BUREAU OF RECLAMATION

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

Last updated: Monday, June 22, 2026 at 8 AM

Executive Summary

ESA and CESA-listed Salmonids

- Entrainment management season is active.
- Annual Loss: 45 (0.43% of annual loss threshold) natural winter-run, 58 (4.45% of annual loss threshold) hatchery winter-run (Sac River), 265 natural steelhead, 1898 (29.02% of annual loss threshold) hatchery steelhead, 1075 (48.90% of annual loss threshold) spring-run surrogate yearlings (Coleman Late-Fall), and 0 (0.00% of annual loss threshold) spring-run surrogate YOY (Feather River Spring-Run).
- Single-year Incidental Take Limit (ITL) Status: 45 (0.76% of 5,922 ITL) natural winter-run; 58 (4.46% of 1,301 ITL) hatchery winter-run (Sac River); 2 (3.85% of 52 ITL) hatchery winter-run (Battle Creek); 265 (5.01% of 5,294 ITL) natural steelhead.
- Spring-run surrogate ITL status (0.5% per release group, BiOp Table 184): YOY - Feather River Hatchery (2026-03-18): 0 (0% of 4,927 ITL); YOY - Feather River
- Hatchery (2026-03-19): 0 (0% of 5,245 ITL); YOY - Feather River Hatchery (2026-03-
- 23): 0 (0% of 2,441 ITL); Yearling - Coleman NFH (2025-11-13): 9 (1.21% of 717 ITL);
- Yearling - Coleman NFH (2025-11-17): 0 (0% of 376 ITL); Yearling - Coleman NFH (2025-12-17): 774 (33.02% of 2,344 ITL); Yearling - Coleman NFH (2025-12-22): 257
- (84.64% of 304 ITL); Yearling - Coleman NFH (2026-01-08): 35 (12.26% of 286 ITL).
- LAD winter-run presence in the Delta is decreasing based on historical Chipps Island Trawl monitoring.
- Steelhead presence in the Delta is decreasing based on historical Chipps Island Trawl monitoring.

ESA and CESA-listed Osmerids

- Clifton Court Forebay recorded three consecutive days (June 13–15) with an average daily water temperature above 25°C.
- Entrainment management season for smelt ended 6/16/26, no assessment this week.

Current Delta Hydrologic Conditions

Operational and Regulatory Conditions

The current controlling factor is Delta water quality.

Current Conditions

Most recent inflow at Freeport in the Sacramento River and Vernalis in the San Joaquin River is 15,553 and 1,216 cfs respectively. Most recent Jersey Point Flow (JPF) is 1,081 cfs. Most recent 1-day, 5-day, and 14-day OMRI measurements were -1,661, -2,839, and -3,400 cfs, respectively, and most recent export data were 3,551 cfs for Jones Pumping Plant and 1,734 cfs for Henry O. Banks Pumping Plant.

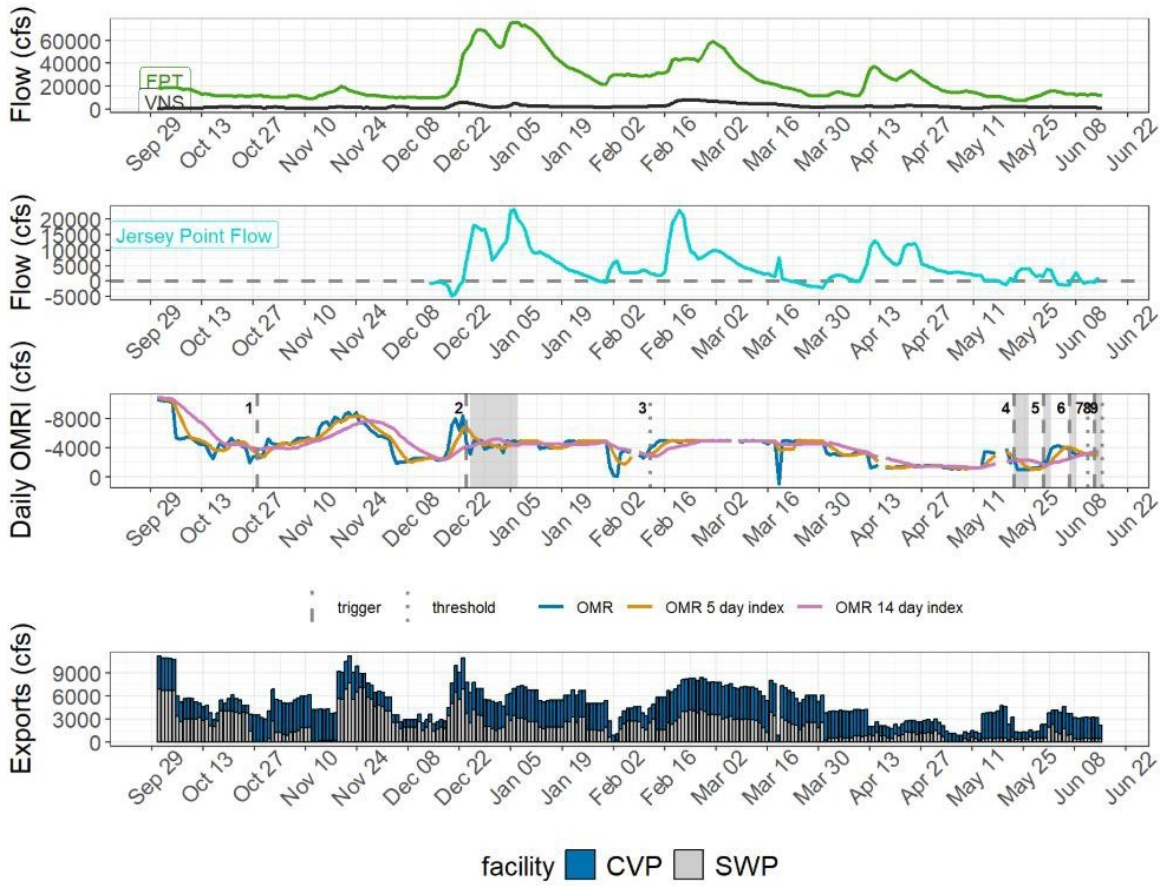

Figure 1: Operations and Action Summary, WY 2026. The numbers and lines in the OMRI plot indicate different triggers and thresholds (see Table 1), with shading representing specific action periods. Dashed and dotted vertical lines represent triggered actions and thresholds, respectively. OMRI data (colored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

Figure 1 depicts four stacked graphs summarizing hydrologic conditions and export operations during Water Year 2026. The x-axis for all four graphs shows dates from late September through mid-June. The first graph is a line chart showing Freeport (FPT) and Vernalis (VNS) flow in cubic feet per second (cfs). The second graph is a line chart showing Jersey Point Flow in cfs, with a horizontal dashed line indicating the flow threshold. The third graph is a line chart showing daily Old and Middle River Index (OMRI) values, including the daily OMR, 5-day OMR index, and 14-day OMR index, with shaded areas and vertical dashed and dotted lines indicating action periods, triggers, and thresholds. The fourth graph is a bar chart showing daily exports in cfs through the Central Valley Project (CVP) and State Water Project (SWP) facilities.

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
4	DCC Gate Open/Closed	5/22/2026	2026-05-22	4 days	DCC gates
5	DCC Gate Open/Closed	5/30/2026	2026-05-30	2 days	DCC gates
6	DCC Gate Open/Closed	6/6/2026	2026-06-06	2 days	DCC gates
7	Prisoner's Point OMR temperature threshold	6/11/2026	N/A	7 total days	Salmonid temperature threshold- PRI
8	DCC Gate Open/Closed	6/13/2026	2026-06-13	2 days	DCC gates
9	Offramp temperature threshold	6/15/2026	2026-06-16	3 consecutive days	End of Entrainment Management Season for smelts

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 'medlo' category. Forecasted conditions averaged across the next 7 days falls within the 'medlo' category.

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

Change in altered channel length between OMR levels is 151 km for current conditions and 151 km for forecasted conditions indicating that ZOI impacts across OMR scenarios would not change between current and forecasted conditions. Across the nine hydrology bins, changes in altered channel length across OMR scenarios are high (>75th percentile) for both current and forecasted hydrology.

