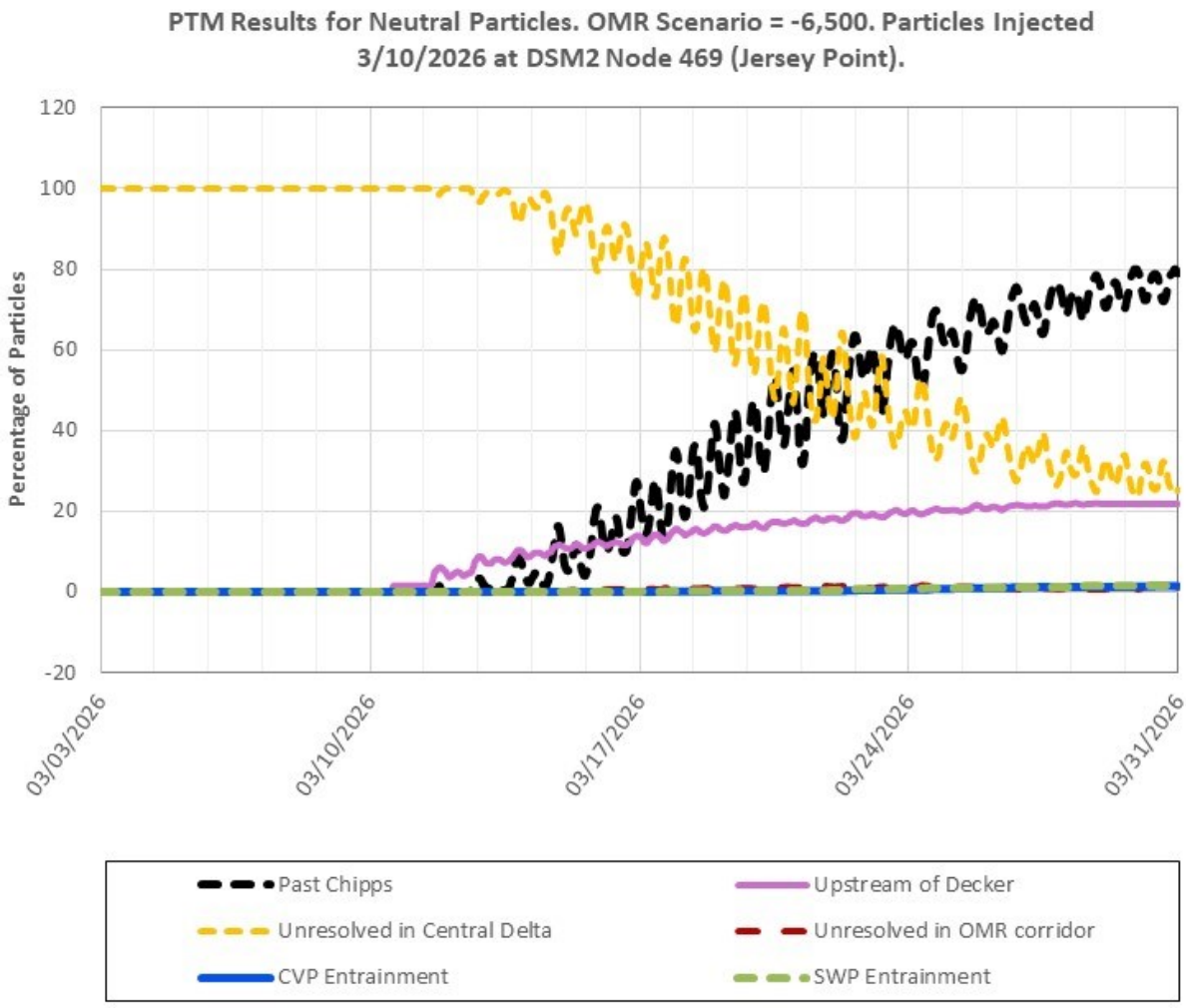

Figure 15: PTM Results for Neutral Particles at Jersey Point, OMR Scenario -6,500

Figure 15 is a line graph showing the percentage of neutral particles over time from March 3 to March 31, 2026, injected on March 10, 2026 at DSM2 Node 469 (Jersey Point) under the OMR scenario of -6,500 cfs. Past Chipps (black) gradually increases throughout the period, reaching approximately 75–80% by the end of March, while Unresolved in Central Delta (yellow) declines from near 100% to about 25–30%. Upstream of Decker (pink) rises steadily to around 20%, and CVP and SWP entrainment remain near zero across the evaluation period.

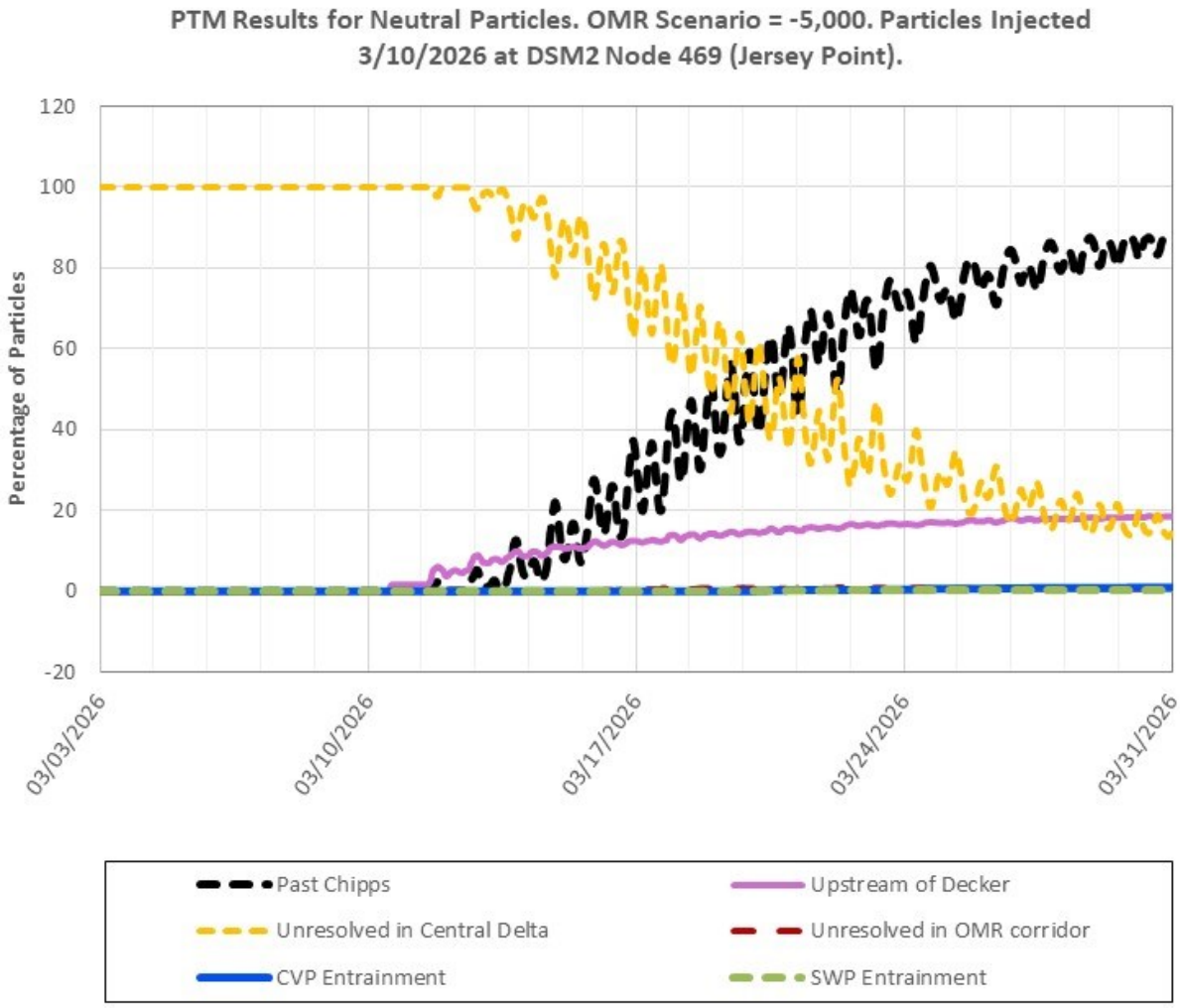

Figure 16: PTM Results for Neutral Particles at Jersey Point, OMR Scenario -5,000

Figure 16 is a line graph showing the percentage of neutral particles over time from March 3 to March 31, 2026, injected on March 10, 2026 at DSM2 Node 469 (Jersey Point) under the OMR scenario of -5,000 cfs. Past Chipps (black) steadily increases over the evaluation period, reaching approximately 85–90% by the end of March, while Unresolved in Central Delta (yellow) declines from near 100% to roughly 15–20%. Upstream of Decker (pink) gradually rises to about 15–20%, and CVP and SWP entrainment remain near zero throughout the period.

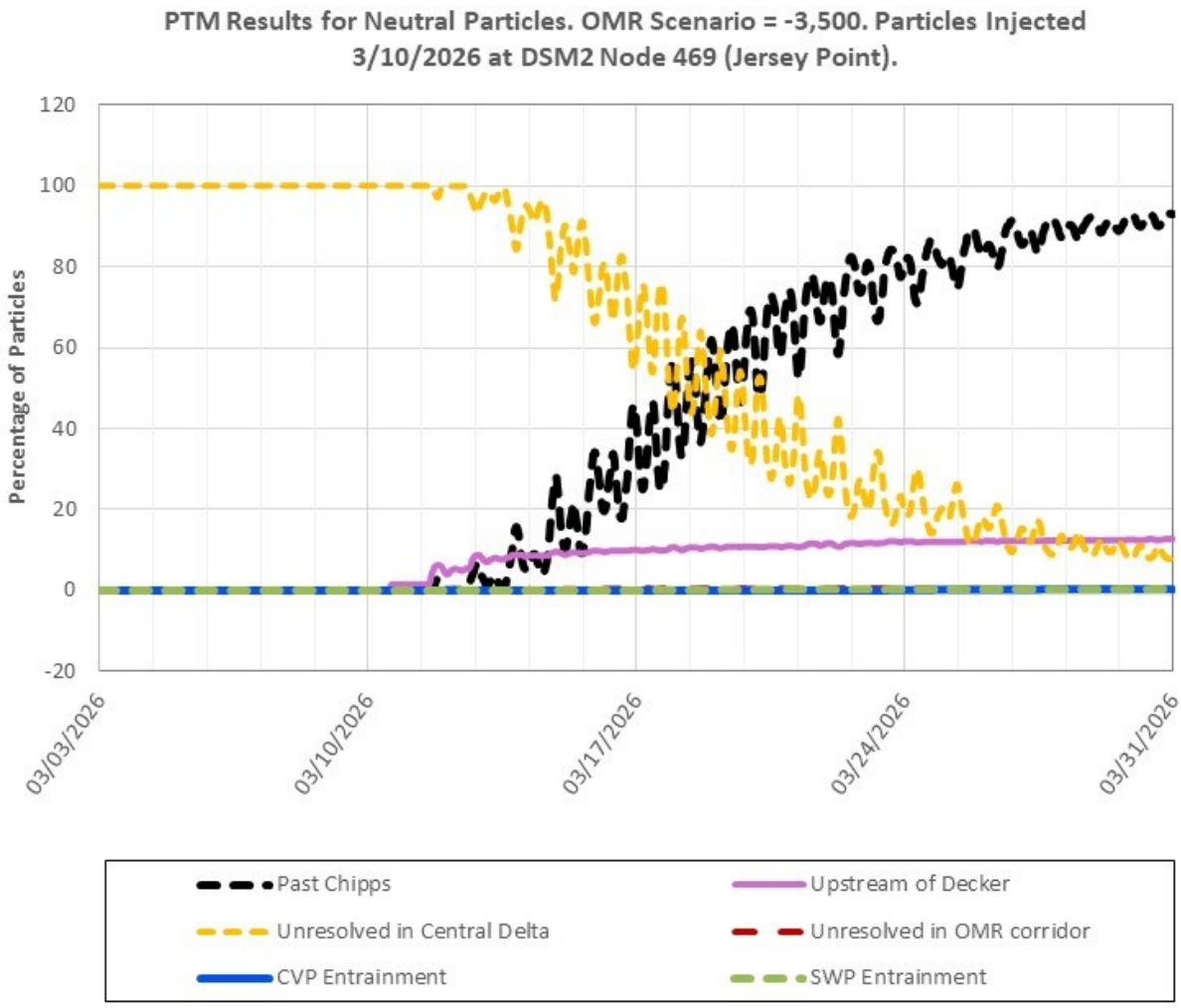

Figure 17: PTM Results for Neutral Particles at Jersey Point, OMR Scenario -3,500

Figure 17 is a line graph showing the percentage of neutral particles over time from March 3 to March 31, 2026, injected on March 10, 2026 at DSM2 Node 469 (Jersey Point) under the OMR scenario of -3,500 cfs. Past Chipps (black) steadily increases over the evaluation period, reaching approximately 90% by the end of March, while Unresolved in Central Delta (yellow) declines from near 100% to about 10–15%. Upstream of Decker (pink) gradually rises to around 10–12%, and CVP and SWP entrainment remain near zero throughout the period.

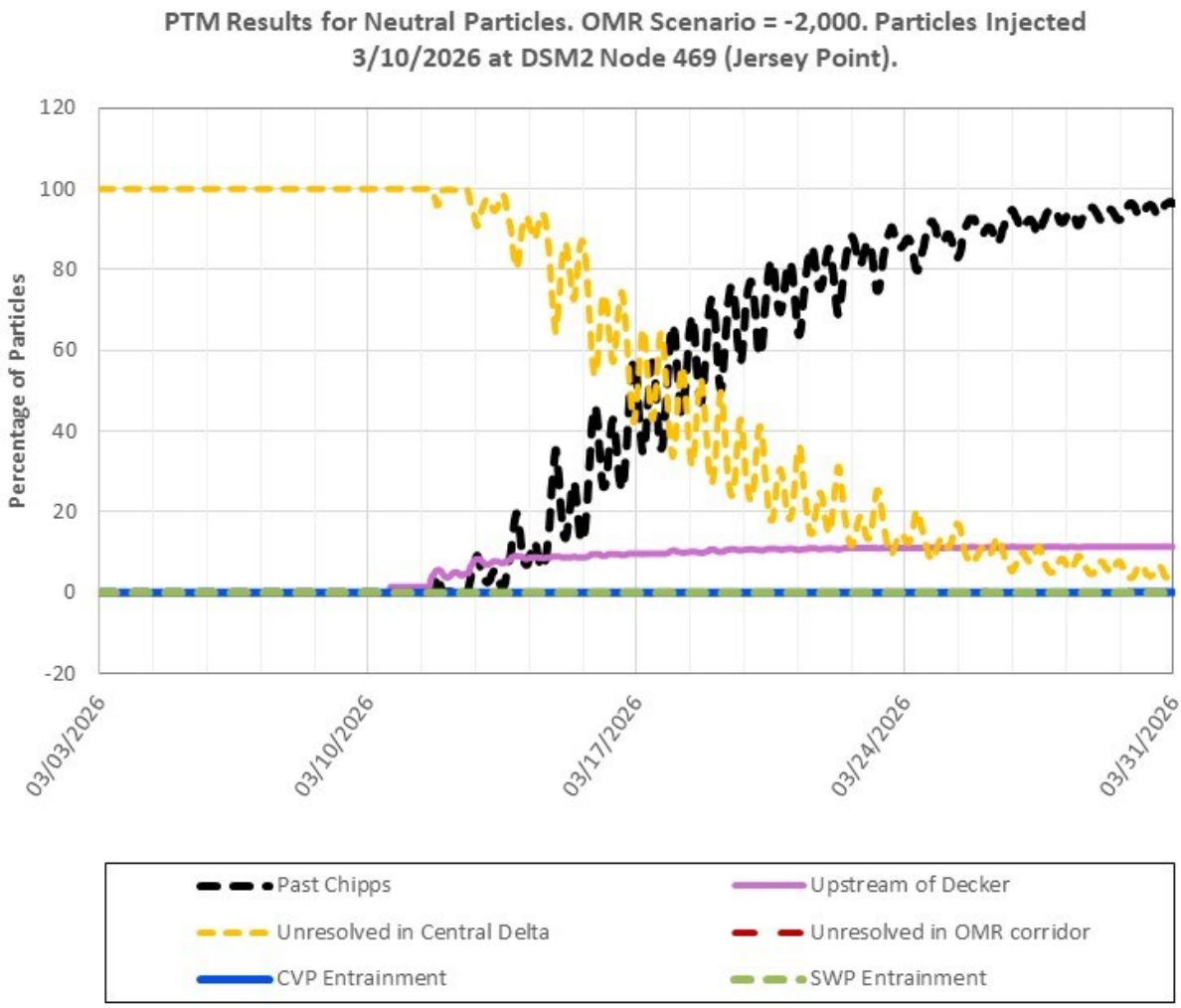

Figure 18: PTM Results for Neutral Particles at Jersey Point, OMR Scenario -2,000

Figure 18 is a line graph showing the percentage of neutral particles over time from March 3 to March 31, 2026, injected on March 10, 2026 at DSM2 Node 469 (Jersey Point) under the OMR scenario of -2,000 cfs. Past Chipps (black) increases steadily throughout the period, reaching approximately 95% by the end of March, while Unresolved in Central Delta (yellow) declines from near 100% to around 5–10%. Upstream of Decker (pink) gradually rises to about 10–12%, and CVP and SWP entrainment remain near zero across the evaluation period.