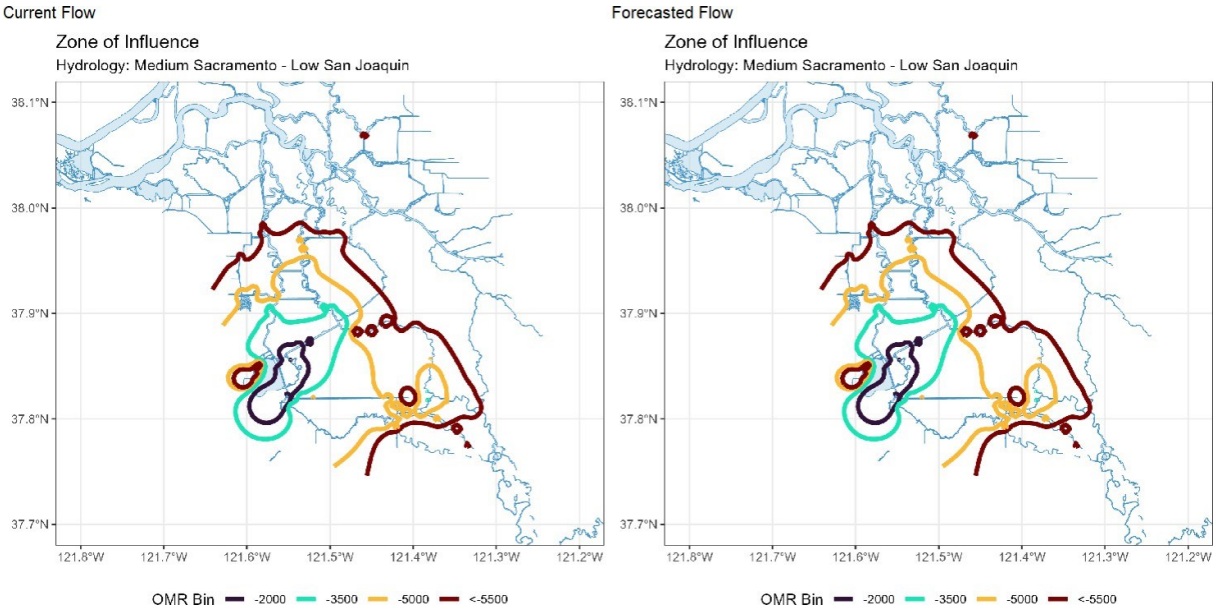

Figure 2: Modeled Zone of Influence at different OMRI scenarios based on current inflow hydrology (left) and forecasted inflow hydrology (right) from the Sacramento River and San Joaquin River

Figure 2 contains two maps showing the modeled Zone of Influence (ZOI) under current flow conditions (left) and forecasted flow conditions (right). Each map displays colored contours representing the modeled ZOI for OMR flow scenarios of -2,000, -3,500, -5,000, and less than -5,500 cfs under medium Sacramento River–low San Joaquin River hydrologic conditions.

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 Jun 14, 100% of length-at-date (LAD) winter-run have entered the Delta based on Knights Landing RST catch, 100% have exited the Delta based on Chipps Island Trawl Catch, and 100% of DNA confirmed winter-run have been salvaged.

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

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

Red Bluff Diversion Dam Passage Estimate - As of Jun 10 estimated passage to date of LAD winter-run at Red Bluff Diversion is approximately 4.18 million fish. Note that outmigration timing overlaps with spring-run migrating fish, and true winter-run abundance likely differs from these estimates.

Delta Monitoring - No catch has been reported at Delta Entry RSTs (Tisdale, Knights Landing, Lower Sacramento River) in the past two weeks. Total catch at Sacramento Trawl and Beach Seines in the delta between Jun 01 and Jun 12 is 0 individuals. Total catch at Delta Exit at Chipps Island between Jun 01 and Jun 12 is 0 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 June 14, cumulative loss of genetically confirmed winter-run is 45 or 0.43% of the annual loss threshold. Cumulative loss in the past 7 days has been 0.

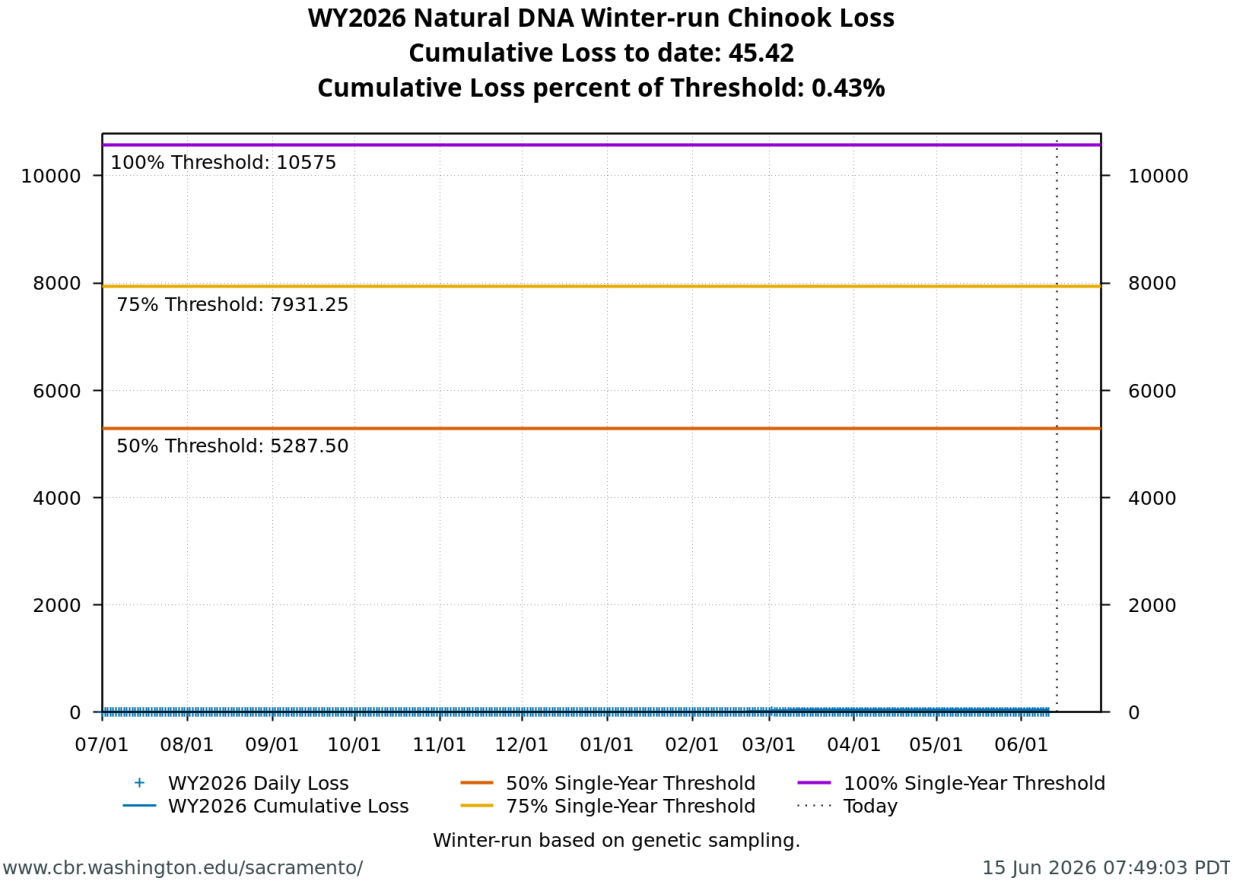

Figure 3: Cumulative loss of natural-origin winter-run for WY 2026. Cumulative loss is based on genetically confirmed winter-run captured in salvage or length-at-date winter-run in which genetic confirmation was unable to be obtained.

Figure 3 depicts a line graph showing cumulative daily loss of natural-origin winter-run Chinook during Water Year 2026. The x-axis shows dates from July through mid-June, and the y-axis shows cumulative loss. Blue plus symbols represent daily loss, and the blue line represents cumulative loss. Horizontal colored lines indicate the 50%, 75%, and 100% single-year thresholds, while a vertical dashed line marks the current date. The figure header reports the cumulative loss to date and the cumulative loss as a percentage of the single-year 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 June 13, overall through delta STARS estimated survival probability (with 80% credible intervals) is 0 (0-0) placing it in the 51st percentile of historical STARS survival estimates for the month of June (WYs 2018-2025). STARS estimated routing and survival probabilities (with 80% credible intervals) into the interior delta are 0.13 (0.1-0.16) and 0 (0-0), respectively, corresponding to the 38th and 46th percentiles of historical June estimates (WYs 2018-2025).