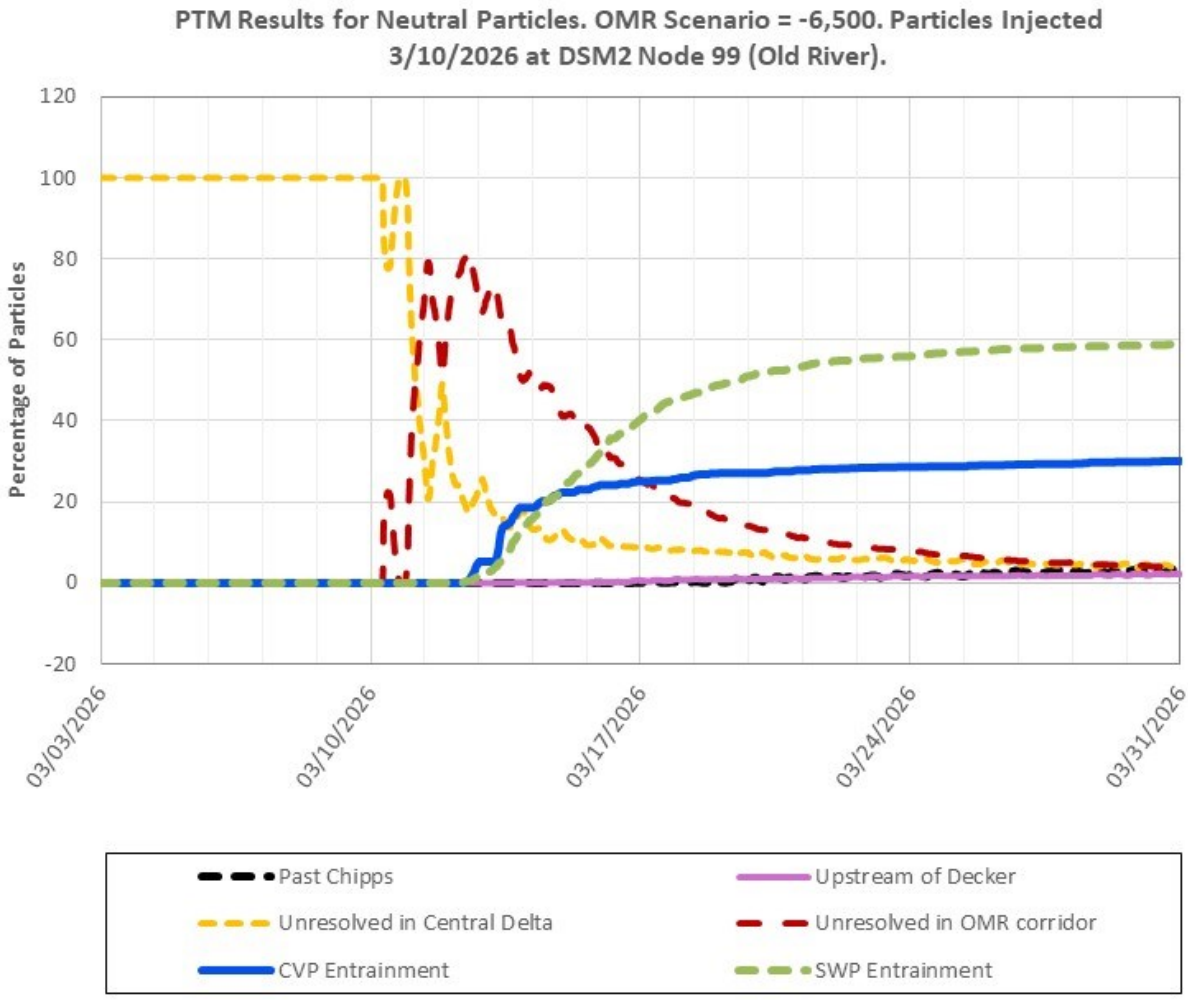

Figure 19: PTM Results for Neutral Particles at Old River, OMR Scenario -6,500

Figure 19 is a line graph showing the percentage of neutral particles over time from March 3 to March 31, 2026, injected on March 10, 2026 at DSM2 Node 99 (Old River) under the OMR scenario of -6,500 cfs. SWP entrainment (green) increases steadily and becomes the dominant pathway, reaching approximately 55–60% by the end of March, while CVP entrainment (blue) rises to around 25–30%. Unresolved in OMR corridor (red) peaks early at roughly 70–80% before declining to near zero, and Unresolved in Central Delta (yellow) drops rapidly from near 100% to low levels. Past Chipps (black) and Upstream of Decker (pink) remain minimal throughout the evaluation period.

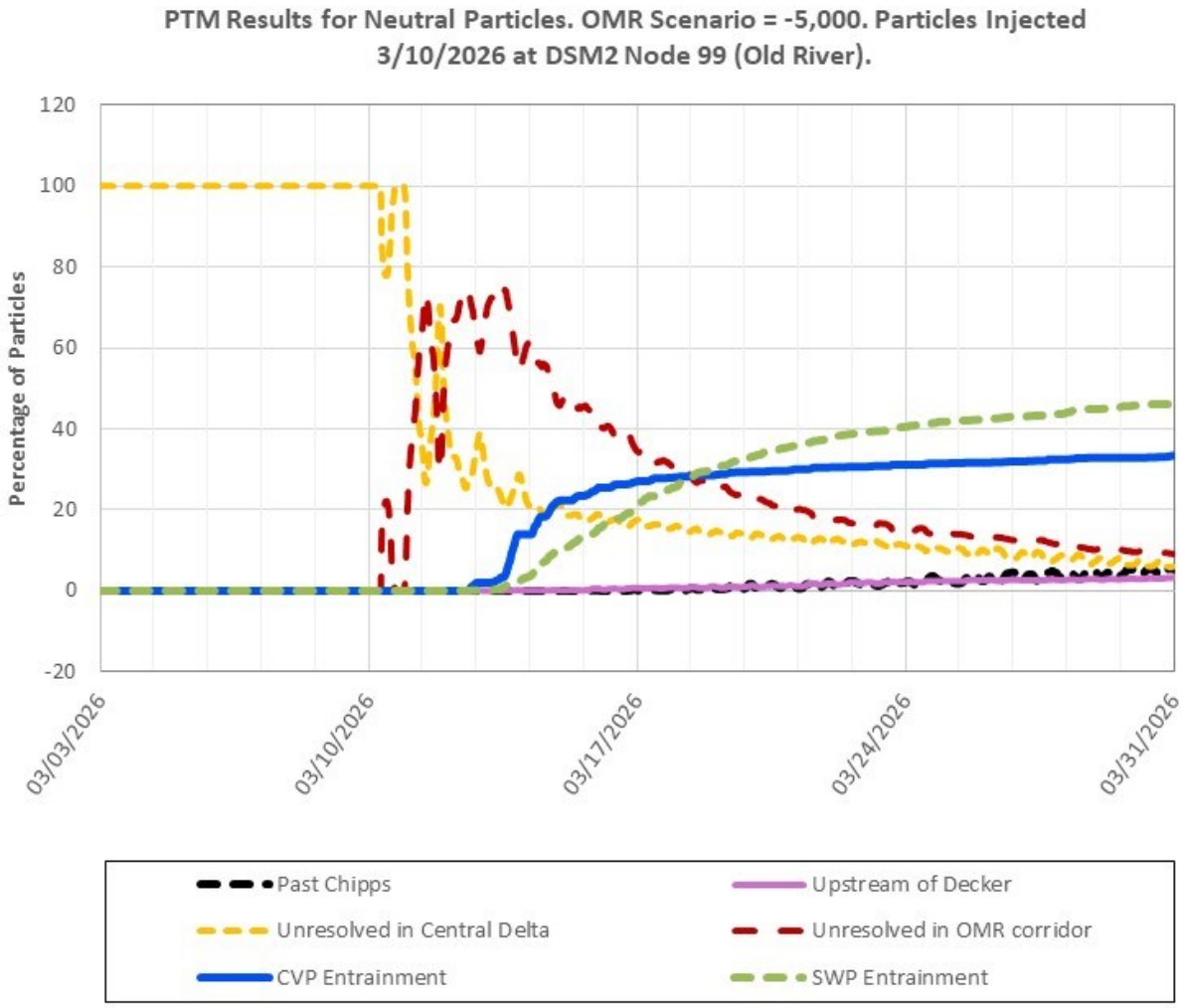

Figure 20: PTM Results for Neutral Particles at Old River, OMR Scenario -5,000

Figure 20 is a line graph showing the percentage of neutral particles over time from March 3 to March 31, 2026, injected on March 10, 2026 at DSM2 Node 99 (Old River) under the OMR scenario of -5,000 cfs. SWP entrainment (green) increases steadily to approximately 45–50% by the end of March, while CVP entrainment (blue) rises to around 30–35%. Unresolved in OMR corridor (red) peaks early near 65–70% before gradually declining, and Unresolved in Central Delta (yellow) decreases from near 100% to about 10–15%. Past Chipps (black) and Upstream of Decker (pink) remain low throughout the evaluation period.

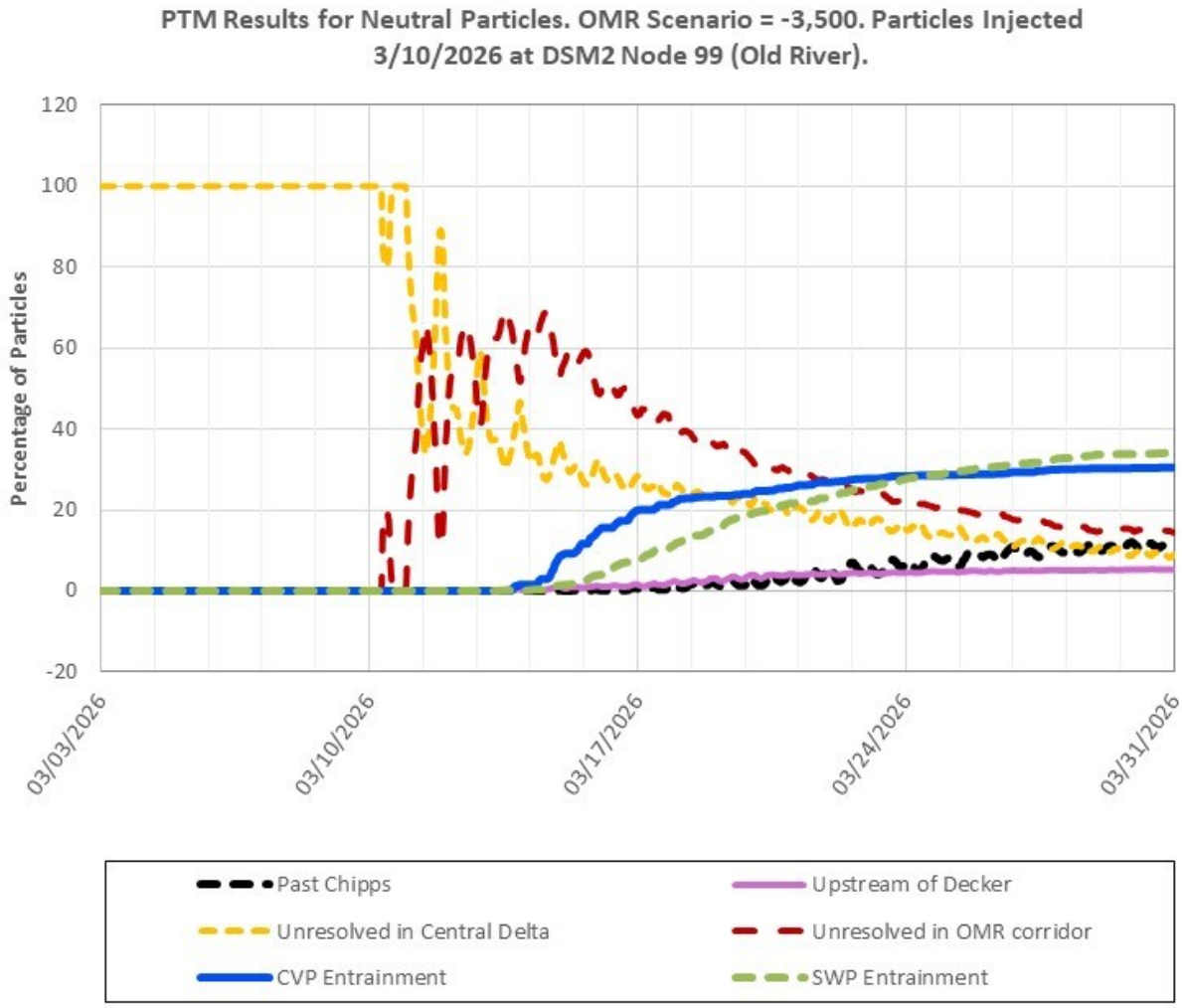

Figure 21: PTM Results for Neutral Particles at Old River, OMR Scenario -3,500

Figure 21 is a line graph showing the percentage of neutral particles over time from March 3 to March 31, 2026, injected on March 10, 2026 at DSM2 Node 99 (Old River) under the OMR scenario of -3,500 cfs. SWP entrainment (green) increases gradually to approximately 30–35% by the end of March, while CVP entrainment (blue) rises to around 25–30%. Unresolved in OMR corridor (red) peaks early near 60–65% and declines over time, and Unresolved in Central Delta (yellow) decreases from near 100% to about 10–15%. Past Chipps (black) and Upstream of Decker (pink) increase slightly but remain relatively low throughout the evaluation period.

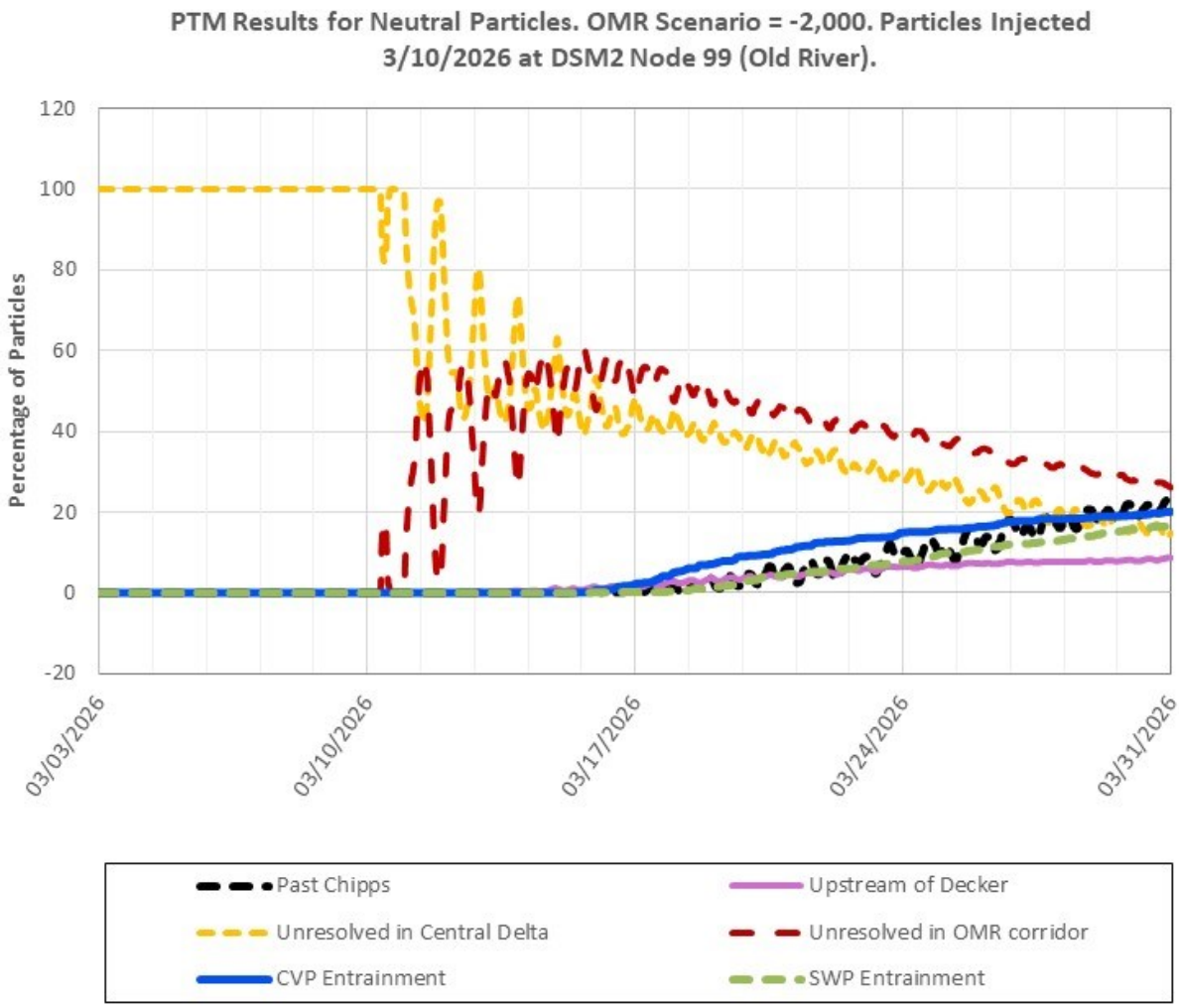

Figure 22: PTM Results for Neutral Particles at Old River, OMR Scenario -2,000

Figure 22 is a line graph showing the percentage of neutral particles over time from March 3 to March 31, 2026, injected on March 10, 2026 at DSM2 Node 99 (Old River) under the OMR scenario of -2,000 cfs. Unresolved in OMR corridor (red) remains relatively high throughout the period, peaking near 55–60% and gradually declining to around 25–30% by the end of March, while Unresolved in Central Delta (yellow) decreases from near 100% to approximately 15–20%. CVP entrainment (blue) increases steadily to about 20%, and SWP entrainment (green) rises more gradually to around 15–20%. Past Chipps (black) and Upstream of Decker (pink) increase modestly but remain comparatively low over the evaluation 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: 03/16/2026	-6,500	99.3	0.0	0.8	0.0	0.0	0.0
Week 1 End: 03/16/2026	-5,000	99.3	0.0	0.7	0.0	0.0	0.0
Week 1 End: 03/16/2026	-3,500	99.1	0.0	0.9	0.0	0.0	0.0
Week 1 End: 03/16/2026	-2,000	99.3	0.0	0.7	0.0	0.0	0.0
Week 2 End: 03/23/2026	-6,500	99.6	0.0	0.4	0.0	0.0	0.0
Week 2 End: 03/23/2026	-5,000	99.2	0.0	0.8	0.0	0.0	0.0
Week 2 End: 03/23/2026	-3,500	99.1	0.0	0.9	0.0	0.0	0.0
Week 2 End: 03/23/2026	-2,000	99.4	0.0	0.6	0.0	0.0	0.0
Week 3 End: 03/30/2026	-6,500	99.6	0.0	0.4	0.0	0.0	0.0
Week 3 End: 03/30/2026	-5,000	99.3	0.1	0.7	0.0	0.0	0.0
Week 3 End: 03/30/2026	-3,500	99.2	0.0	0.8	0.0	0.0	0.0
Week 3 End: 03/30/2026	-2,000	99.4	0.0	0.6	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: 03/16/2026	-6,500	75.1	89.1	24.9	0.0	0.0	0.0
Week 1 End: 03/16/2026	-5,000	77.9	88.5	22.1	0.0	0.0	0.0
Week 1 End: 03/16/2026	-3,500	80.6	88.8	19.4	0.0	0.0	0.0
Week 1 End: 03/16/2026	-2,000	82.8	88.0	17.2	0.0	0.0	0.0
Week 2 End: 03/23/2026	-6,500	91.5	92.8	9.2	0.3	0.2	0.2
Week 2 End: 03/23/2026	-5,000	92.4	91.2	7.8	0.2	0.0	0.0
Week 2 End: 03/23/2026	-3,500	93.9	91.6	6.2	0.0	0.0	0.1
Week 2 End: 03/23/2026	-2,000	94.8	90.5	5.3	0.1	0.0	0.0
Week 3 End: 03/30/2026	-6,500	93.8	93.6	7.2	0.2	0.5	0.3
Week 3 End: 03/30/2026	-5,000	95.6	92.2	4.8	0.1	0.1	0.2
Week 3 End: 03/30/2026	-3,500	96.7	92.2	3.5	0.1	0.0	0.1
Week 3 End: 03/30/2026	-2,000	97.3	91.1	2.8	0.0	0.1	0.0

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: 02/16/2026	-6,500	38.6	11.3	61.7	0.2	0.0	0.1
Week 1 End: 02/16/2026	-5,000	49.7	9.8	51.0	0.7	0.0	0.0
Week 1 End: 02/16/2026	-3,500	57.5	9.5	42.7	0.2	0.0	0.0
Week 1 End: 02/16/2026	-2,000	65.5	6.3	34.5	0.0	0.0	0.0
Week 2 End: 02/23/2026	-6,500	83.0	16.7	18.3	0.8	0.2	0.3
Week 2 End: 02/23/2026	-5,000	89.0	12.7	12.0	0.3	0.4	0.3
Week 2 End: 02/23/2026	-3,500	92.5	10.8	8.0	0.3	0.0	0.2
Week 2 End: 02/23/2026	-2,000	95.0	7.6	5.2	0.2	0.0	0.0
Week 3 End: 03/02/2026	-6,500	90.3	17.9	11.9	0.3	1.0	0.9
Week 3 End: 03/02/2026	-5,000	94.5	13.3	6.7	0.2	0.7	0.3
Week 3 End: 03/02/2026	-3,500	95.5	11.0	5.3	0.2	0.3	0.3
Week 3 End: 03/02/2026	-2,000	97.7	7.8	2.7	0.2	0.2	0.0

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: 03/16/2026	-6,500	0.8	1.3	20.5	37.5	26.8	14.4
Week 1 End: 03/16/2026	-5,000	0.8	1.5	35.4	41.1	18.6	4.0
Week 1 End: 03/16/2026	-3,500	0.8	2.0	56.8	40.7	1.7	0.1
Week 1 End: 03/16/2026	-2,000	2.2	1.9	6.8	10.3	26.6	54.1
Week 2 End: 03/23/2026	-6,500	6.5	3.2	9.1	13.0	33.1	38.3
Week 2 End: 03/23/2026	-5,000	12.1	4.9	15.5	19.2	30.1	23.1
Week 2 End: 03/23/2026	-3,500	15.1	6.2	29.9	31.8	17.0	6.2
Week 2 End: 03/23/2026	-2,000	4.6	2.7	3.4	5.7	28.5	57.8
Week 3 End: 03/30/2026	-6,500	10.3	4.3	4.3	7.8	34.4	43.2
Week 3 End: 03/30/2026	-5,000	18.4	5.8	8.1	10.4	31.6	31.5
Week 3 End: 03/30/2026	-3,500	26.5	8.4	16.5	21.3	21.2	14.4
Week 3 End: 03/30/2026	-2,000	0.8	1.3	20.5	37.5	26.8	14.4

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

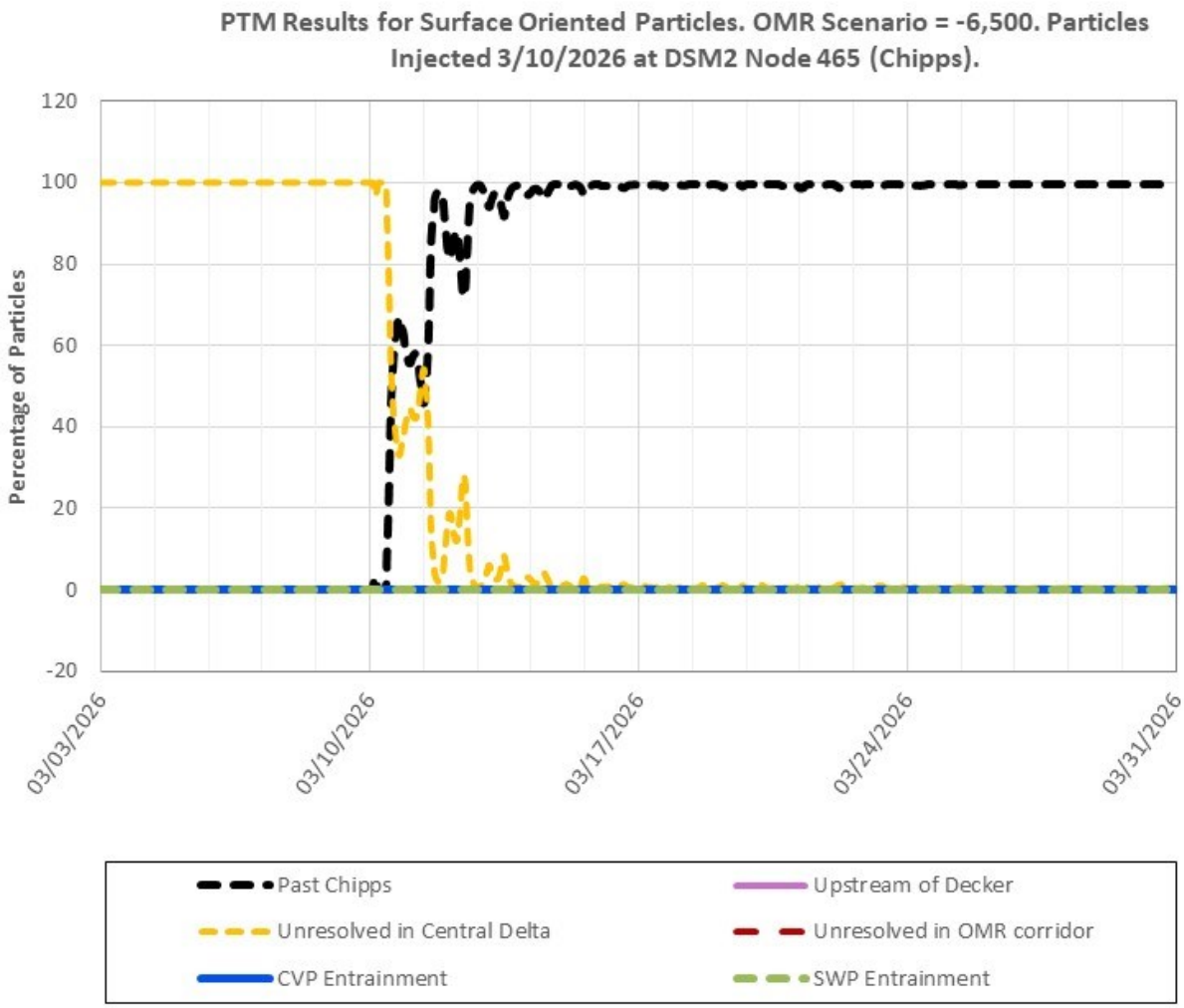

Figure 23: PTM Results for Surface-Oriented Particles at Chipps Island, OMR Scenario -6,500

Figure 23 is a line graph showing the percentage of surface oriented particles over time from March 3 to March 31, 2026, injected on March 10, 2026 at DSM2 Node 465 (Chipps) under the OMR scenario of -6,500 cfs. Past Chipps (black) rises to near 100% shortly after injection and remains elevated throughout the period, while Unresolved in Central Delta (yellow) peaks around 50–60% before declining to near zero by mid-March.

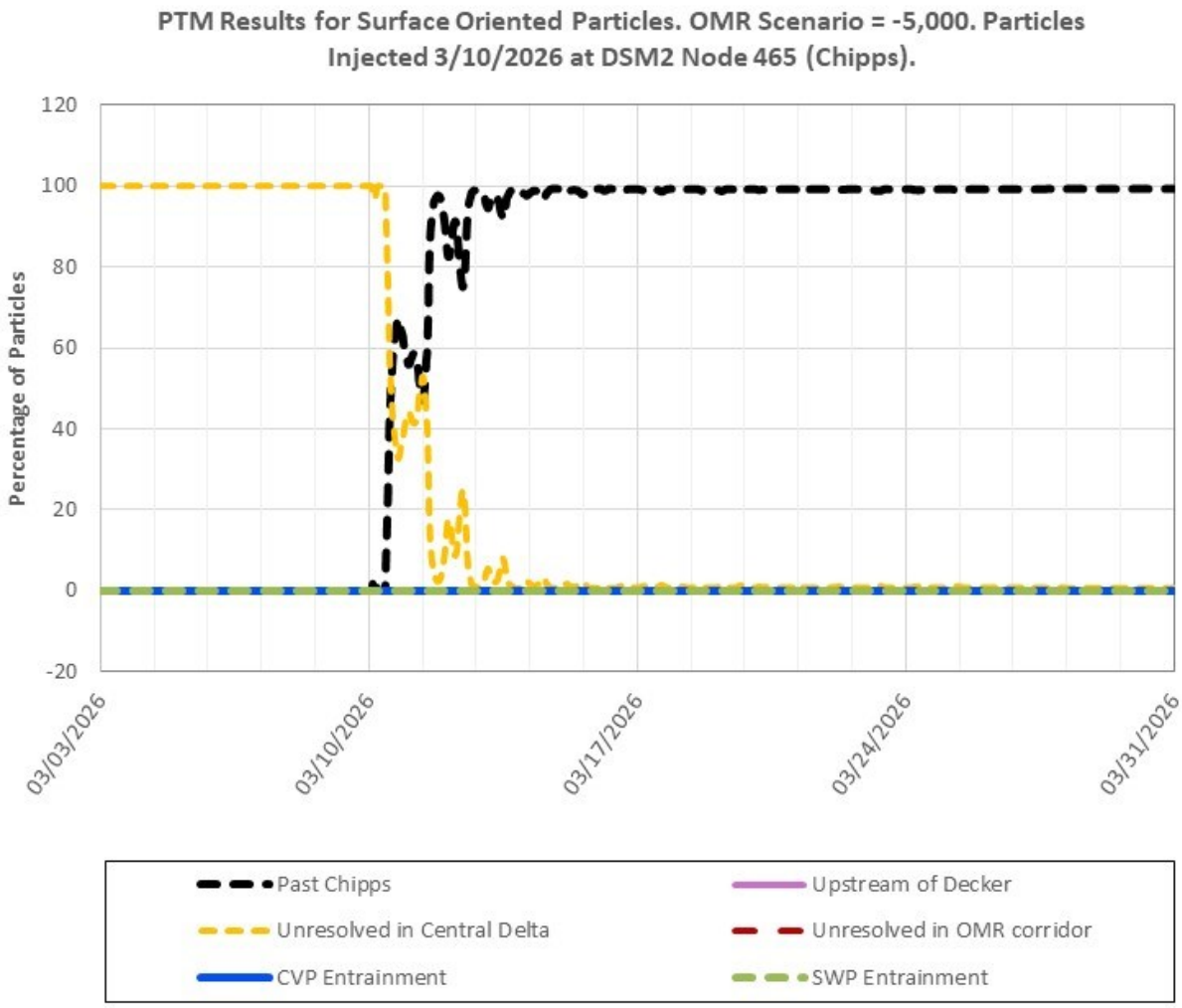

Figure 24: PTM Results for Surface Oriented Particles at Chipps Island, OMR Scenario -5,000

Figure 24 is a line graph showing the percentage of surface oriented particles over time from March 3 to March 31, 2026, injected on March 10, 2026 at DSM2 Node 465 (Chipps) under the OMR scenario of -5,000 cfs. Past Chipps (black) rises rapidly to near 100% shortly after injection and remains dominant throughout the period, while Unresolved in Central Delta (yellow) peaks around 50–60% before declining to near zero by mid-March. Other pathways remain negligible across the evaluation period.

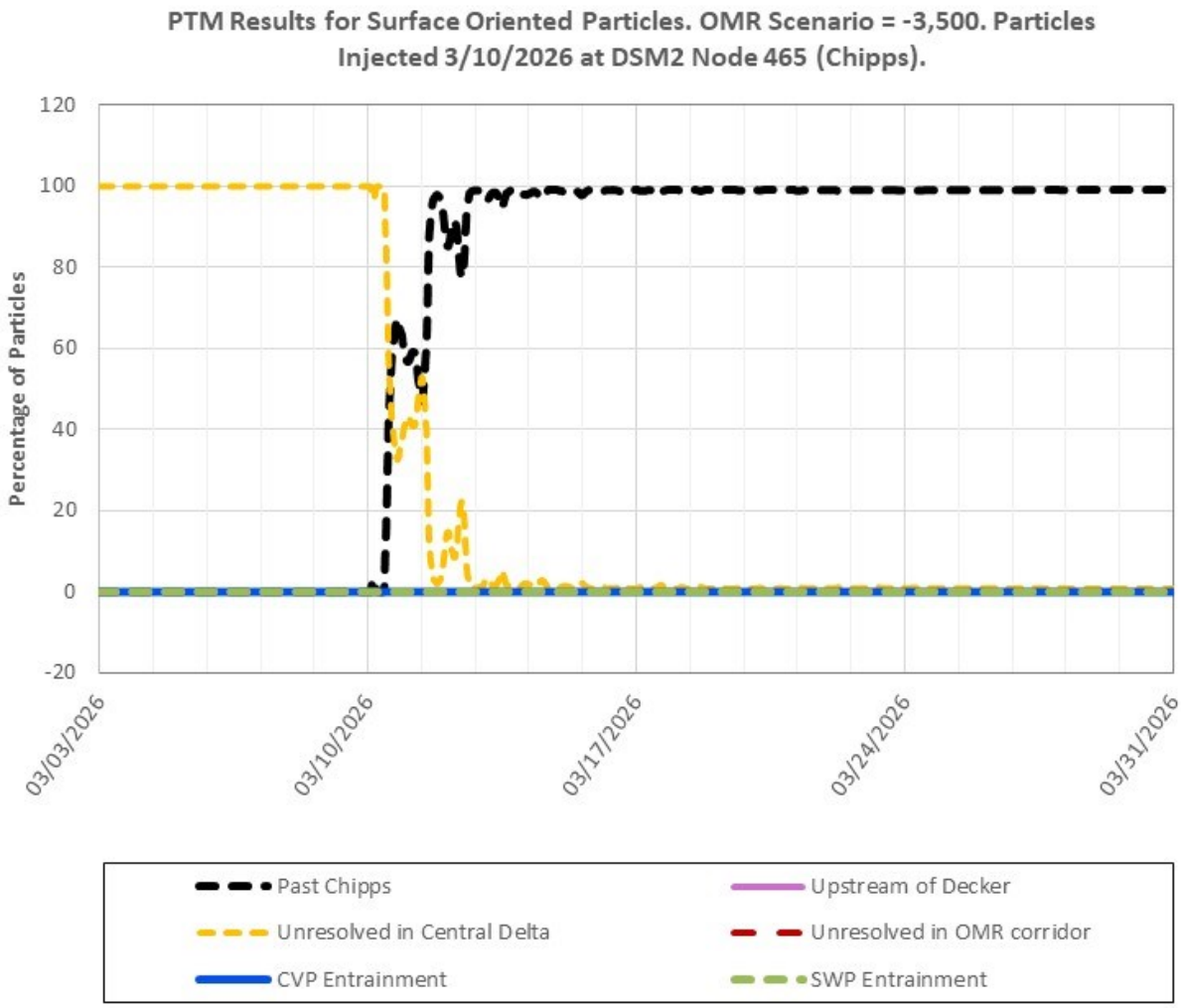

Figure 25: PTM Results for Surface Oriented Particles at Chipps Island, OMR Scenario -3,500

Figure 25 is a line graph showing the percentage of surface oriented particles over time from March 3 to March 31, 2026, injected on March 10, 2026 at DSM2 Node 465 (Chipps) under the OMR scenario of -3,500 cfs. Past Chipps (black) increases rapidly to near 100% shortly after injection and remains dominant throughout the period, while Unresolved in Central Delta (yellow) peaks around 60% before declining to near zero by mid-March. Other pathways remain negligible across the evaluation period.