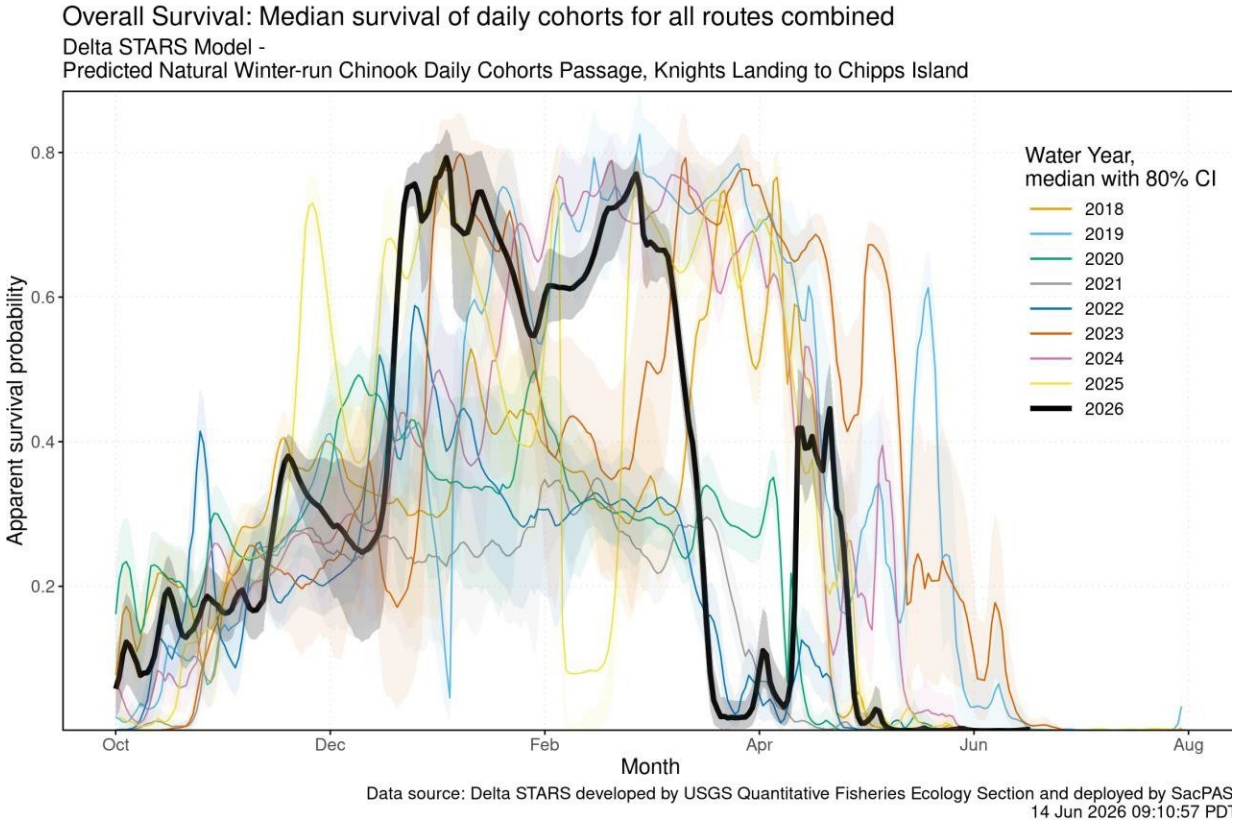

Figure 4: Estimated overall winter-run survival from Knights Landing to Chipps Island. Black line indicates the current water-year, and other colored lines correspond to past water years.

Figure 4 depicts a multi-line graph comparing estimated overall survival probability of winter-run Chinook cohorts migrating from Knights Landing to Chipps Island across multiple water years. The x-axis shows months from October through August, and the y-axis shows apparent survival probability. Colored lines represent the median survival probability for Water Years 2018 through 2025, while the thicker black line represents Water Year 2026. Shaded bands surrounding each line represent the 80% confidence interval for each water year.

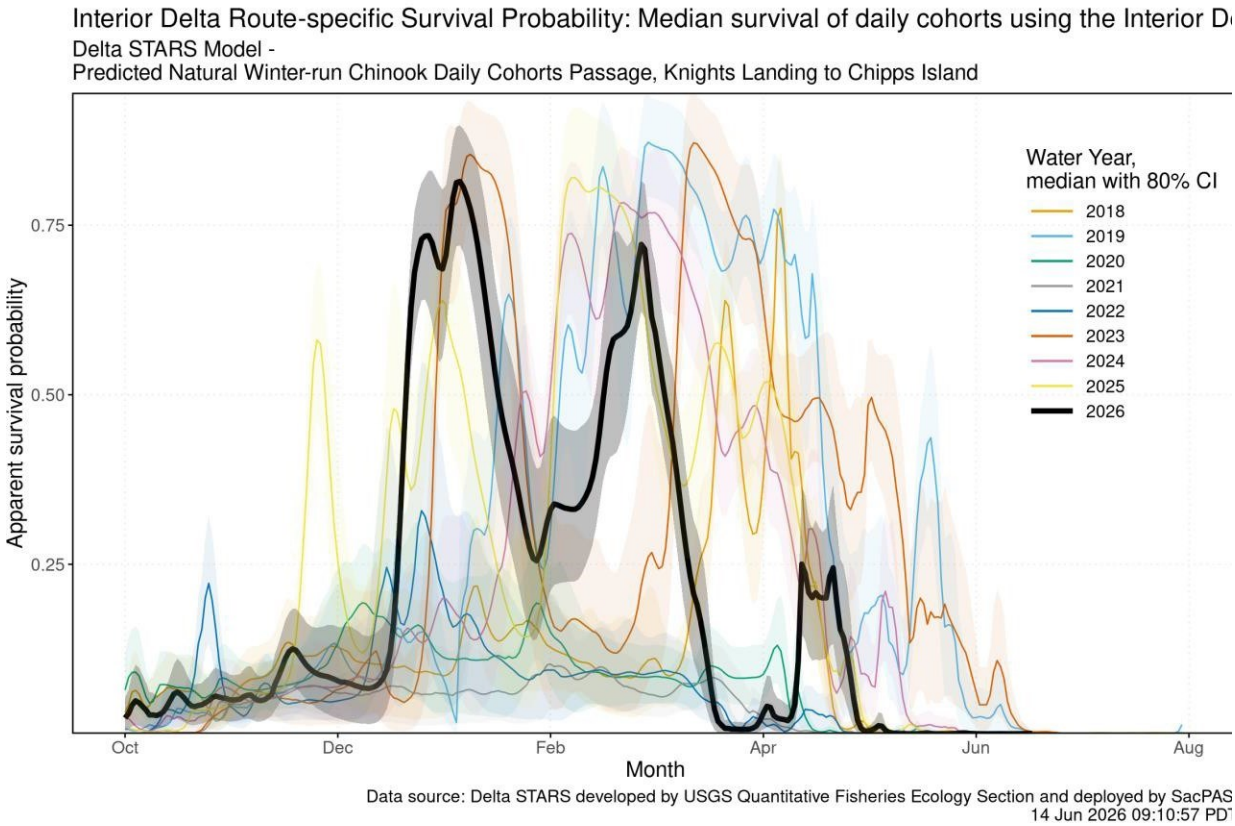

Figure 5: Estimated survival from Knights Landing to Chipps Island of simulated winter-run cohorts that route through the interior Delta. Black line indicates the current water-year, and other colored lines correspond to past water years.

Figure 5 depicts a multi-line graph comparing the estimated survival probability of winter-run Chinook cohorts migrating from Knights Landing to Chipps Island through the interior Delta across multiple water years. The x-axis shows months from October through August, and the y-axis shows apparent survival probability. Colored lines represent the median survival probability for Water Years 2018 through 2025, while the thicker black line represents Water Year 2026. Shaded bands surrounding each line represent the 80% confidence interval for each water year.