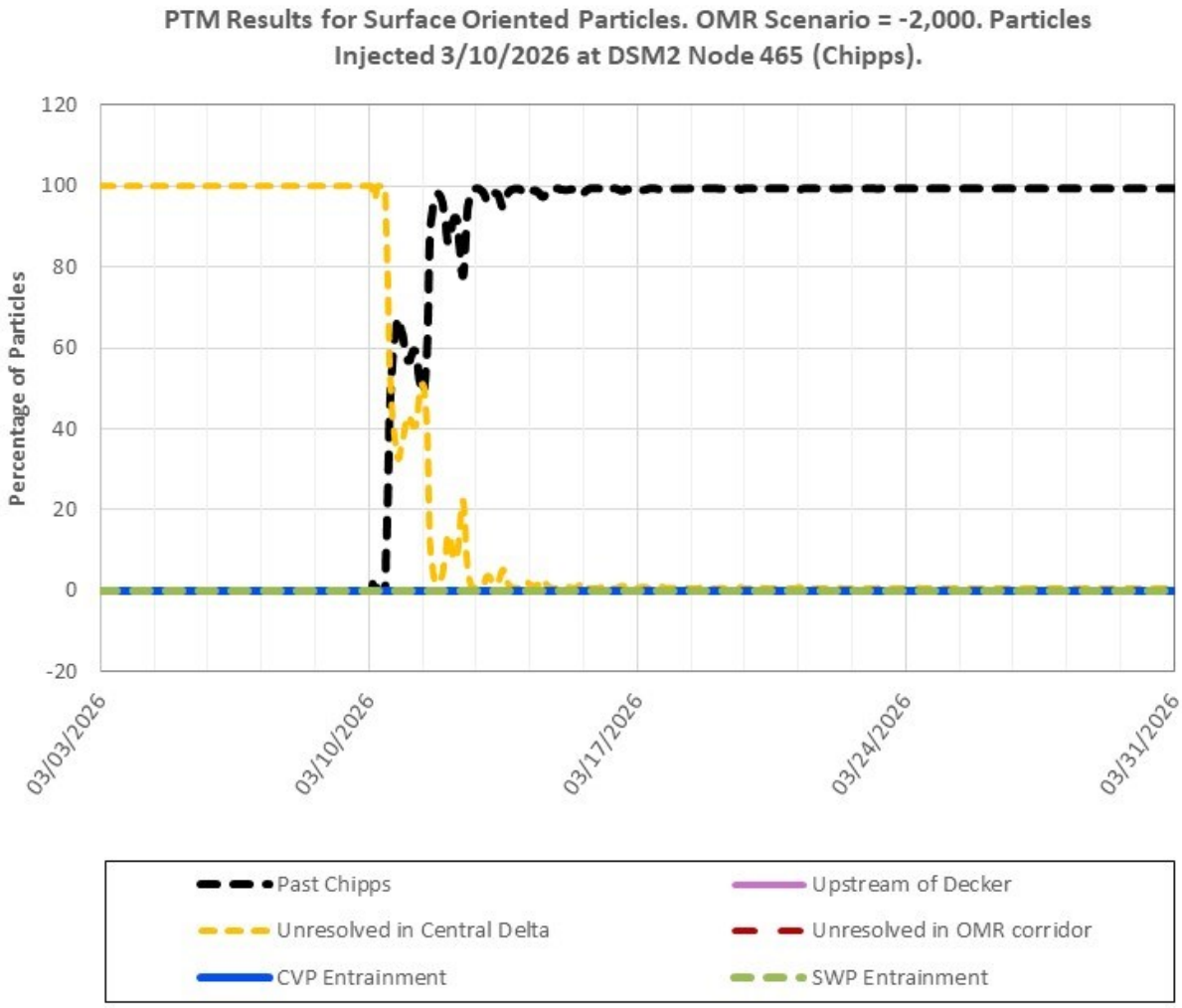

Figure 26: PTM Results for Surface Oriented Particles at Chipps Island, OMR Scenario -2,000

Figure 26 is a line graph showing the percentage of surface oriented particles over time from March 3 to March 31, 2026, injected on March 10, 2026 at DSM2 Node 465 (Chipps) under the OMR scenario of -2,000 cfs. Past Chipps (black) rapidly increases to near 100% shortly after injection and remains dominant throughout the evaluation period. Unresolved in Central Delta (yellow) briefly peaks around 60% before declining to near zero by mid-March, while all other pathways remain negligible.

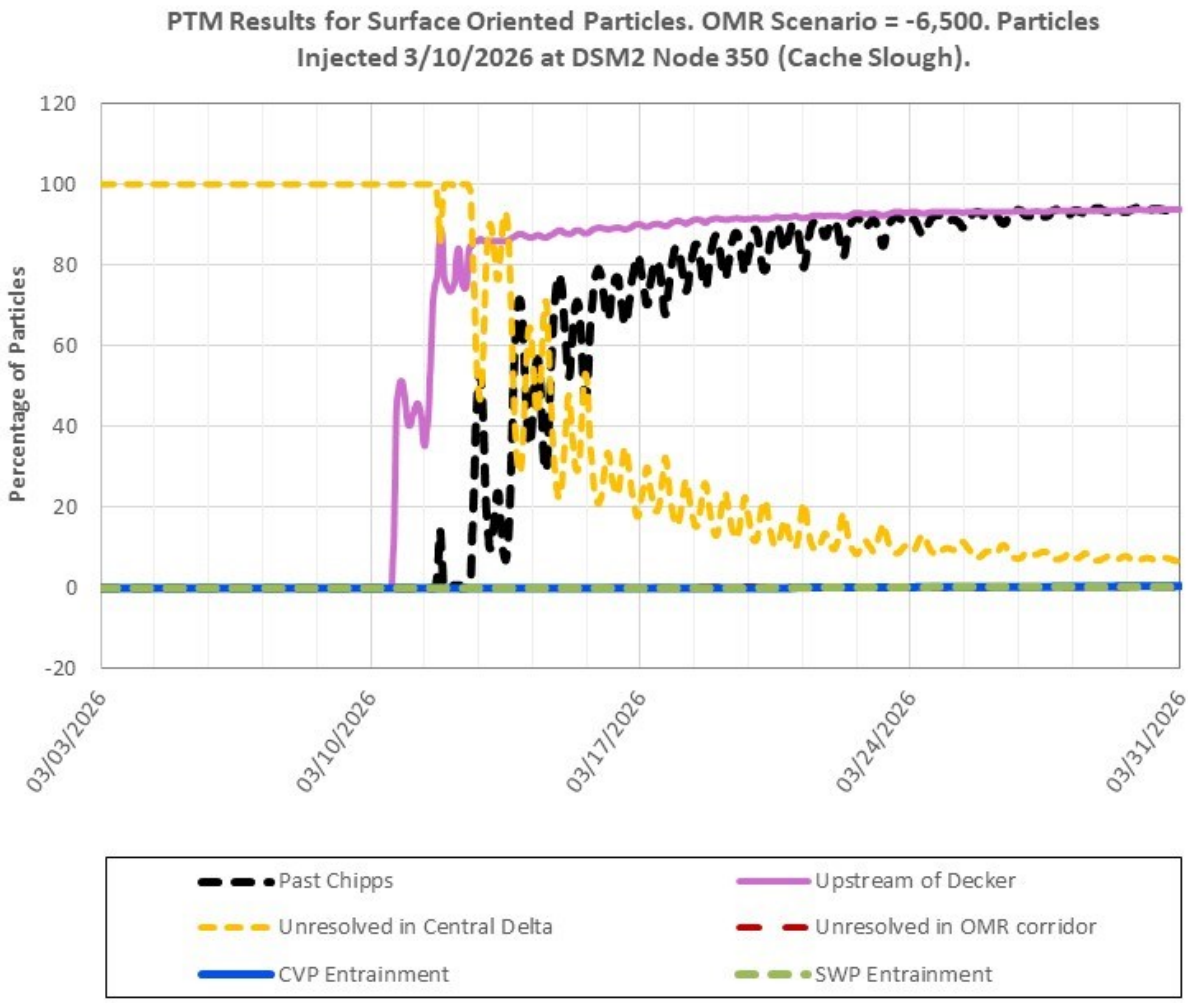

Figure 27: PTM Results for Surface Oriented Particles at Cache Slough Confluence, OMR Scenario -6,500

Figure 27 is a line graph showing the percentage of surface oriented particles over time from March 3 to March 31, 2026, injected on March 10, 2026 at DSM2 Node 350 (Cache Slough) under the OMR scenario of -6,500 cfs. Upstream of Decker (pink) increases rapidly to approximately 85–90% shortly after injection and remains dominant throughout the period. Past Chipps (black) gradually rises, reaching around 90% by late March, while Unresolved in Central Delta (yellow) peaks near 100% early on and steadily declines to below 10% by the end of the evaluation period. Other pathways remain negligible.

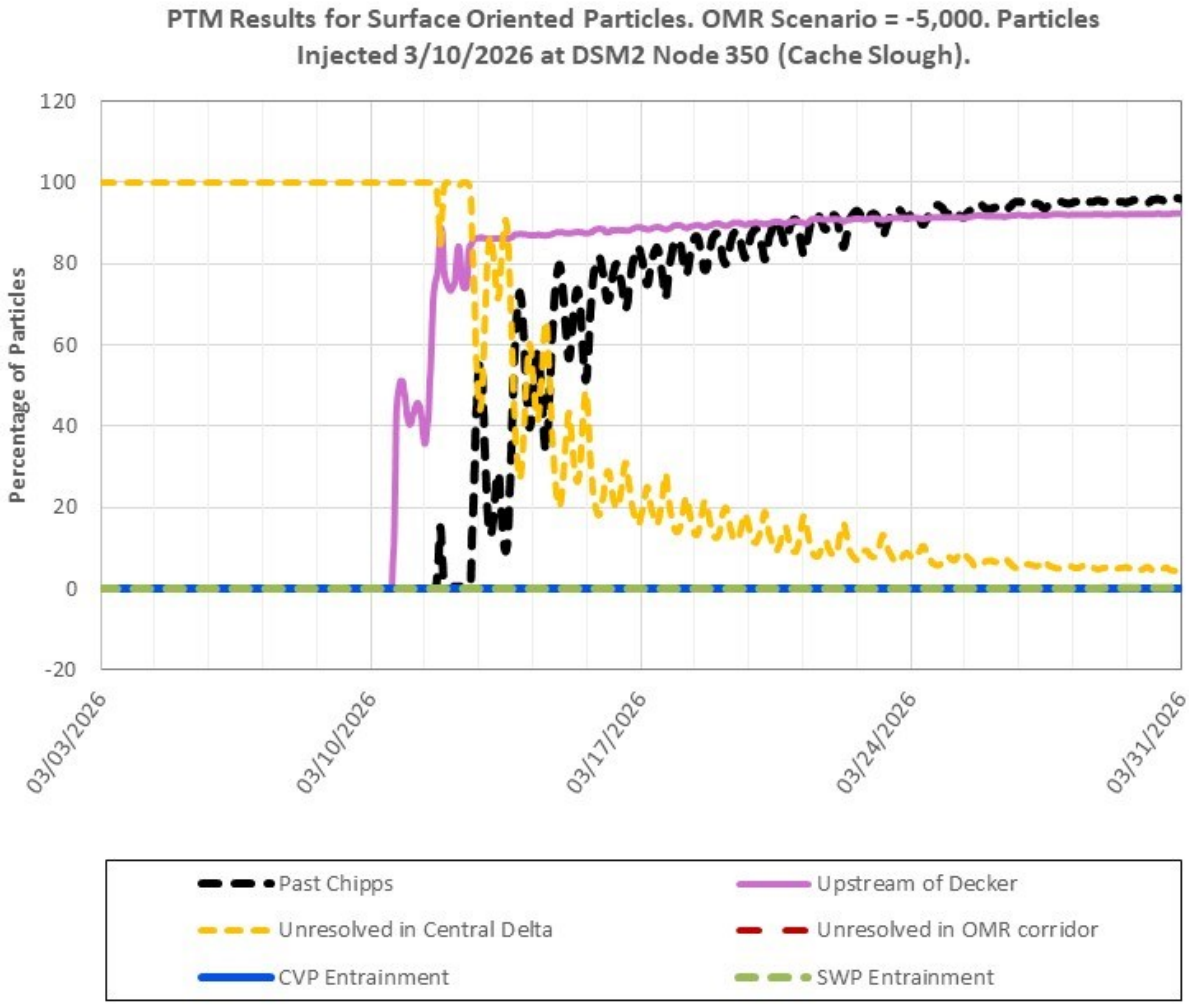

Figure 28: PTM Results for Surface Oriented Particles at Cache Slough Confluence, OMR Scenario -5,000

Figure 28 is a line graph showing the percentage of surface oriented particles over time from March 3 to March 31, 2026, injected on March 10, 2026 at DSM2 Node 350 (Cache Slough) under the OMR scenario of -5,000 cfs. Upstream of Decker (pink) increases rapidly to approximately 85–90% shortly after injection and remains elevated throughout the period. Past Chipps (black) rises more gradually, reaching around 95% by late March, while Unresolved in Central Delta (yellow) peaks near 100% early in the period and steadily declines to below 10%. Other pathways remain negligible.

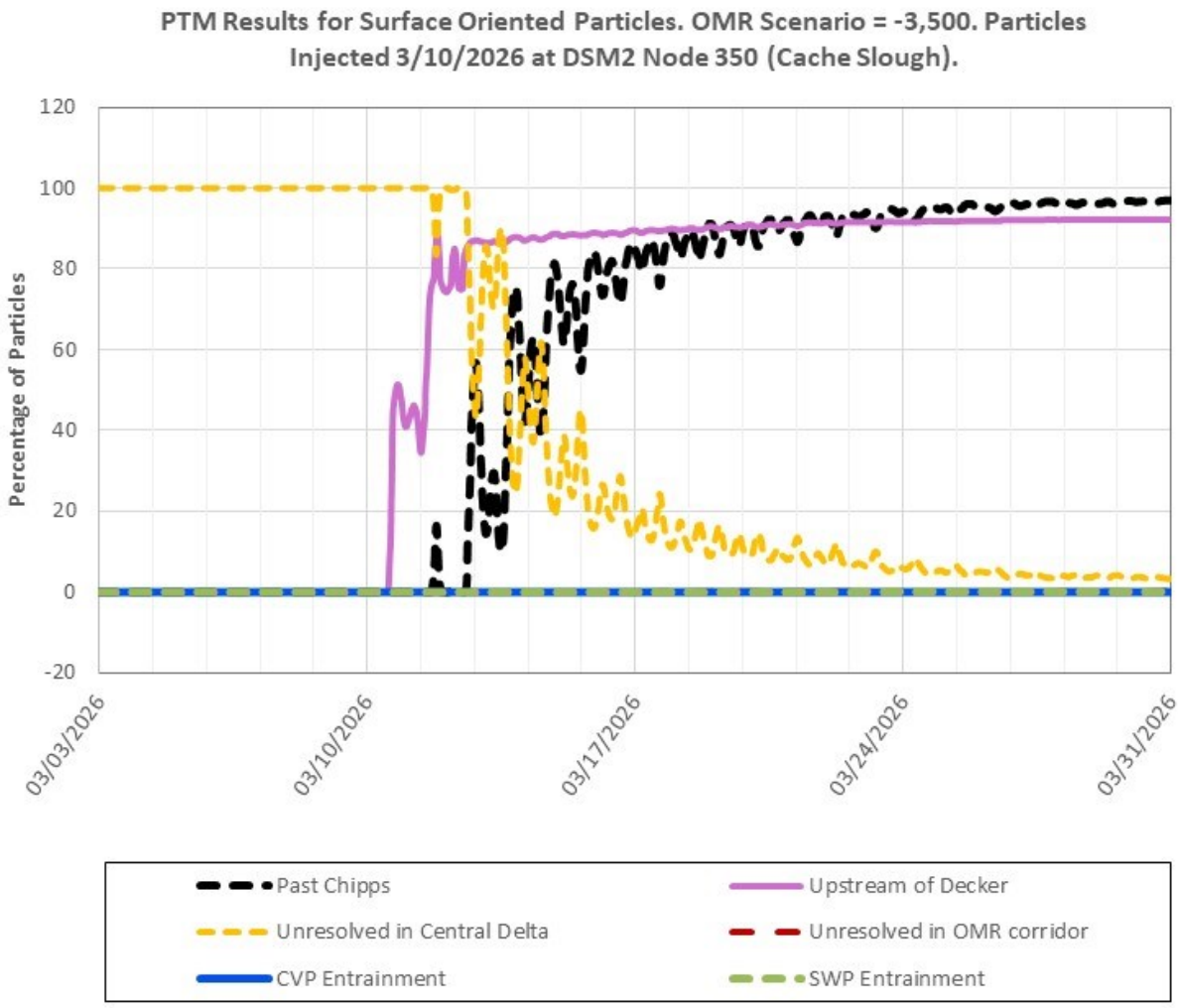

Figure 29: PTM Results for Surface Oriented Particles at Cache Slough Confluence, OMR Scenario -3,500

Figure 29 is a line graph showing the percentage of surface oriented particles over time from March 3 to March 31, 2026, injected on March 10, 2026 at DSM2 Node 350 (Cache Slough) under the OMR scenario of -3,500 cfs. Upstream of Decker (pink) increases rapidly to approximately 85–90% shortly after injection and remains elevated throughout the period. Past Chipps (black) rises more gradually, reaching the mid-to-high 90% range by late March, while Unresolved in Central Delta (yellow) peaks near 100% early and steadily declines to low single digits by the end of the evaluation period. Other pathways remain negligible.