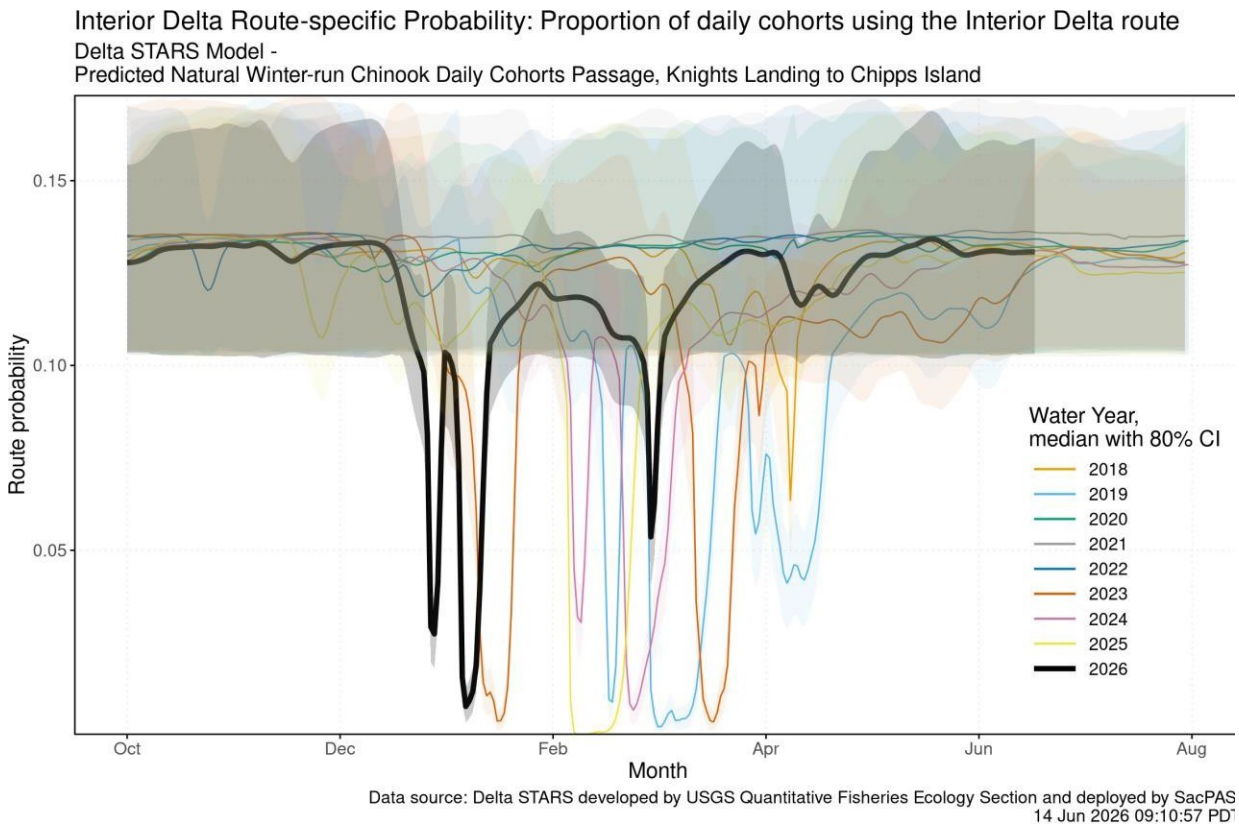

Figure 6: Estimated probability of winter-run routing into the interior Delta. Black line indicates the current water-year, and other colored lines correspond to past water years.

Figure 6 depicts a multi-line graph comparing the estimated probability of winter-run Chinook cohorts routing through the interior Delta across multiple water years. The x-axis shows months from October through August, and the y-axis shows route probability. Colored lines represent the median route probability for Water Years 2018 through 2025, while the thicker black line represents Water Year 2026. Shaded bands surrounding each line represent the 80% confidence interval for each water year.

Hatchery Winter-run Chinook – Sacramento River

Hatchery Releases

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

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

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

Juvenile Production Estimate

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

Annual Loss

As of June 15, cumulative loss of Livingston Stone hatchery fish (Sacramento River releases) is 58 or 4.45% of the annual loss threshold (which equals the single-year ITL). Cumulative loss in the past 7 days has been 0.

Hatchery Winter-run Chinook – Battle Creek

Hatchery Releases

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

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

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

Juvenile Production Estimate

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

Incidental Take

As of June 15, cumulative loss of Livingston Stone hatchery fish (Battle Creek releases) is 2 or 4.47% of the single-year ITL (52 fish). Cumulative loss in the past 7 days has been 0.

Natural-origin Central Valley Steelhead

Current Status

Delta Entry Timing - Historically, as of Jun 14, 98% of CCV steelhead have entered the Delta based on Knights Landing RST catch, 94% have exited the Delta based on Chipps Island Trawl Catch, and 99% have been salvaged.

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

Species	Chipps Island Trawl	Knights Landin g RST	Red Bluff Diversion Dam	Sac Trawl (Sherwood)	Salvage	Tisdale RST
Steelhead Unclipped	94%	83%	38%	98%	99%	88%

Delta Monitoring - No catch has been reported at Delta Entry RSTs (Tisdale, Knights Landing, Lower Sacramento River) in the past two weeks. Total catch at Sacramento Trawl and Beach Seines in the delta between Jun 01 and Jun 12 is 0 individuals. Total catch at Delta Exit at Chipps Island between Jun 01 and Jun 12 is 0 individuals.

Annual Loss

As of June 14, cumulative loss of unclipped steelhead is 265 or 5.00% 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 0.

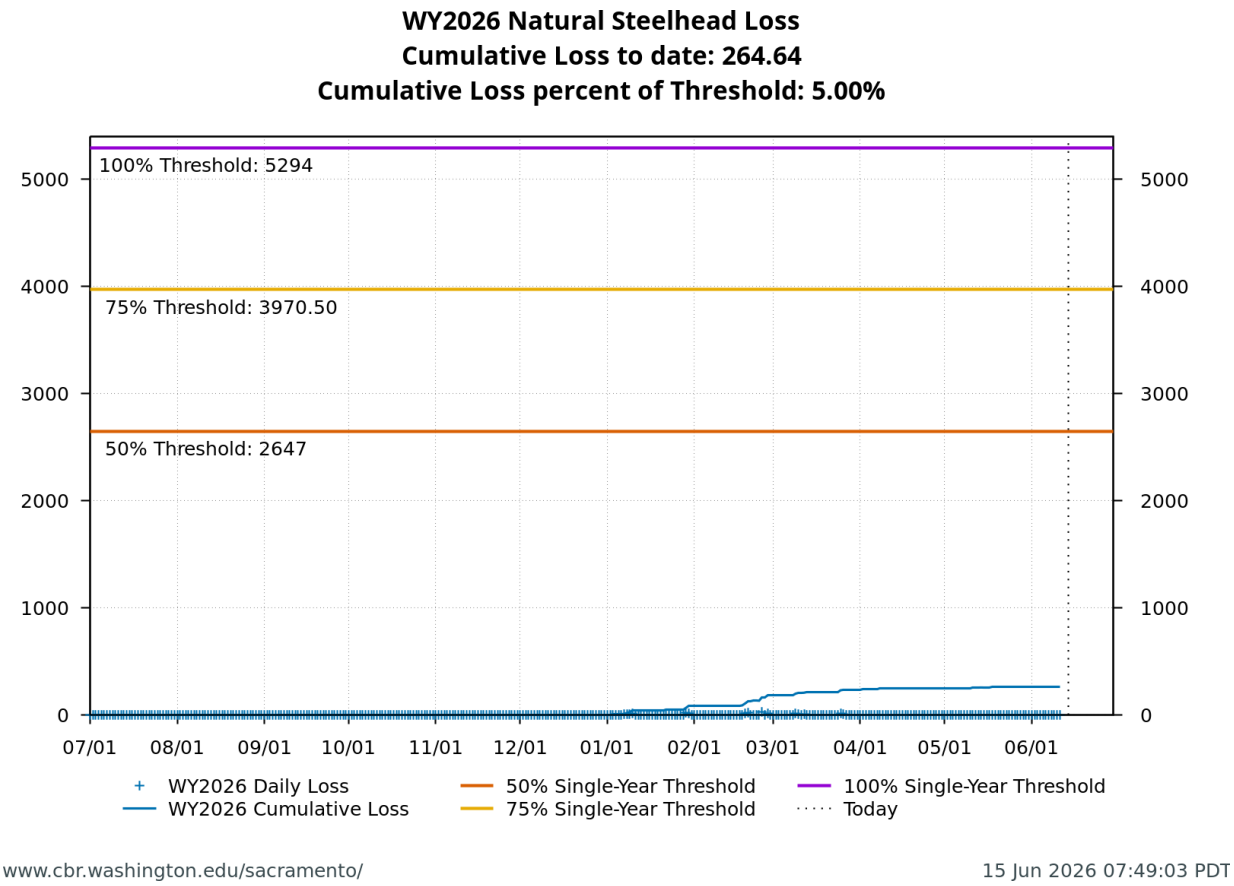

Figure 7: Cumulative loss of natural-origin steelhead for WY 2026. The 5,294 line represents the single-year incidental take limit (ITL), not a loss threshold.

Figure 7 depicts a line graph showing cumulative daily loss of natural-origin steelhead during Water Year 2026. The x-axis shows dates from July through mid-June, and the y-axis shows cumulative loss. Blue plus symbols represent daily loss, and the blue line represents cumulative loss. Horizontal colored lines indicate the 50%, 75%, and 100% single-year thresholds, while a vertical dashed line marks the current date. The figure header reports the cumulative loss to date and the cumulative loss as a percentage of the single-year incidental take limit (ITL).

Hatchery-origin Central Valley Steelhead

Surrogate Releases

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

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

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

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

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

Total loss of hatchery-origin steelhead is 1898 or 29.02% 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.