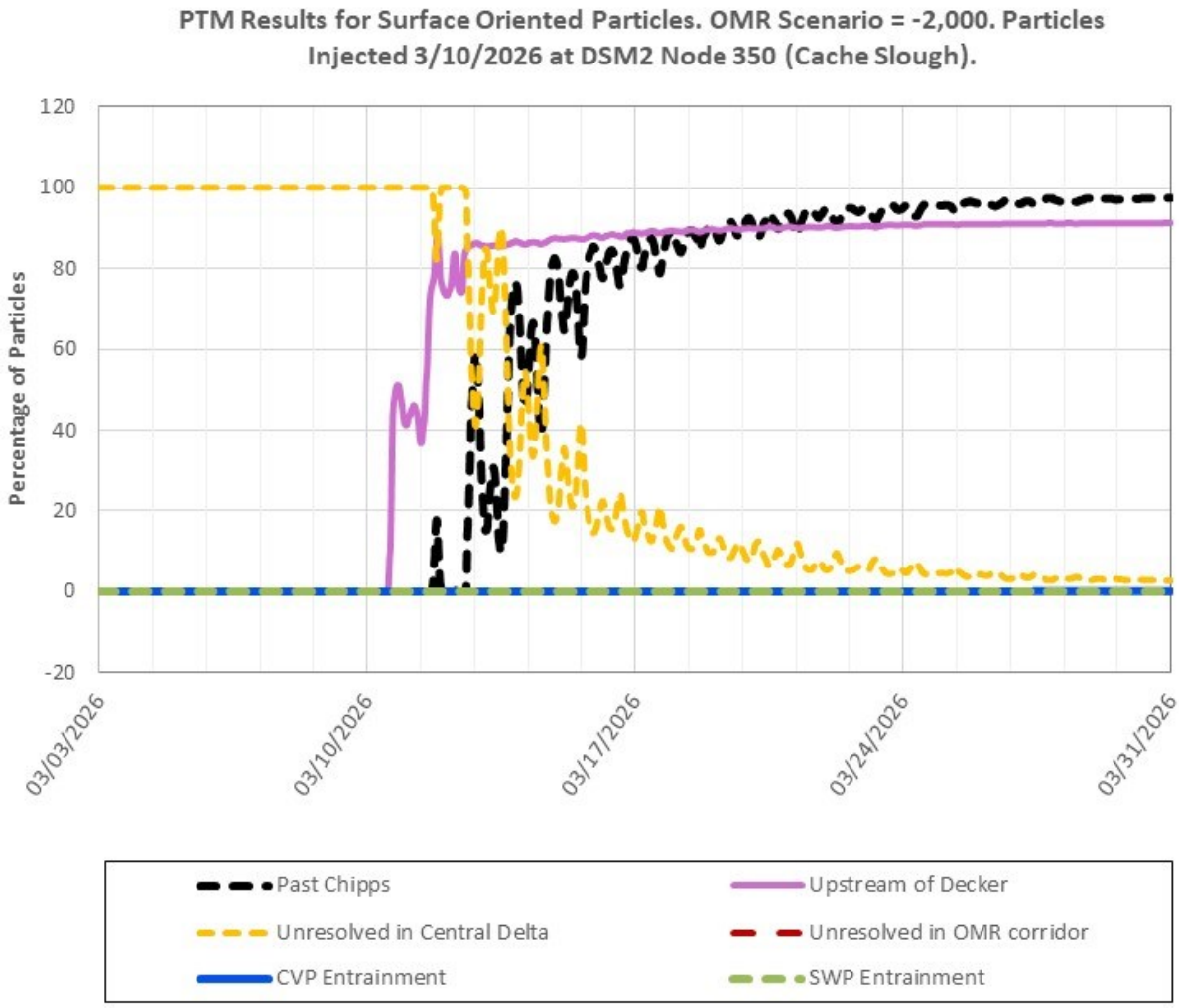

Figure 30: PTM Results for Surface Oriented Particles at Cache Slough Confluence, OMR Scenario -2,000

Figure 30 is a line graph showing the percentage of surface oriented particles over time from March 3 to March 31, 2026, injected on March 10, 2026 at DSM2 Node 350 (Cache Slough) under the OMR scenario of -2,000 cfs. Upstream of Decker (pink) increases rapidly to approximately 85–90% shortly after injection and remains consistently elevated. Past Chipps (black) rises steadily, reaching the mid-to-high 90% range by late March, while Unresolved in Central Delta (yellow) peaks near 100% early in the period and gradually declines to near zero by the end of the evaluation period. Other pathways remain negligible.

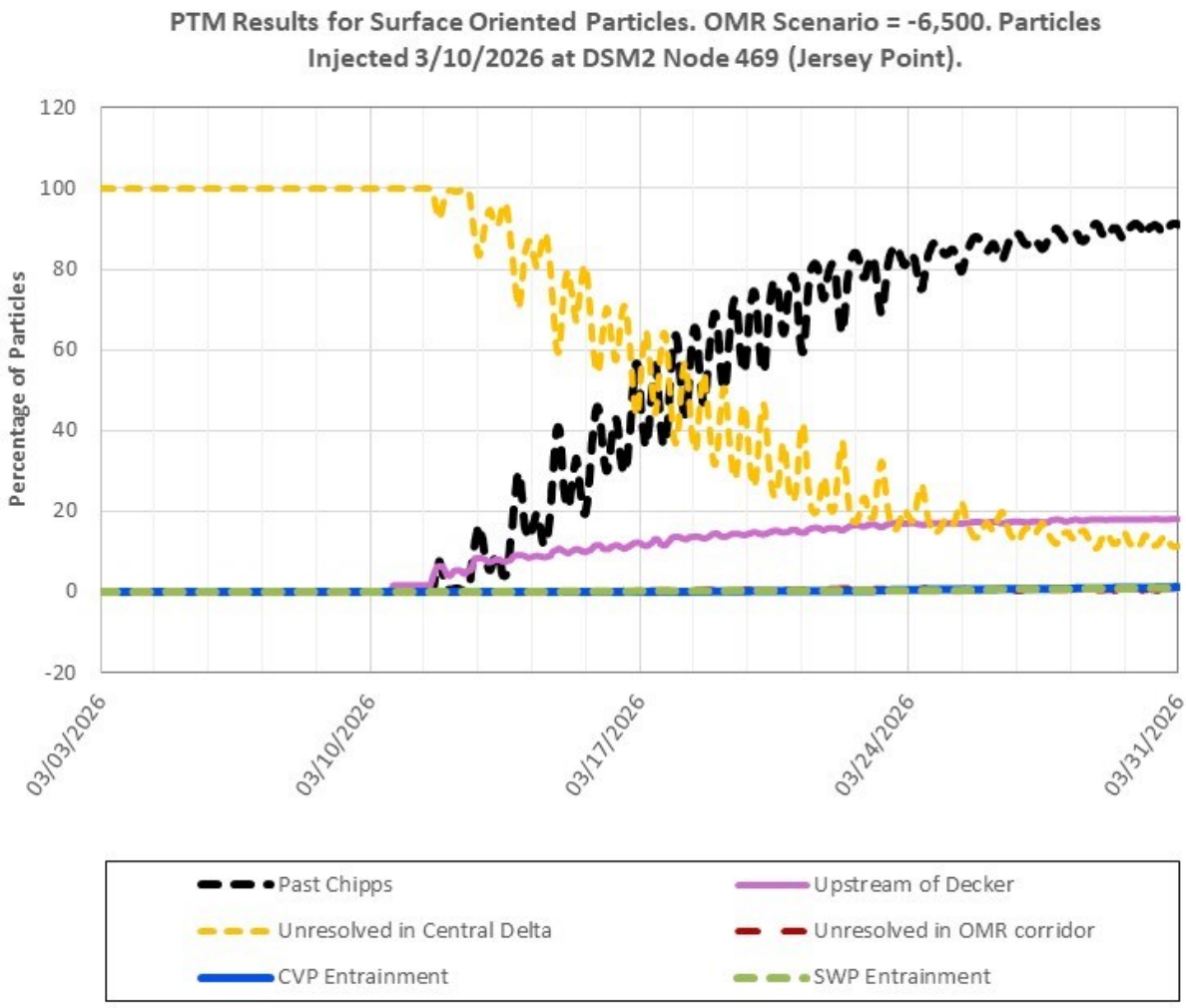

Figure 31: PTM Results for Surface Oriented Particles at Jersey Point, OMR Scenario -6,500

Figure 31 is a line graph showing the percentage of surface oriented particles over time from March 3 to March 31, 2026, injected on March 10, 2026 at DSM2 Node 469 (Jersey Point) under the OMR scenario of -6,500 cfs. Past Chipps (black) increases steadily over time, reaching approximately 90% by late March. Unresolved in Central Delta (yellow) begins near 100% and gradually declines to around 10–15% by the end of the evaluation period. Upstream of Decker (pink) shows a modest increase to roughly 15–20%, while all other pathways remain negligible.

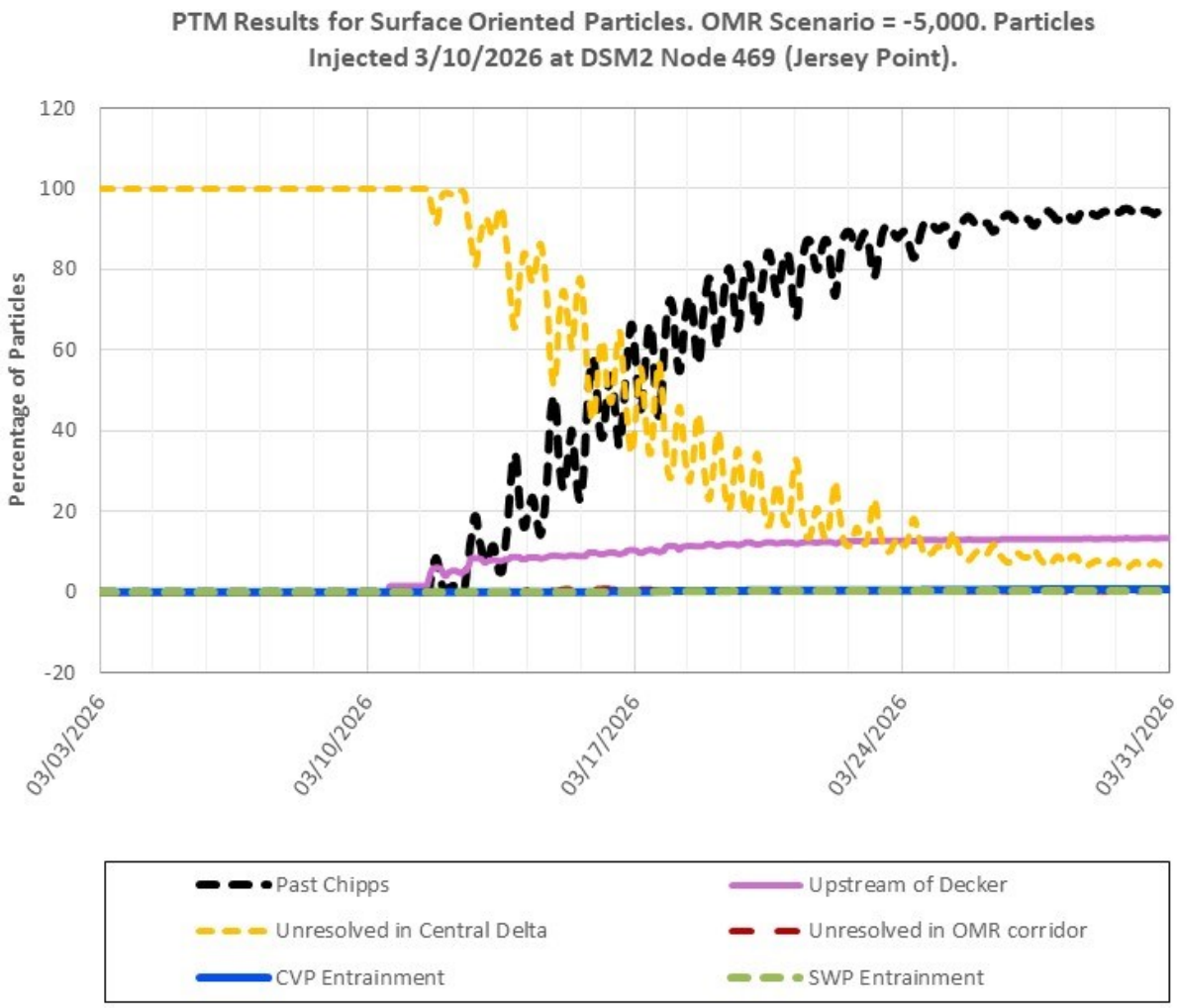

Figure 32: PTM Results for Surface Oriented Particles at Jersey Point, OMR Scenario -5,000

Figure 32 is a line graph showing the percentage of surface oriented particles over time from March 3 to March 31, 2026, injected on March 10, 2026 at DSM2 Node 469 (Jersey Point) under the OMR scenario of -5,000 cfs. Past Chipps (black) increases steadily, reaching the low-to-mid 90% range by late March. Unresolved in Central Delta (yellow) begins near 100% and declines gradually to around 10% by the end of the evaluation period. Upstream of Decker (pink) shows a gradual increase to approximately 10–15%, while all other pathways remain negligible.

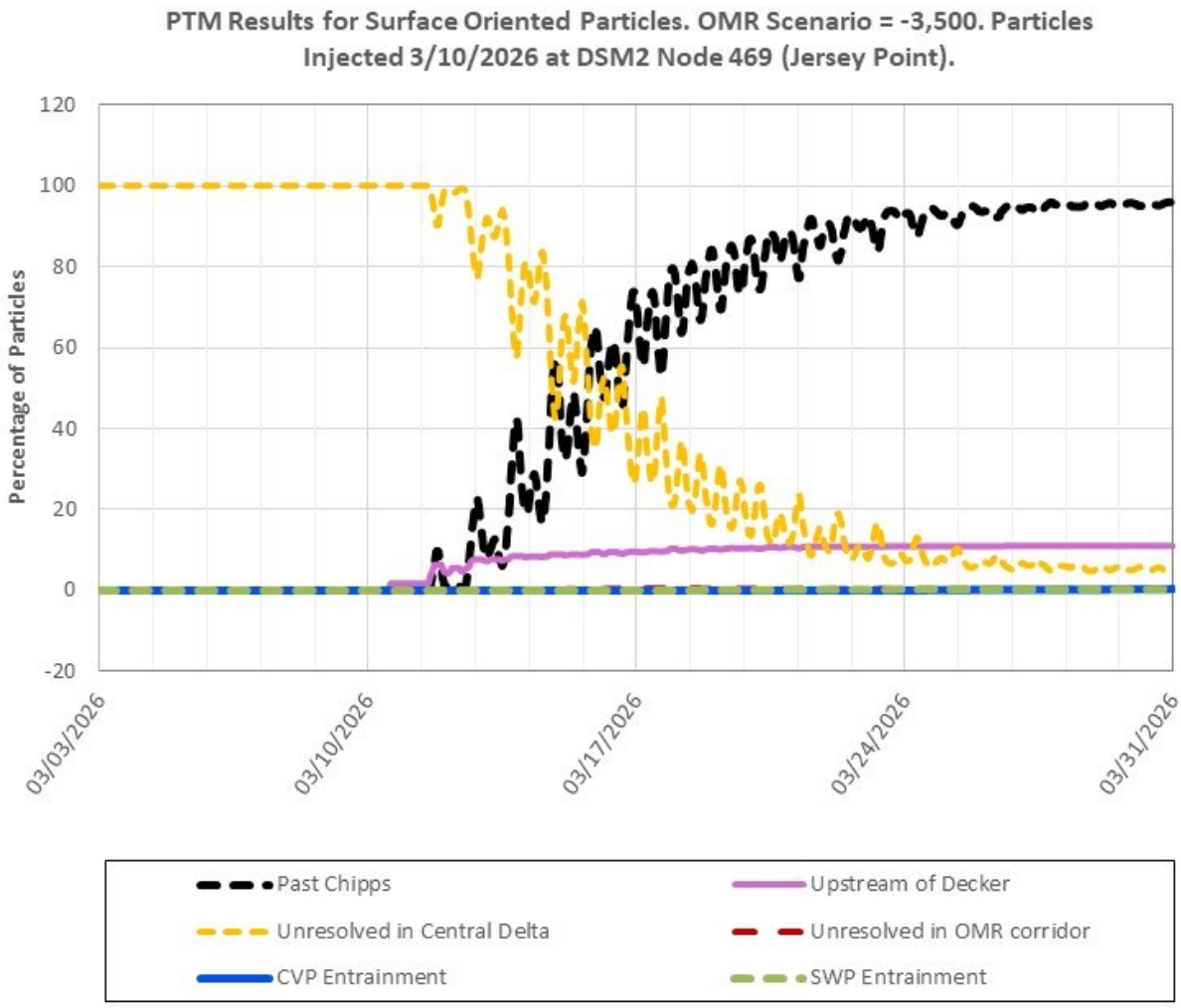

Figure 33: PTM Results for Surface Oriented Particles at Jersey Point, OMR Scenario -3,500

Figure 33 is a line graph showing the percentage of surface oriented particles over time from March 3 to March 31, 2026, injected on March 10, 2026 at DSM2 Node 469 (Jersey Point) under the OMR scenario of -3,500 cfs. Past Chipps (black) increases steadily, reaching the mid-to-high 90% range by late March. Unresolved in Central Delta (yellow) starts near 100% and gradually declines to low single digits by the end of the evaluation period. Upstream of Decker (pink) increases modestly to around 10–12%, while all other pathways remain negligible.