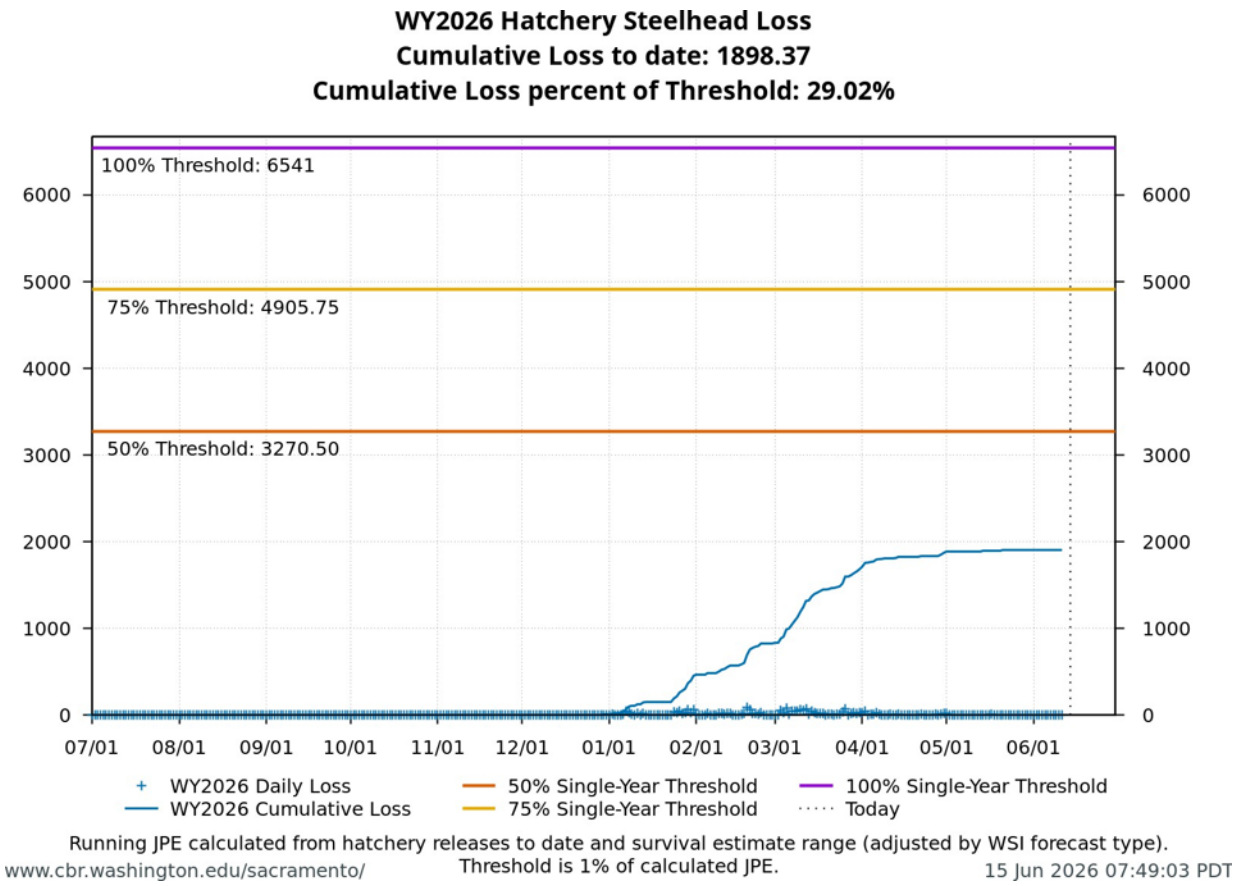

Figure 8: Cumulative loss of hatchery steelhead for WY 2026.

Figure 8 depicts a line graph showing cumulative daily loss of hatchery steelhead during Water Year 2026. The x-axis shows dates from July through mid-June, and the y-axis shows cumulative loss. Blue plus symbols represent daily loss, and the blue line represents cumulative loss. Horizontal colored lines indicate the 50%, 75%, and 100% thresholds, while a vertical dashed line marks the current date. The figure header reports the cumulative loss to date and the cumulative loss as a percentage of the threshold.

Spring-run Chinook

Current Status

Delta Entry Timing - Historically, as of Jun 14, 100% of LAD spring-run have entered the Delta based on Knights Landing RST catch, 100% have exited the Delta based on Chipps Island Trawl Catch, and 100% have been salvaged.

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

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

Red Bluff Diversion Dam Passage Estimate - As of Jun 10 estimated passage to date of LAD spring-run at Red Bluff Diversion is approximately 0.96 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 - No catch has been reported at Delta Entry RSTs (Tisdale, Knights Landing, Lower Sacramento River) in the past two weeks. Total catch at Sacramento Trawl and Beach Seines in the delta between Jun 01 and Jun 12 is 0 individuals. Total catch at Delta Exit at Chipps Island between Jun 01 and Jun 12 is 0 individuals.

Spring-run Surrogate Releases

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

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

Hatchery	Release Date	Stock	Life Stage	Type	CWT Released	JPE	ITL (0.5%)	Loss	CWT Codes
Feather River Hatchery	2026-03-18	Spring-Run	YOY	Production	985,324	355,866	4,927	0	063227, 063229
Feather River Hatchery	2026-03-19	Spring-Run	YOY	Production	1,048,948	378,846	5,245	0	063036, 063236,
Feather River Hatchery	2026-03-23	Spring-Run	YOY	Production	488,217	176,328	2,441	0	062858, 063234
Coleman NFH	2025-11-13	Late-Fall	Yearling	Production	143,346	39,134	717	9	056808, 056809
Coleman NFH	2025-11-17	Late-Fall	Yearling	Experimental	75,119	20,507	376	0	056810
Coleman NFH	2025-12-17	Late-Fall	Yearling	Production	468,876	128,002	2,344	774	0053700, 056806, 056812, 056814 056817
Coleman NFH	2025-12-22	Late-Fall	Yearling	Experimental	60,873	16,618	304	257	056813
Coleman NFH	2026-01-08	Late-Fall	Yearling	Experimental	57,109	15,591	286	35	056816

Annual Loss

The annual loss threshold (Action 5) is 1% of the JPE entering the Delta, tracked cumulatively but separately for yearlings and young-of-year. Yearling surrogates (Coleman Late-Fall): the threshold is 2,199 fish; as of June 14, cumulative loss is 1,075 fish or 48.90% of the threshold. YOY surrogates (Feather River Spring-Run): the threshold is 9,110 fish; as of June 14, cumulative loss is 0 fish or 0.00% of the threshold. The single-year incidental take limit (ITL) is 0.5% of the estimated number of each surrogate release group (BiOp Table 184). ITL status by release group: YOY - Feather River Hatchery (2026-03-18, Production): 0 loss of 4,927 ITL (0%); YOY - Feather River Hatchery (2026-03-19, Production): 0 loss of 5,245 ITL (0%); YOY - Feather River Hatchery (2026-03-23, Production): 0 loss of 2,441 ITL (0%); Yearling - Coleman NFH (2025-11-13, Production): 9 loss of 717 ITL (1.21%); Yearling - Coleman NFH (2025-11-17, Experimental): 0 loss of 376 ITL (0%); Yearling - Coleman NFH (2025-12-17, Production): 774 loss of 2,344 ITL (33.02%); Yearling - Coleman NFH (2025-12-22, Experimental): 257 loss of 304 ITL (84.64%); Yearling - Coleman NFH (2026-01-08, Experimental): 35 loss of 286 ITL (12.26%).

Loss Prediction and Trajectories

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

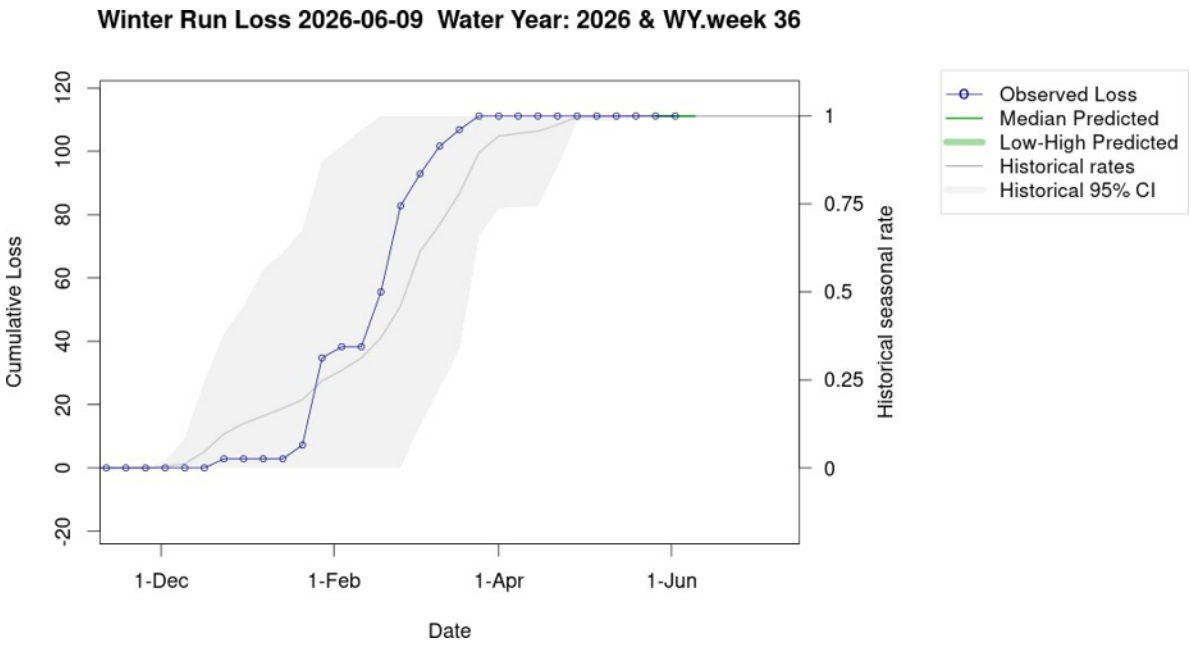

Figure 9: Estimates of winter-run Chinook loss generated by Loss and Salvage Predictor tool.

Figure 9 depicts a line graph showing observed and predicted cumulative winter-run Chinook loss during Water Year 2026. The x-axis shows dates from December through early June. The left y-axis shows cumulative loss, and the right y-axis shows the corresponding historical seasonal rate. Blue circles connected by a line represent observed cumulative loss, the green line and shaded green area represent the median predicted loss and prediction range, the gray line represents the historical seasonal rate, and the light gray shaded area represents the historical 95% confidence interval.

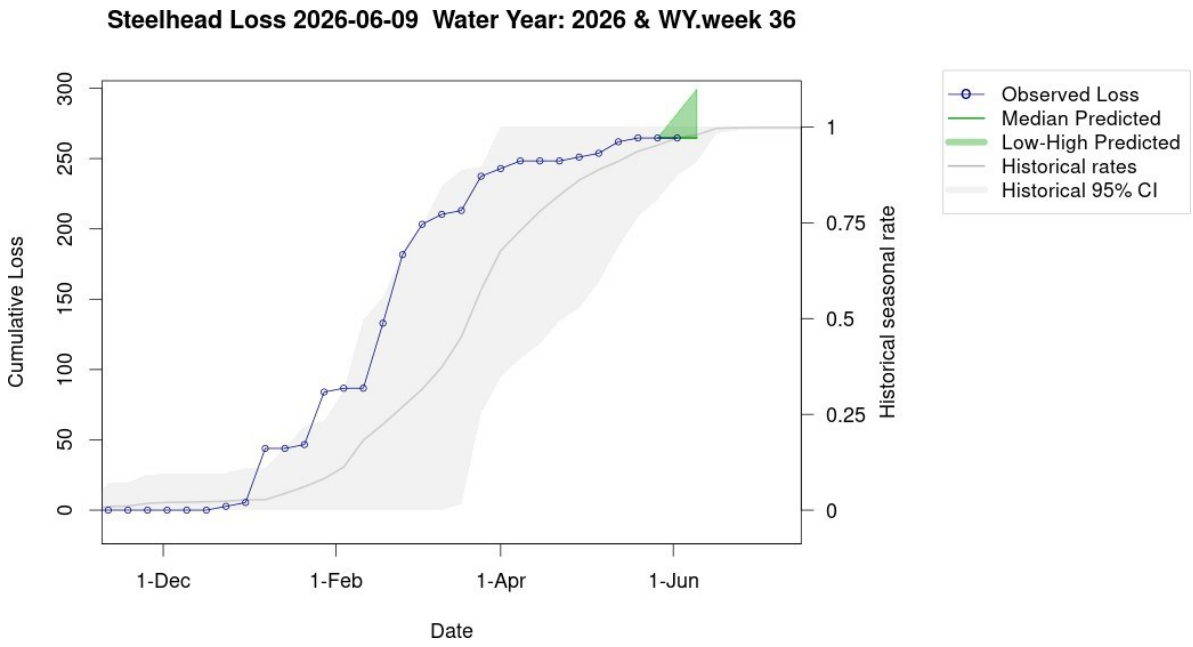

Figure 10: Estimates of steelhead loss generated by Loss and Salvage Predictor tool.

Figure 10 depicts a line graph showing observed and predicted cumulative steelhead loss during Water Year 2026. The x-axis shows dates from December through early June. The left y-axis shows cumulative loss, and the right y-axis shows the corresponding historical seasonal rate. Blue circles connected by a line represent observed cumulative loss, the green line and shaded green area represent the median predicted loss and prediction range, the gray line represents the historical seasonal rate, and the light gray shaded area represents the historical 95% confidence interval.

End of Entrainment Management for Salmonids

The end of entrainment management for salmonids occurs on June 30, or after 7 days of daily mean water temperature in June ≥ 72° F (22° C) at Mossdale and at Prisoner's Point (does not have to be consecutive), whichever occurs first. Temperature has already exceeded this threshold at Prisoner's Point (Figure 11).

Location	Threshold (°F/°C)	Days Exceeding (n)	Dates Exceeding	Status
Mossdale	72°F / 22°C	6	Jun 15, Jun 16, Jun 17, Jun 18 Jun 22, Jun 23	Threshold Exceeded
Prisoners Point	72°F / 22°C	19	Jun 05, Jun 06, Jun 07, Jun 08 Jun 09, Jun 10, Jun 11, +12 more	Threshold Exceeded

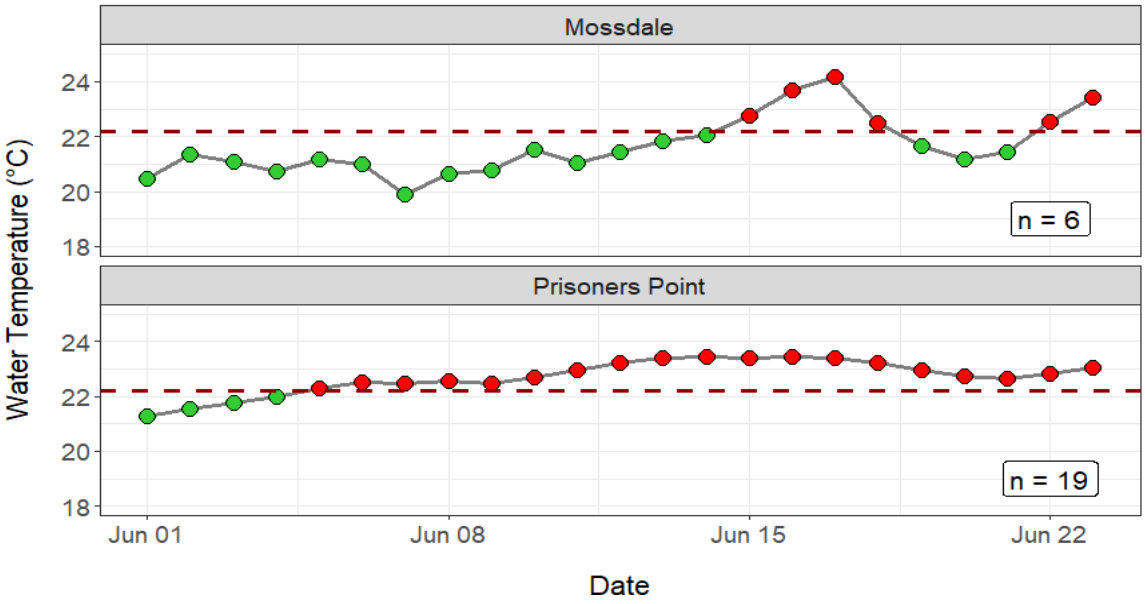

Figure 11: Dates of temperature threshold exceedance and daily average temperature at Mossdale and Prisoner's Point. Table indicates the number of days and dates exceeding temperature threshold at each location. In the figures, horizontal dashed line indicates temperature threshold for entrainment management for salmonids. Number of days exceeding the threshold at each location are shown (n=).

Figure 11 depicts a table and two line graphs showing daily average water temperature and temperature threshold exceedances at Mossdale and Prisoners Point. The table summarizes the temperature threshold, number of days exceeding the threshold, dates of exceedance, and exceedance status for each location. The two graphs display daily average water temperature from June 1 through June 23, with Mossdale shown in the upper panel and Prisoners Point shown in the lower panel. The x-axis shows date, and the y-axis shows water temperature in degrees Celsius (°C). Colored markers indicate daily average temperatures, with red markers representing days when the temperature exceeded the threshold and green markers representing days below the threshold. A horizontal dashed line indicates the temperature threshold for salmonid entrainment management, and the total number of exceedance days (n) is displayed within each graph.

Evaluation

1. What is the probability of exceeding natural or hatchery winter-run Chinook salmon loss thresholds in the upcoming week?
    a. LOW RISK: Natural winter-run cumulative loss is currently 0.43% of the threshold. LOW RISK: Hatchery winter-run (Sac River) cumulative loss is currently 4.45% of the threshold. LOW RISK: Hatchery winter-run (Battle Creek) cumulative loss is currently 4.47% of the threshold.
2. What is the probability of exceeding spring-run Chinook salmon surrogate loss thresholds (yearling and YOY) in the upcoming week?
    a. LOW RISK: Spring-run surrogate yearlings (Coleman Late-Fall) cumulative loss is currently 48.90% of the threshold. LOW RISK: Spring-run surrogate YOY (Feather River Spring-Run) cumulative loss is currently 0.00% of the threshold.
3. What is the probability of exceeding natural or hatchery steelhead loss thresholds in the upcoming week?
    a. LOW RISK: Natural steelhead cumulative loss is currently 5.00% of the threshold. LOW RISK: Hatchery steelhead cumulative loss is currently 29.02% of the threshold.