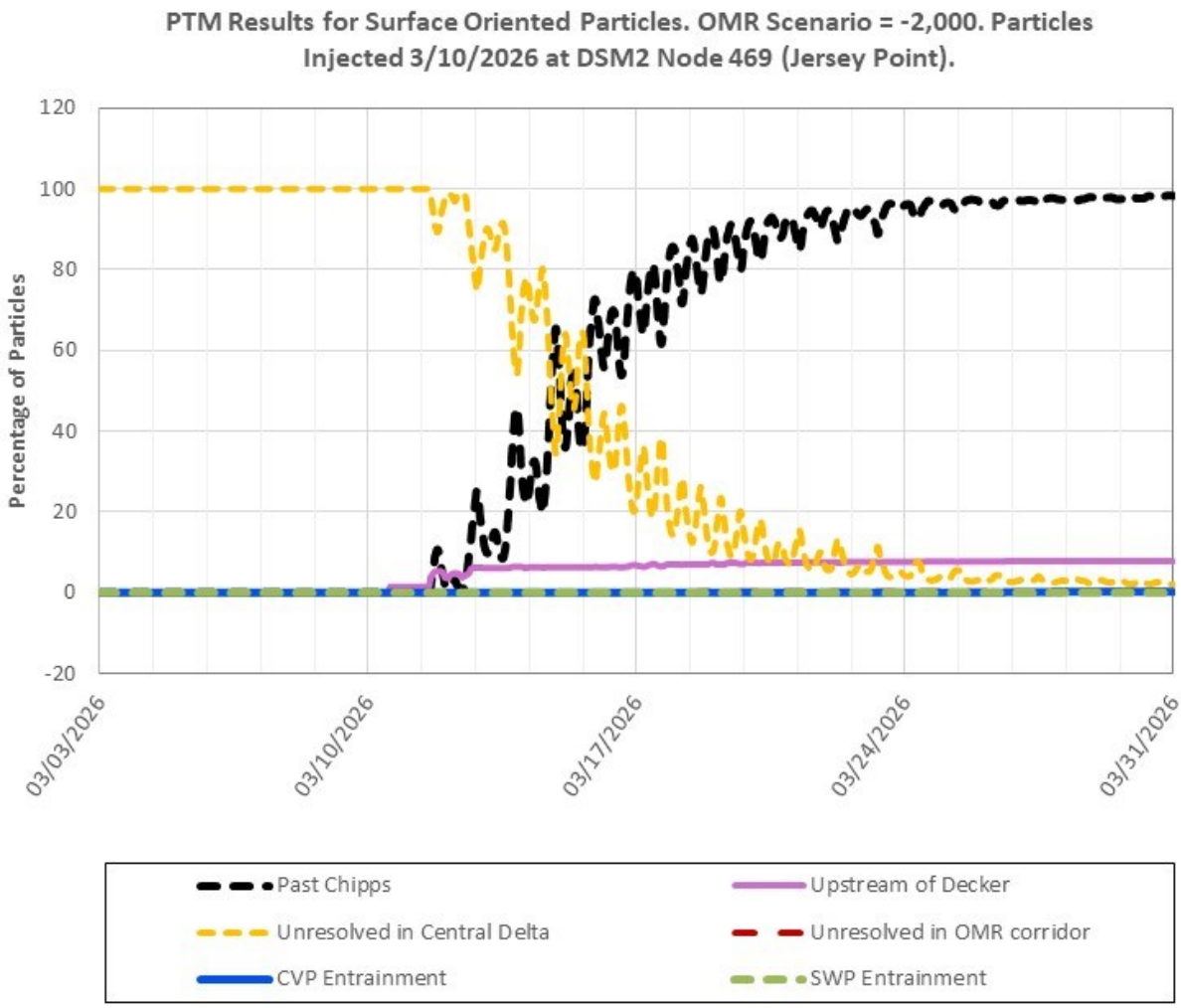

Figure 34: PTM Results for Surface Oriented Particles at Jersey Point, OMR Scenario -2,000

Figure 34 is a line graph showing the percentage of surface oriented particles over time from March 3 to March 31, 2026, injected on March 10, 2026 at DSM2 Node 469 (Jersey Point) under the OMR scenario of -2,000 cfs. Past Chipps (black) increases steadily, reaching near 100% by late March. Unresolved in Central Delta (yellow) begins near 100% and gradually declines to near zero by the end of the evaluation period. Upstream of Decker (pink) shows a modest increase to around 5–10%, while all other pathways remain negligible.

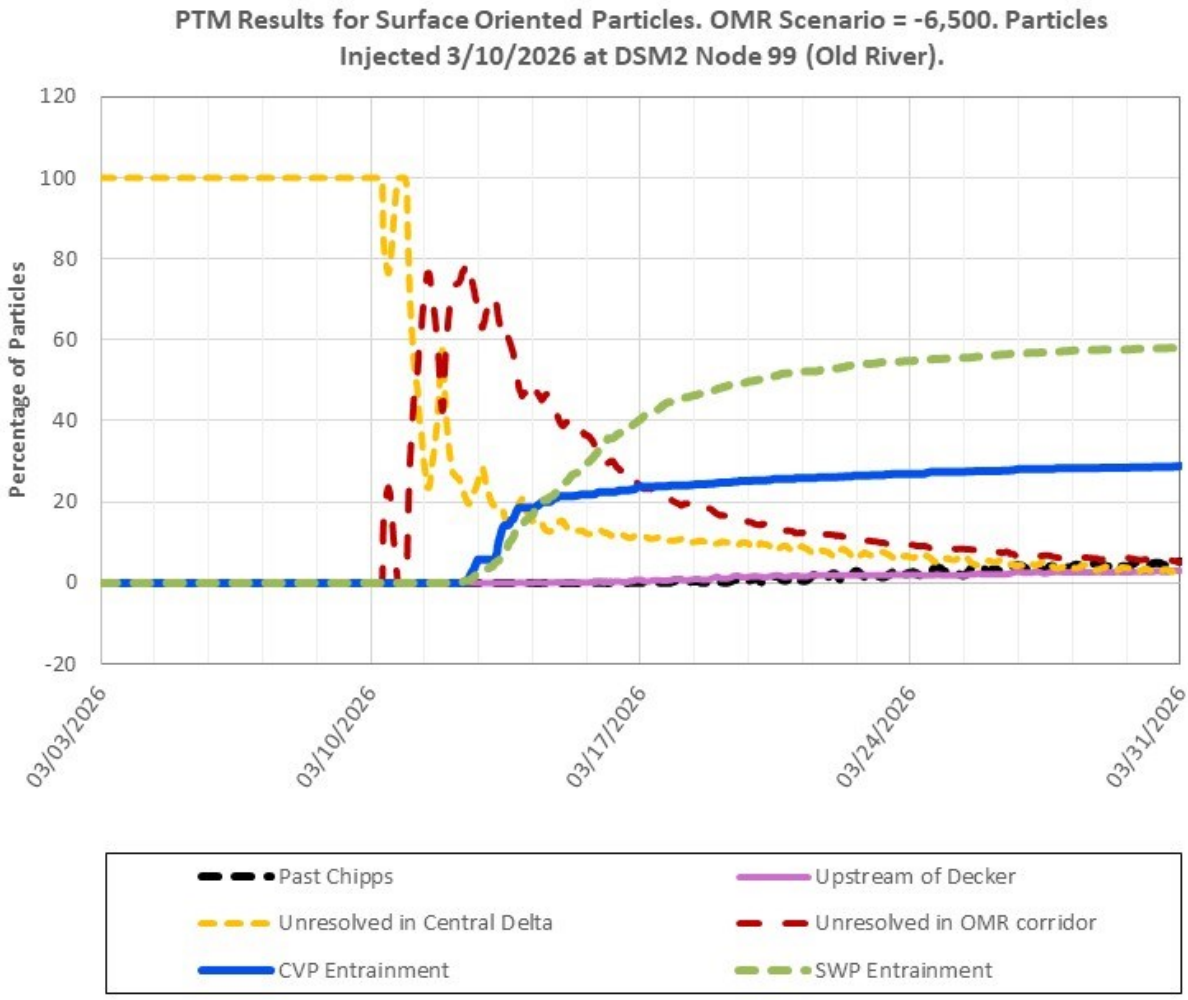

Figure 35: PTM Results for Surface Oriented Particles at Old River, OMR Scenario -6,500

Figure 35 is a line graph showing the percentage of surface oriented particles over time from March 3 to March 31, 2026, injected on March 10, 2026 at DSM2 Node 99 (Old River) under the OMR scenario of -6,500 cfs. Unresolved in Central Delta (yellow) and Unresolved in OMR Corridor (red) peak near 100% and 75–80% respectively shortly after injection before declining to approximately 5% by the end of March, while Past Chipps (black) remains low, increasing only slightly to under 5%. CVP Entrainment (blue) rises steadily to about 25–30% and SWP Entrainment (green) to around 55–60%, and Upstream of Decker (pink) remains near zero throughout the period.

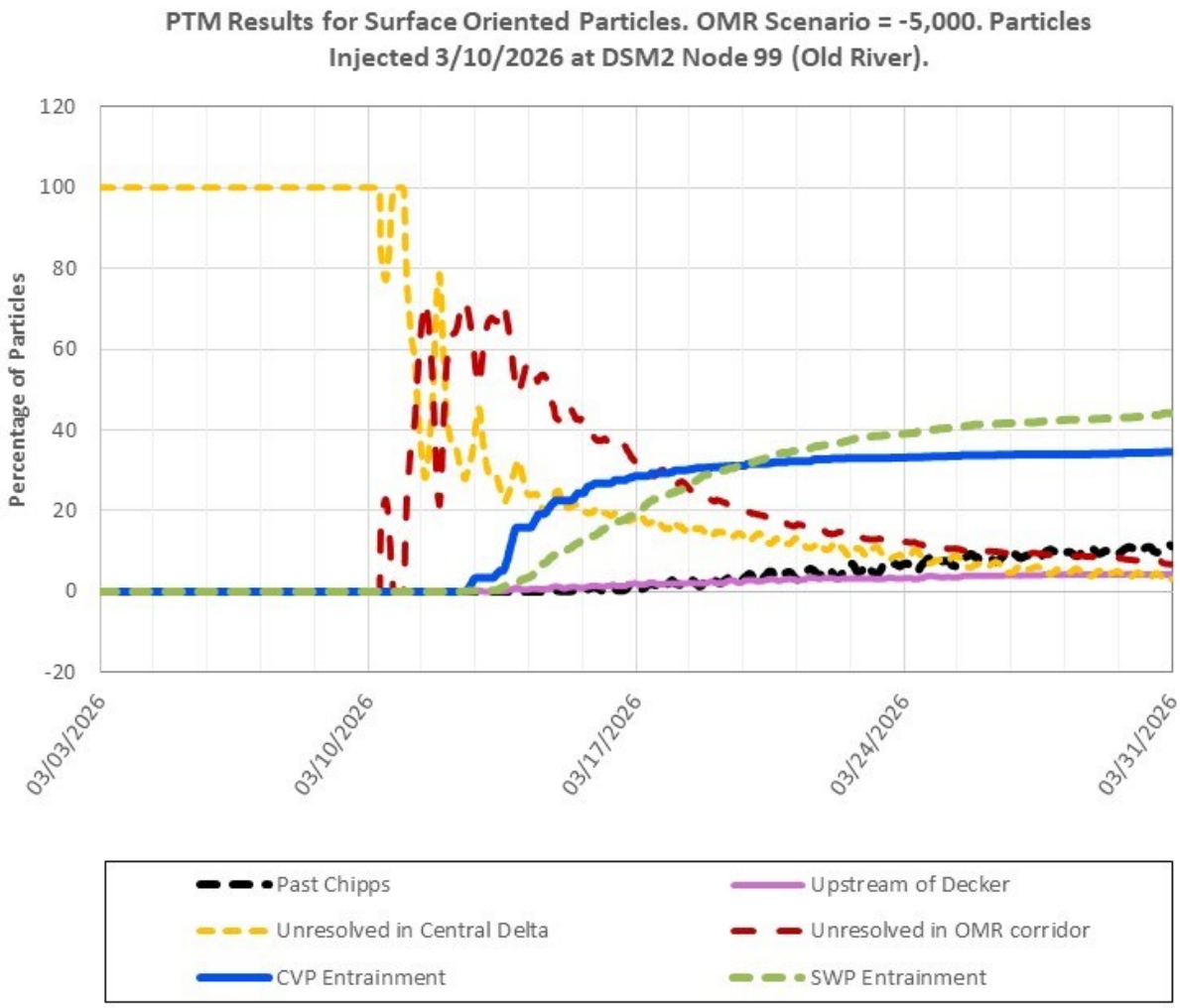

Figure 36: PTM Results for Surface Oriented Particles at Old River, OMR Scenario -5,000

Figure 36 is a line graph showing the percentage of surface oriented particles over time from March 3 to March 31, 2026, injected on March 10, 2026 at DSM2 Node 99 (Old River) under the OMR scenario of -5,000 cfs. Unresolved in Central Delta (yellow) and Unresolved in OMR Corridor (red) peak near 100% and 65–70% respectively shortly after injection before declining to approximately 5–10% by the end of March, while Past Chipps (black) rises gradually to around 10–15%. CVP Entrainment (blue) increases steadily to about 30–35% and SWP Entrainment (green) to around 40–45%, and Upstream of Decker (pink) remains below 5% throughout the period.

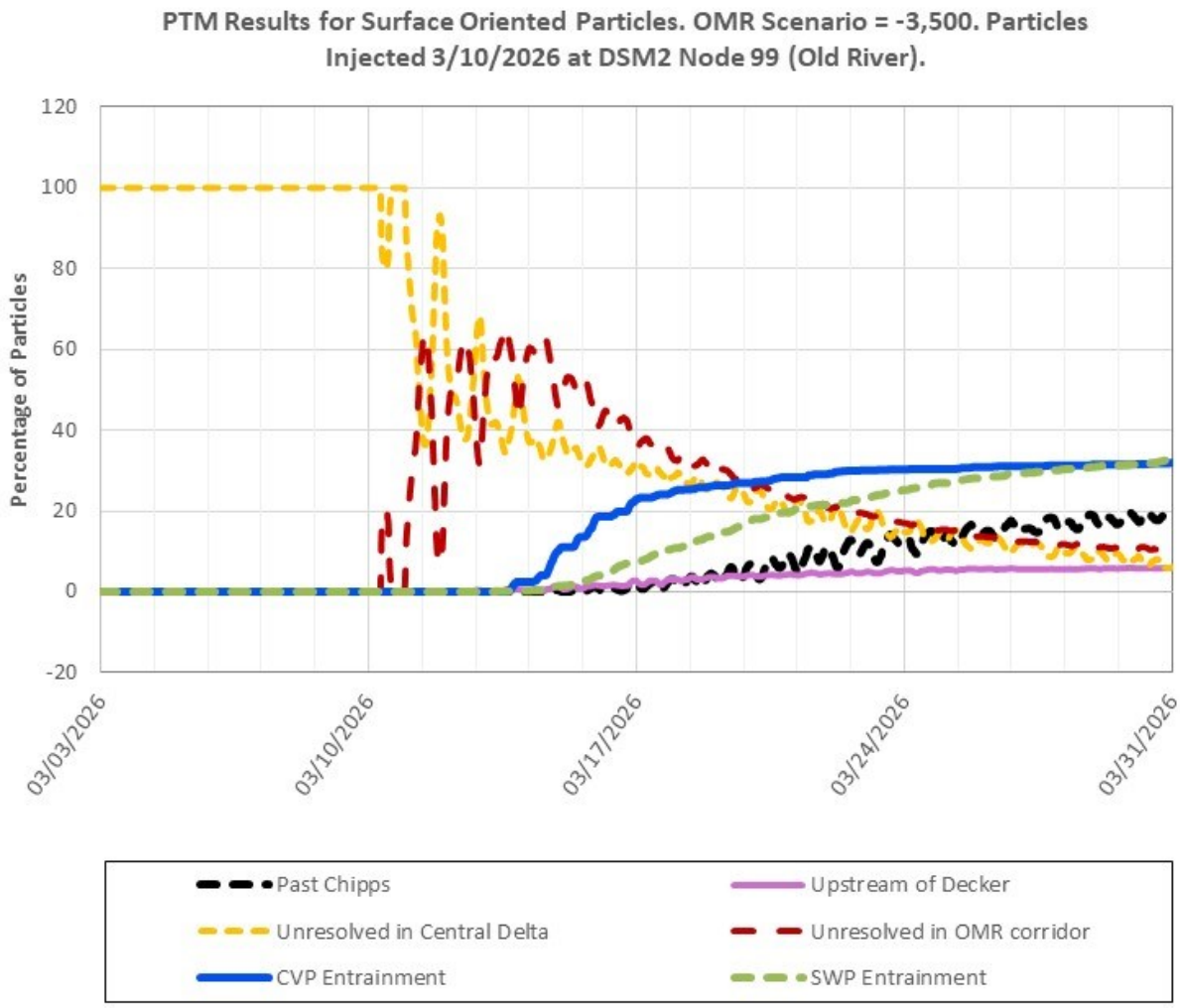

Figure 37: PTM Results for Surface Oriented Particles at Old River, OMR Scenario -3,500

Figure 37 is a line graph showing the percentage of surface oriented particles over time from March 3 to March 31, 2026, injected on March 10, 2026 at DSM2 Node 99 (Old River) under the OMR scenario of -3,500 cfs. Unresolved in Central Delta (yellow) and Unresolved in OMR Corridor (red) peak near 100% and 60% respectively shortly after injection before declining to approximately 10% and 10–15% by the end of March, while Past Chipps (black) rises gradually to around 15–20%. CVP Entrainment (blue) increases steadily to about 30–35% and SWP Entrainment (green) to around 30%, and Upstream of Decker (pink) remains below 10% throughout the period.