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

Entrainment management for smelts ended on 6/16/26 after 3 consecutive days above 25° C at Clifton Court Forebay. No assessment this week.

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.

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.

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.

Appendix A. Delta Real-Time Forecast Summary for 06/16/2026

Date Published: 06/22/2026

Forecast Period: 06/16/2026 – 07/06/2026

Forecast Week 1: 06/16/2026 – 06/22/2026

Forecast Week 2: 06/23/2026 –06/29/2026

Forecast Week 3: 06/30/2026 – 07/06/2026

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Common Assumptions

The model run results cover the period June 16, 2026 through July 6, 2026 and are based on the following assumptions established by DWR:

1. CCFB Gates are operating to Priority 2.
2. The Delta Cross Channel gates are closed and will be open on June 27.
3. Suisun Marsh Salinity Control flashboards are in. All three gates will be in tidal operation starting June 19.
4. San Joaquin River flow at Vernalis is at 1,190 cfs at the beginning of the forecast period and is estimated to decrease to 500 cfs by the end of the forecast period.
5. San Joaquin River EC at Vernalis is at 363 umhos/cm at the beginning of the forecast period and is estimated to increase to 996 umhos/cm at the end of the forecast period.

6. Sacramento River flow at Freeport is at 11,970 cfs at the beginning of the forecast period and is expected to increase to 22,500 cfs by the end of the forecast period.
7. CCFB inflow is at 297 cfs at the beginning of the forecast period and is expected to increase to 6,500 cfs by the end of the forecast period.
8. Export at Jones Pumping Plant is at 923 cfs at the beginning of the forecast period and is expected to increase to 4,200 cfs to the end the forecast period.
9. The Middle River barrier gates are in intermediate tidal operation starting June 2, and will move to full operation starting June 30.
10. The Old River near Tracy barrier gates are in intermediate tidal operation starting June 1, and will move to full operation starting June 30.
11. The Grant Line Canal barrier gates will be in intermediate tidal operation starting June 9, and will move to full operation starting June 30.

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

Reclamation Forecast Flow and Export Data

Table A1. 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: 06/16/2026 - 06/22/2026	12,103	lo	1,497	lo	lolo
Week 2: 06/23/2026 - 06/29/2026	11,956	lo	1,345	lo	lolo
Week 3: 06/30/2026 - 07/06/2026	11,950	lo	1,345	lo	lolo

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

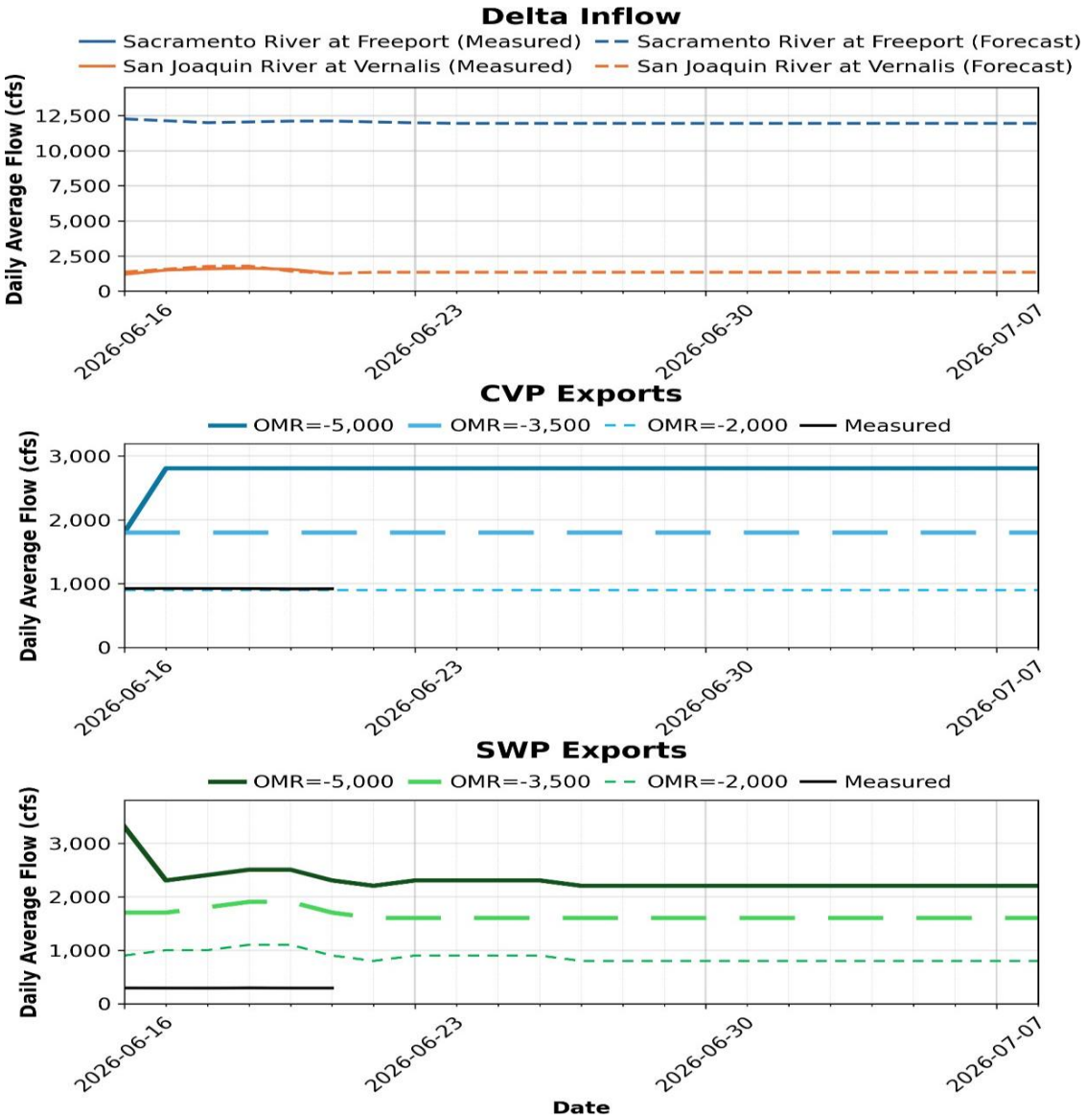
Table A2. Weekly Averaged CVP and SWP Exports by OMR Bin

Week	OMR Bin (cfs)	CVP Exports (cfs)	SWP Exports (cfs)	Total Exports (cfs)	CVP Exports (% of total)	SWP Exports (% of total)
Week 1: 06/16/2026 - 06/22/2026	-6,500	N/A	N/A	N/A	N/A	N/A
Week 1: 06/16/2026 - 06/22/2026	-5,000	2,662	2,504	5,166	52%	48%
Week 1: 06/16/2026 - 06/22/2026	-3,500	1,803	1,760	3,563	51%	49%
Week 1: 06/16/2026 - 06/22/2026	-2,000	902	973	1,875	48%	52%
Week 2: 06/23/2026 - 06/29/2026	-6,500	N/A	N/A	N/A	N/A	N/A
Week 2: 06/23/2026 - 06/29/2026	-5,000	2,805	2,261	5,066	55%	45%
Week 2: 06/23/2026 - 06/29/2026	-3,500	1,803	1,603	3,406	53%	47%
Week 2: 06/23/2026 - 06/29/2026	-2,000	902	859	1,760	51%	49%
Week 3: 06/30/2026 - 07/06/2026	-6,500	N/A	N/A	N/A	N/A	N/A
Week 3: 06/30/2026 - 07/06/2026	-5,000	2,805	2,204	5,009	56%	44%
Week 3: 06/30/2026 - 07/06/2026	-3,500	1,803	1,603	3,406	53%	47%
Week 3: 06/30/2026 - 07/06/2026	-2,000	902	802	1,703	53%	47%

Key: cfs = cubic feet per second CVP = Central Valley Project OMR = Old and Middle River

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.
- There is still a low probability an OMR of -6,500 cfs would be realized, so that scenario is omitted from this assessment.



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

Figure A1. Daily Average Flow for Measured and Forecasted Delta Inflow, CVP Exports, and SWP Exports

Figure A1 depicts three stacked line graphs showing measured and forecasted daily average Delta inflows and export operations. The x-axis for all three graphs shows dates from June 15 through July 7, 2026, and the y-axis shows daily average flow in cubic feet per second (cfs). The top graph shows measured and forecasted Sacramento River flow at Freeport and San Joaquin River flow at Vernalis. The middle graph shows measured and scenario-based Central Valley Project (CVP) export flows for Old and Middle River Index (OMRI) scenarios of −5,000, −3,500, and −2,000 cfs. The bottom graph shows measured and scenario-based State Water Project (SWP) export flows for the same OMRI scenarios. Solid lines represent measured values, and dashed lines represent forecasted or scenario-based values.