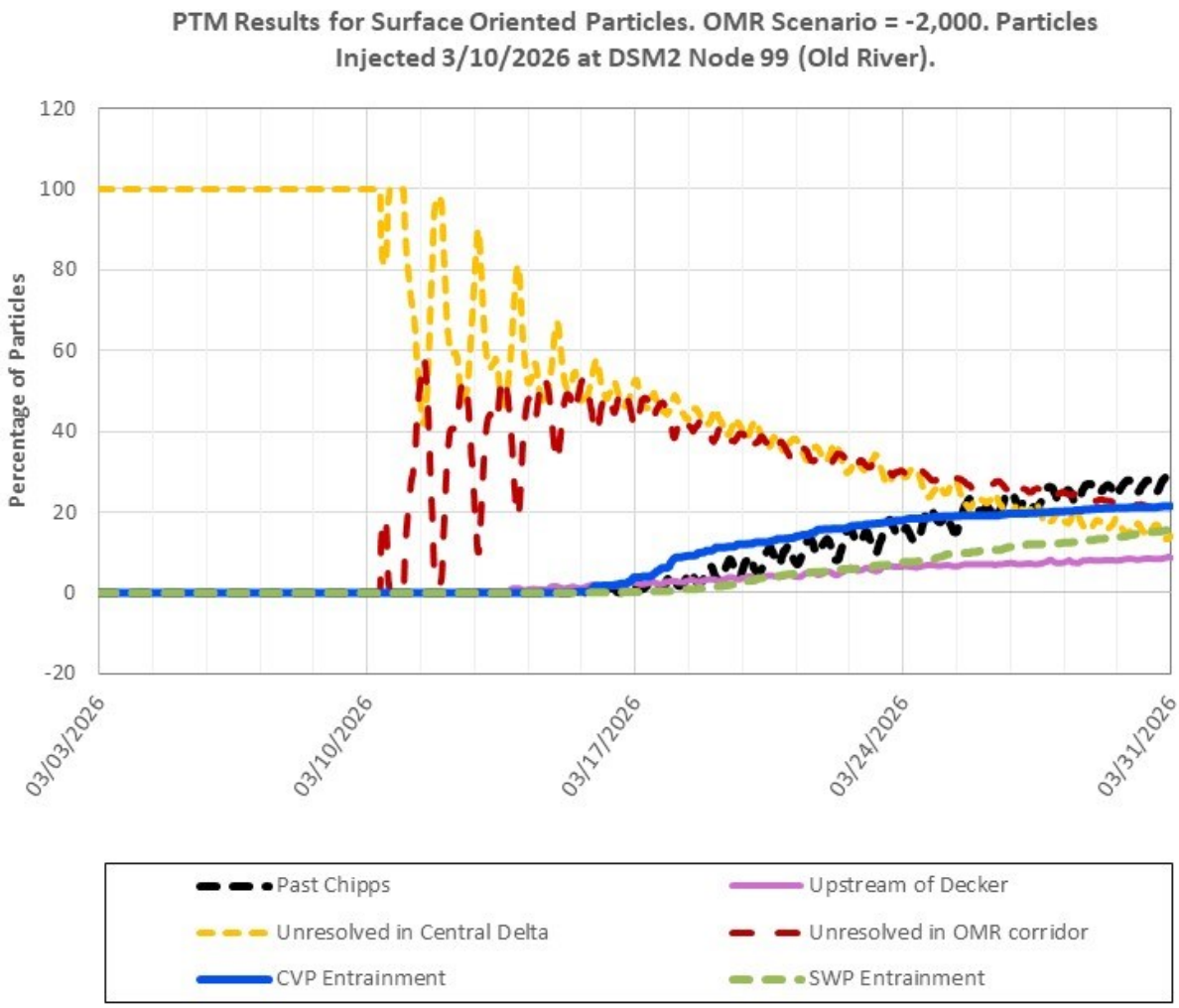

Figure 38: PTM Results for Surface Oriented Particles at Old River, OMR Scenario -2,000

Figure 38 is a line graph showing the percentage of surface oriented particles over time from March 3 to March 31, 2026, injected on March 10, 2026 at DSM2 Node 99 (Old River) under the OMR scenario of -2,000 cfs. Unresolved in Central Delta (yellow) and Unresolved in OMR Corridor (red) peak near 100% and 50% respectively shortly after injection before declining to approximately 15–20% and 25–30% by the end of March, while Past Chipps (black) rises gradually to around 25–30%. CVP Entrainment (blue) increases steadily to about 20–25% and SWP Entrainment (green) to around 15%, and Upstream of Decker (pink) remains below 10% throughout the period.

ECO-PTM (Ecological Particle Tracking Model)

ECO-PTM Results Evaluation Period: 03/10/2026 – 03/22/2026
Particles Injected: 03/10/2026
Injection Location: Sacramento River at Freeport

Table 12. Salmon Particle Route Ratio After 3 Weeks (Ending 03/30/2026)

OMR Flow Bin	Sutter Slough Route	Steamboat Slough Route	Sacramento River (SS) Route	Sacramento River (GEO) Route	Georgiana Slough Route
-6,500	0.13	0.21	0.65	0.81	0.19
-5,000	0.13	0.22	0.65	0.81	0.19
-3,500	0.13	0.22	0.65	0.82	0.18
-2,000	0.13	0.22	0.65	0.82	0.18

Table 13. Salmon Particle Route-Specific Survival After 3 Weeks (Ending 03/30/2026)

OMR Flow Bin	Sutter Slough Route	Steamboat Slough Route	Sacramento River Route	Georgiana Slough Route	All Routes Combined
-6,500	51%	61%	57%	38%	55%
-5,000	52%	62%	59%	31%	55%
-3,500	51%	61%	58%	33%	55%
-2,000	52%	62%	58%	29%	55%

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: 03/10/2026 – 03/22/2026
Particles Injected: 03/10/2026
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.

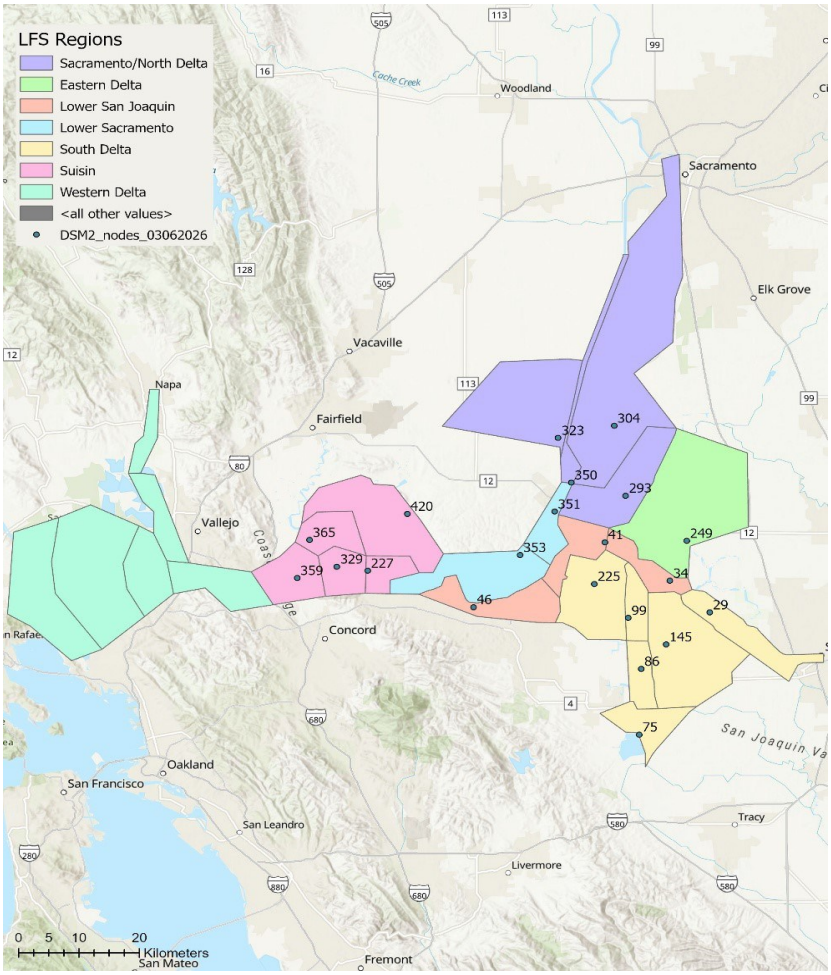

Figure 39: LFS Regions in the Sacramento-San Joaquin Delta

Figure 39 is a map of the Sacramento-San Joaquin Delta showing the seven LFS regions — Sacramento/North Delta, Eastern Delta, Lower San Joaquin, Lower Sacramento, South Delta, Suisun, and Western Delta — each distinguished by a different color. DSM2 channel networks and node locations are also displayed, with node numbers labeled throughout the map to indicate key monitoring and modeling points.

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.

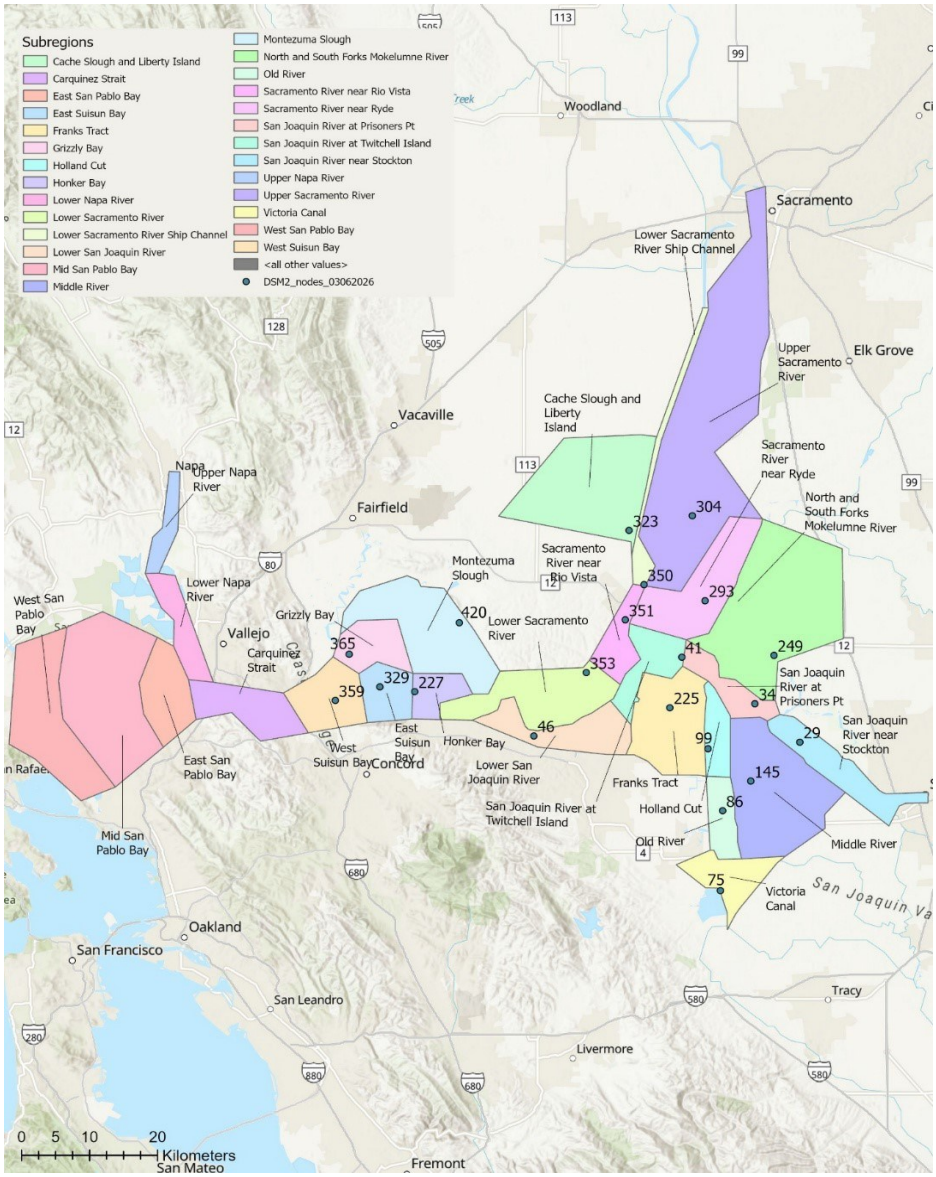

Figure 40: DSM2 PTM Subregions in the Sacramento-San Joaquin Delta

Figure 40 is a map of the Sacramento-San Joaquin Delta showing detailed DSM2 PTM subregions, each distinguished by a different color and labeled by location (e.g., Cache Slough and Liberty Island, Sacramento River near Rio Vista, Old River, San Joaquin River near Stockton, and Suisun Bay areas). The map includes DSM2 channel networks and node locations, with node numbers labeled throughout to indicate key modeling points.

- 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 03/03/2026 for each survey is shown in the table below. Results from the most recent survey are used as a conservative approach because it's more recent and likely to overestimate proportional entrainment since the unprocessed western stations generally see higher abundances, but minimal entrainment risk.

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%	56%	88%
5	2/23/2026	100%	57%	100%	100%	100%	78%	4%

- The DSM2 node used as an injection point, EDSM subregion, and LFS Region for reporting are shown in the table below.

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
145	Middle River	South Delta
75	Victoria Canal	South Delta

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

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	9,538,687	60,954,235	914,595	4,403,423	11,186,757	0	0	86,997,697	0
-6,500	9,302	PTM Entrained (%)	0.0	0.0	0.0	0.2	0.0	0.0	0.0	N/A	N/A
-5,000	7,671	PTM Entrained (%)	0.0	0.0	0.0	<0.1	0.0	0.0	0.0	N/A	N/A
-3,500	6,011	PTM Entrained (%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	N/A	N/A
-2,000	4,365	PTM Entrained (%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	N/A	N/A
-6,500	9,302	LFS Larva Entrained (#)	0.0	0.0	0.0	6,876	0.0	0	0.0	6,876	<0.1%
-5,000	7,671	LFS Larva Entrained (#)	0.0	0.0	0.0	859	0.0	0	0.0	859	<0.1%
-3,500	6,011	LFS Larva Entrained (#)	0.0	0.0	0.0	0	0.0	0	0.0	0	0.0%
-2,000	4,365	LFS Larva Entrained (#)	0.0	0.0	0.0	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 17. LFS Entrainment Estimate using PTM with Surface Oriented Particles: Week 2 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	9,538,687	60,954,235	914,595	4,403,423	11,186,757	0	0	86,997,697	0
-6,500	8,300	PTM Entrained (%)	0.0	0.0	0.0	0.4	1.8	0.0	0.0	N/A	N/A
-5,000	6,655	PTM Entrained (%)	0.0	0.0	0.1	0.7	0.1	0.0	0.0	N/A	N/A
-3,500	4,994	PTM Entrained (%)	0.0	0.0	0.0	0.3	0.0	0.0	0.0	N/A	N/A
-2,000	3,349	PTM Entrained (%)	0.0	0.0	0.0	<0.1	0.0	0.0	0.0	N/A	N/A
-6,500	8,300	LFS Larva Entrained (#)	0.0	0.0	3,658.4	80,359	11,792.4	0	0.0	95,810	0.1%
-5,000	6,655	LFS Larva Entrained (#)	0.0	0.0	914.6	30,081	11,186.8	0	0.0	42,182	<0.1%
-3,500	4,994	LFS Larva Entrained (#)	0.0	0.0	0.0	14,611	0.0	0	0.0	14,611	<0.1%
-2,000	3,349	LFS Larva Entrained (#)	0.0	0.0	0.0	859	0.0	0	0.0	859	<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 18. LFS Entrainment Estimate using PTM with Surface Oriented Particles: Week 3 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	9,538,687	60,954,235	914,595	4,403,423	11,186,757	0	0	86,997,697	0
-6,500	8,014	PTM Entrained (%)	0.0	0.0	1.4	3.8	0.2	0.0	0.0	N/A	N/A
-5,000	6,311	PTM Entrained (%)	0.0	0.0	0.4	1.9	0.3	0.0	0.0	N/A	N/A
-3,500	4,708	PTM Entrained (%)	0.0	0.0	0.2	1.0	0.0	0.0	0.0	N/A	N/A
-2,000	3,005	PTM Entrained (%)	0.0	0.0	0.0	<0.1	0.0	0.0	0.0	N/A	N/A
-6,500	8,014	LFS Larva Entrained (#)	0.0	0.0	12,804.3	168,560	22,373.5	0	0.0	203,738	0.2%
-5,000	6,311	LFS Larva Entrained (#)	0.0	0.0	3,658.4	82,508	32,348.9	0	0.0	118,515	0.1%
-3,500	4,708	LFS Larva Entrained (#)	0.0	0.0	1,829.2	43,939	0.0	0	0.0	45,768	<0.1%
-2,000	3,005	LFS Larva Entrained (#)	0.0	0.0	0.0	4,297	0.0	0	0.0	4,297	<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

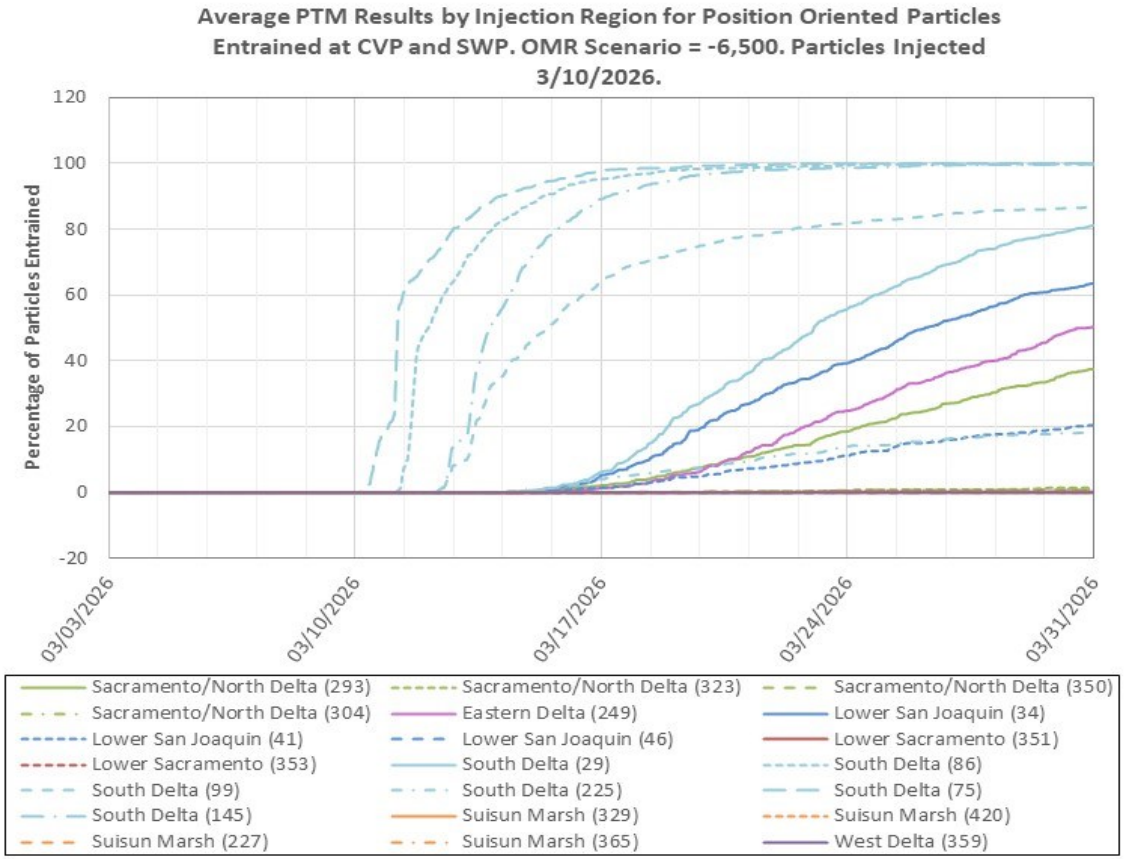

Figure 41. Average PTM Results by Injection Region for Position Oriented Particles Entrained at CVP and SWP, OMR Scenario -6,500

Figure 41 is a line graph showing the average percentage of position oriented particles entrained at CVP and SWP over time from March 3 to March 31, 2026, injected on March 10, 2026 under OMR Scenario -6,500, grouped by seven DSM2 injection regions. South Delta (light blue) shows the highest entrainment, with nodes 29 and 86 reaching near 100% by late March and nodes 75 and 145 reaching 80–87% by March 31, followed by Lower San Joaquin (blue) and Eastern Delta (pink) reaching approximately 63% and 50% respectively by the end of the period. Sacramento/North Delta nodes reach approximately 20–38%, while Lower Sacramento, Suisun Marsh, and West Delta nodes remain near zero throughout the period.

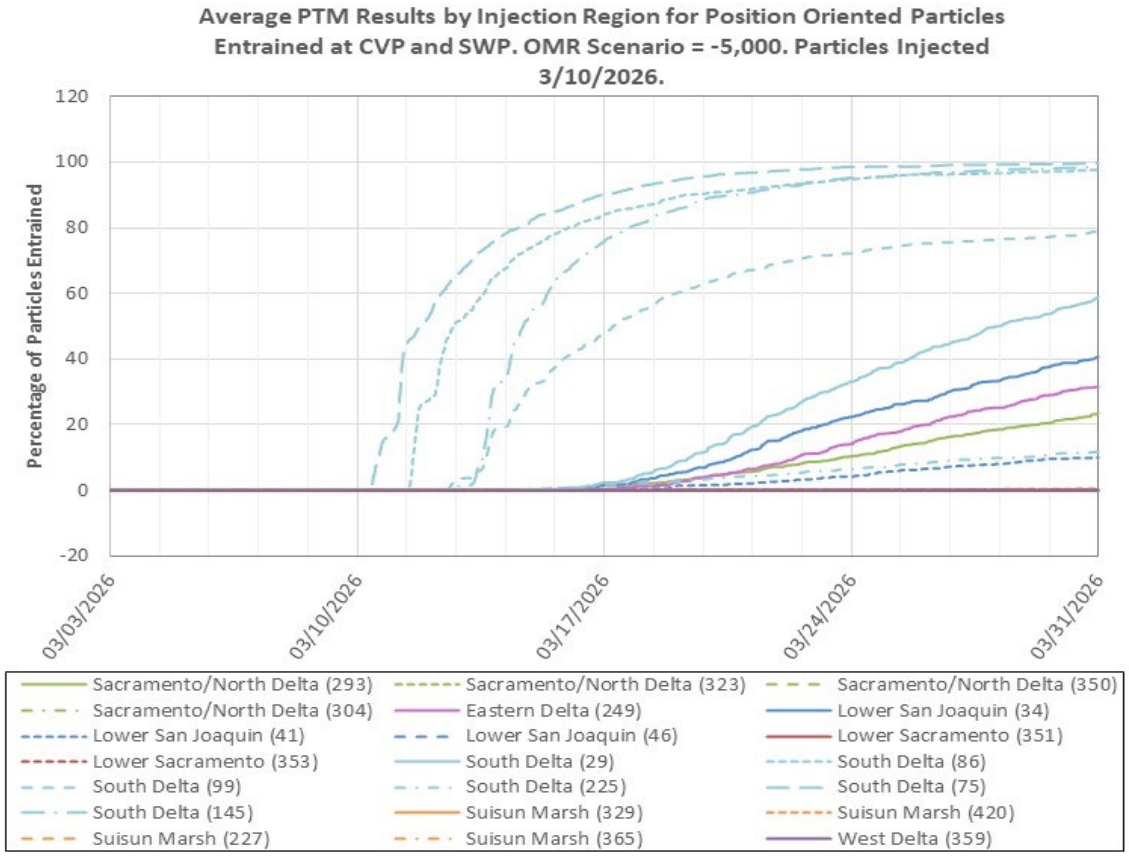

Figure 42: Average PTM Results by Injection Region for Position Oriented Particles Entrained at CVP and SWP, OMR Scenario -5,000

Figure 42 is a line graph showing the average percentage of position oriented particles entrained at CVP and SWP over time from March 3 to March 31, 2026, injected on March 10, 2026 under OMR Scenario -5,000, grouped by seven DSM2 injection regions. South Delta (light blue) shows the highest entrainment, with nodes 29 and 86 reaching near 100% by late March and nodes 75 and 145 reaching approximately 60–78% by March 31, followed by Lower San Joaquin (blue) and Eastern Delta (pink) reaching approximately 38% and 30% respectively by the end of the period. Sacramento/North Delta nodes reach approximately 10–25%, while Lower Sacramento, Suisun Marsh, and West Delta nodes remain near zero throughout the period.

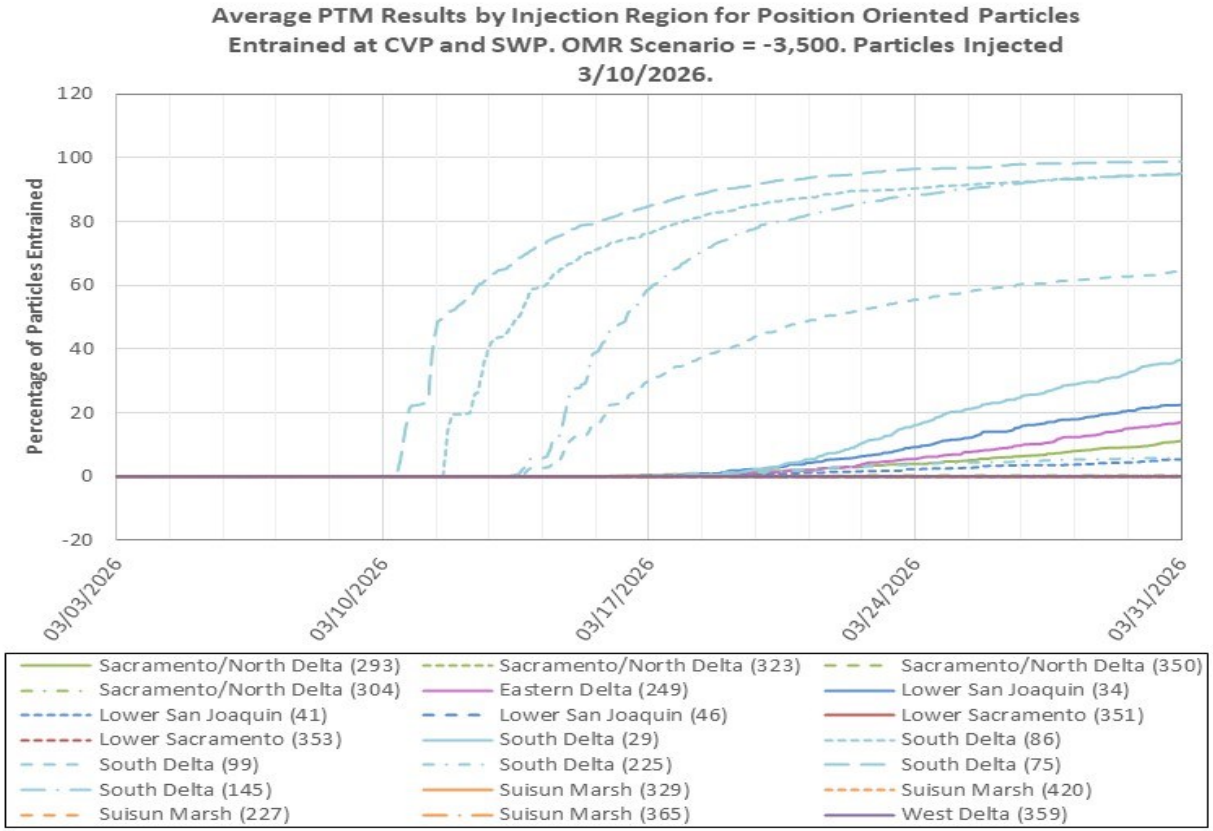

Figure 43: Average PTM Results by Injection Region for Position Oriented Particles Entrained at CVP and SWP, OMR Scenario -3,500

Figure 43 is a line graph showing the average percentage of position oriented particles entrained at CVP and SWP over time from March 3 to March 31, 2026, injected on March 10, 2026 under OMR Scenario -3,500, grouped by seven DSM2 injection regions. South Delta (light blue) shows the highest entrainment, with nodes 29 and 86 reaching near 95–100% by late March and node 75 reaching approximately 63% by March 31, followed by Lower San Joaquin (blue) and Eastern Delta (pink) both reaching approximately 20% by the end of the period. Sacramento/North Delta nodes reach approximately 5–12%, while Lower Sacramento, Suisun Marsh, and West Delta nodes remain near zero throughout the period.

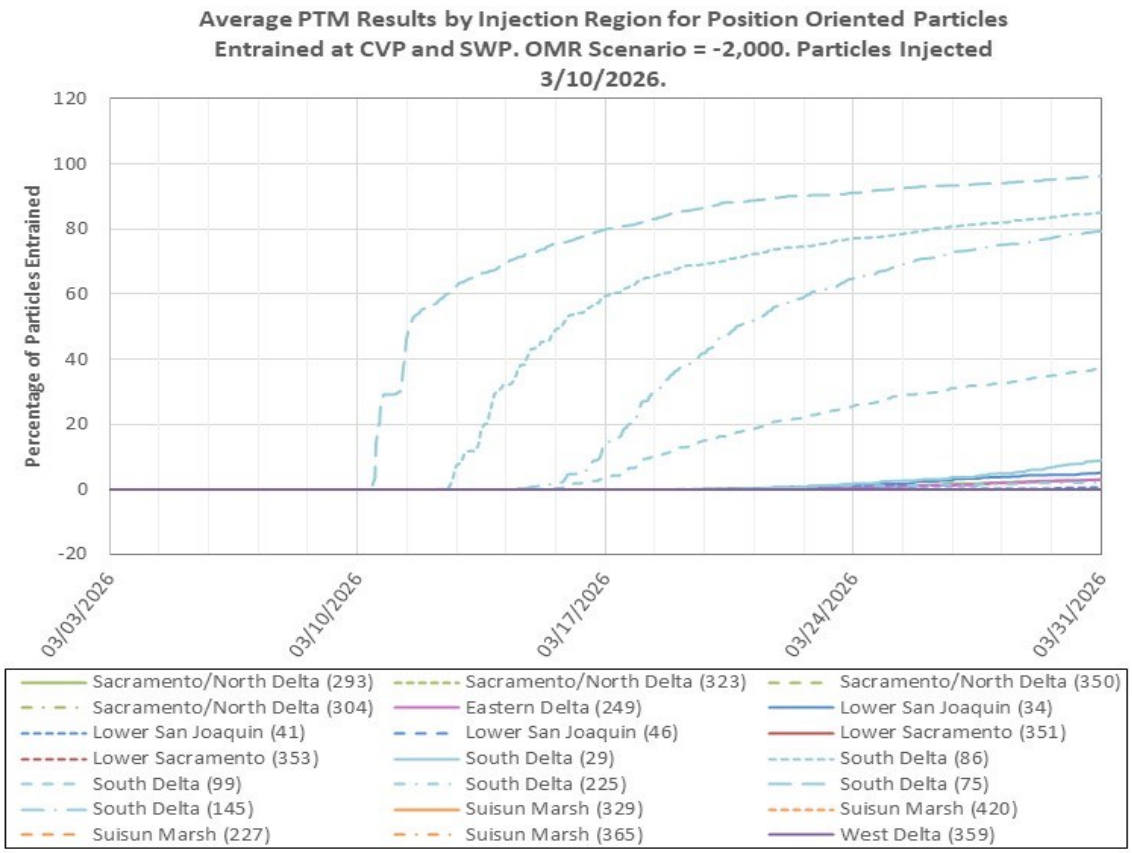

Figure 44: Average PTM Results by Injection Region for Position Oriented Particles Entrained at CVP and SWP, OMR Scenario -2,000

Figure 44 is a line graph showing the average percentage of position oriented particles entrained at CVP and SWP over time from March 3 to March 31, 2026, injected on March 10, 2026 under OMR Scenario -2,000, grouped by seven DSM2 injection regions. South Delta (light blue) dominates, with nodes 29 and 86 reaching approximately 97% and 80% respectively by March 31 and nodes 75 and 145 reaching approximately 80% and 37% by the end of the period. Lower San Joaquin, Eastern Delta, Sacramento/North Delta, Lower Sacramento, Suisun Marsh, and West Delta nodes all remain below 8% throughout the period.