Delta Export Zone of Influence

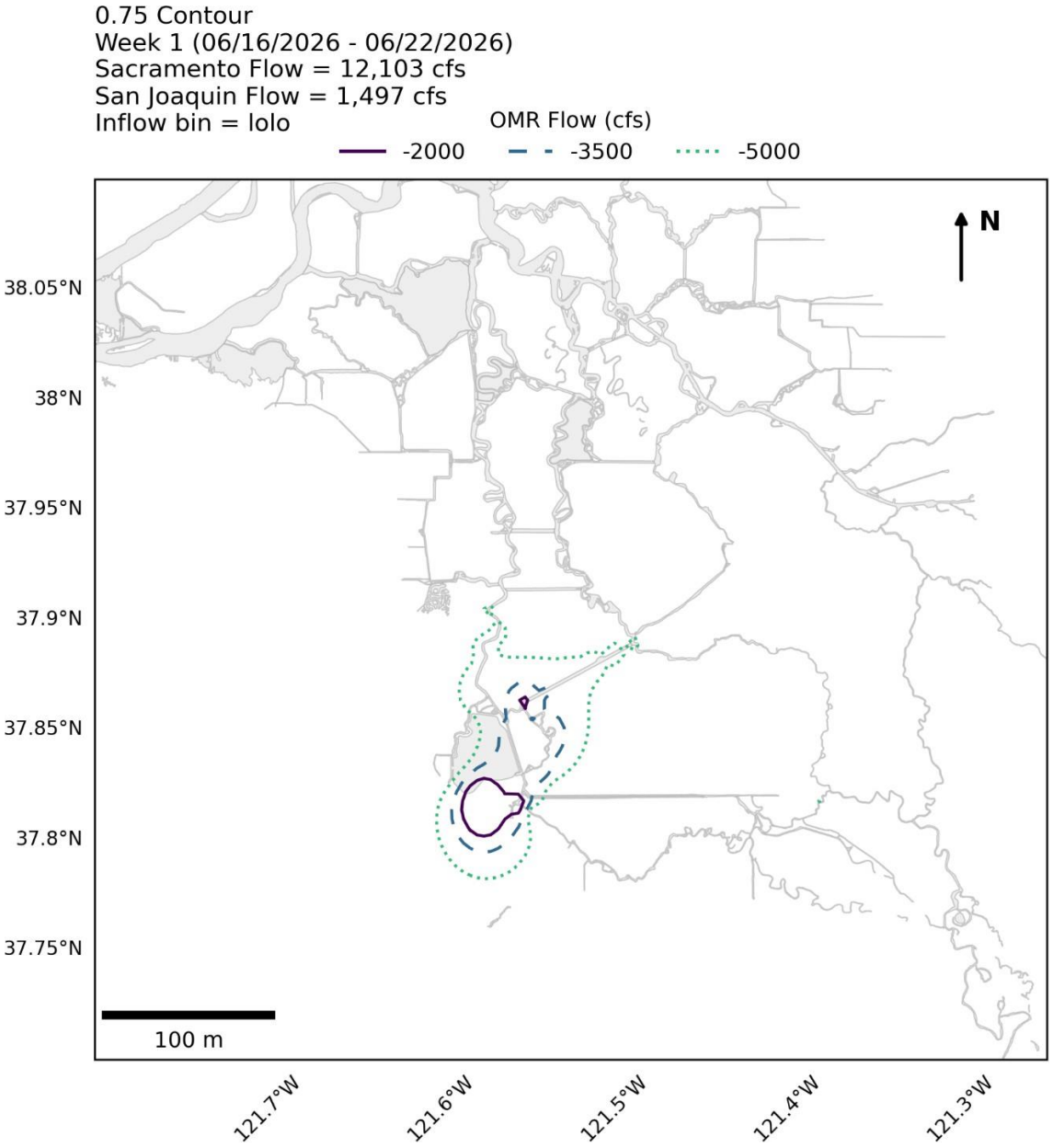


Figure A2. Modeled 0.75 Probability Contours for Week 1 (June 16–22, 2026) Under Alternative Old and Middle River Flow Scenarios

Figure A2 depicts a map of the south Delta showing modeled 0.75 probability contours for Week 1 (June 16–22, 2026). The map displays contour boundaries for three Old and Middle River (OMR) flow scenarios (−2,000, −3,500, and −5,000 cfs) overlaid on the Delta channel network. The figure also lists the corresponding Sacramento River and San Joaquin River inflows and the inflow classification used for the model. A north arrow and a 100-meter scale bar are included for reference.

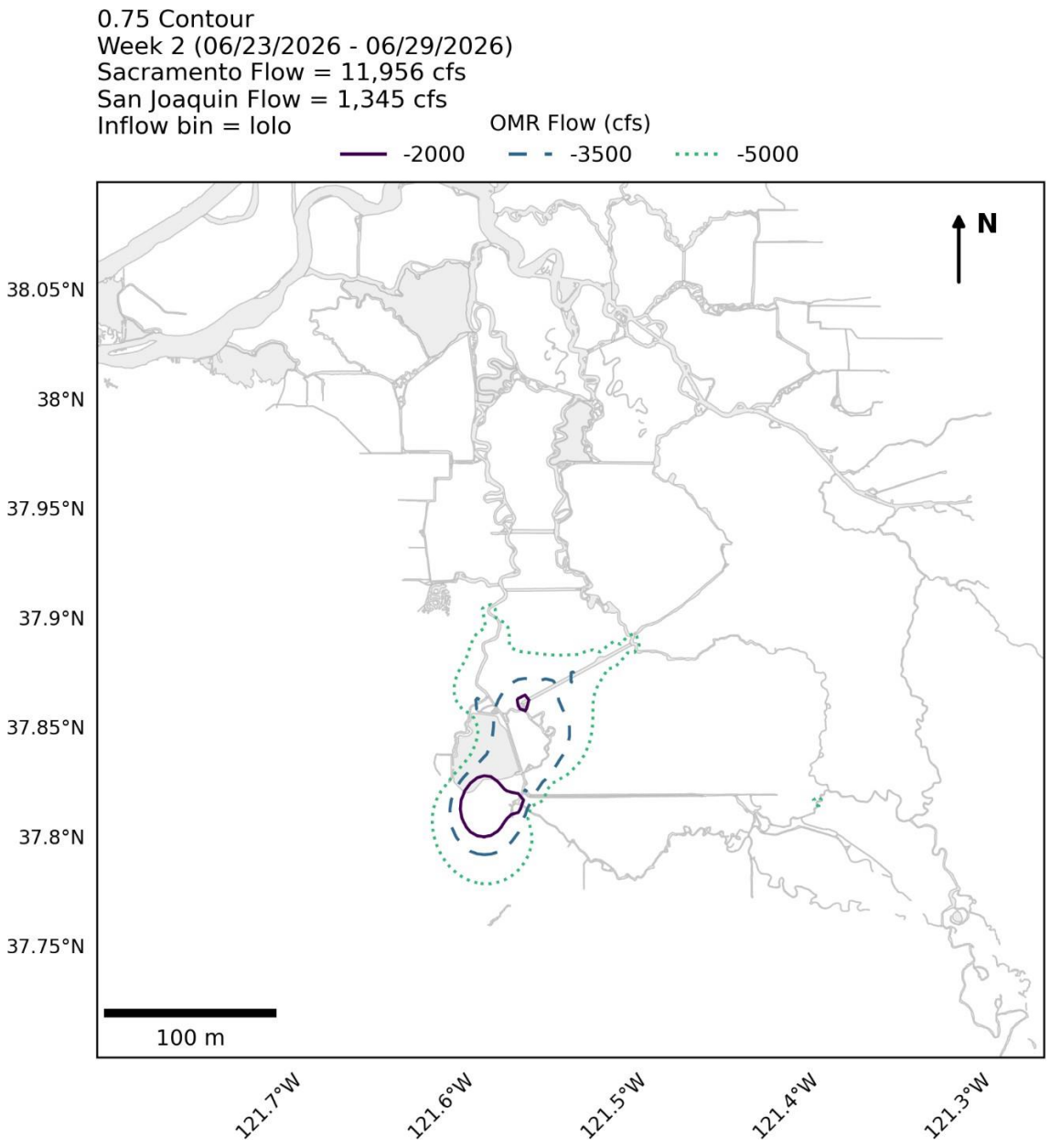


Figure A3. Modeled 0.75 Probability Contours for Week 2 (June 23–29, 2026) Under Alternative Old and Middle River Flow Scenarios

Figure A3 depicts a map of the south Delta showing modeled 0.75 probability contours for Week 2 (June 23–29, 2026). The map displays contour boundaries for three Old and Middle River (OMR) flow scenarios (−2,000, −3,500, and −5,000 cfs) overlaid on the Delta channel network. The figure also lists the corresponding Sacramento River and San Joaquin River inflows and the inflow classification used for the model. A north arrow and a 100-meter scale bar are included for reference.

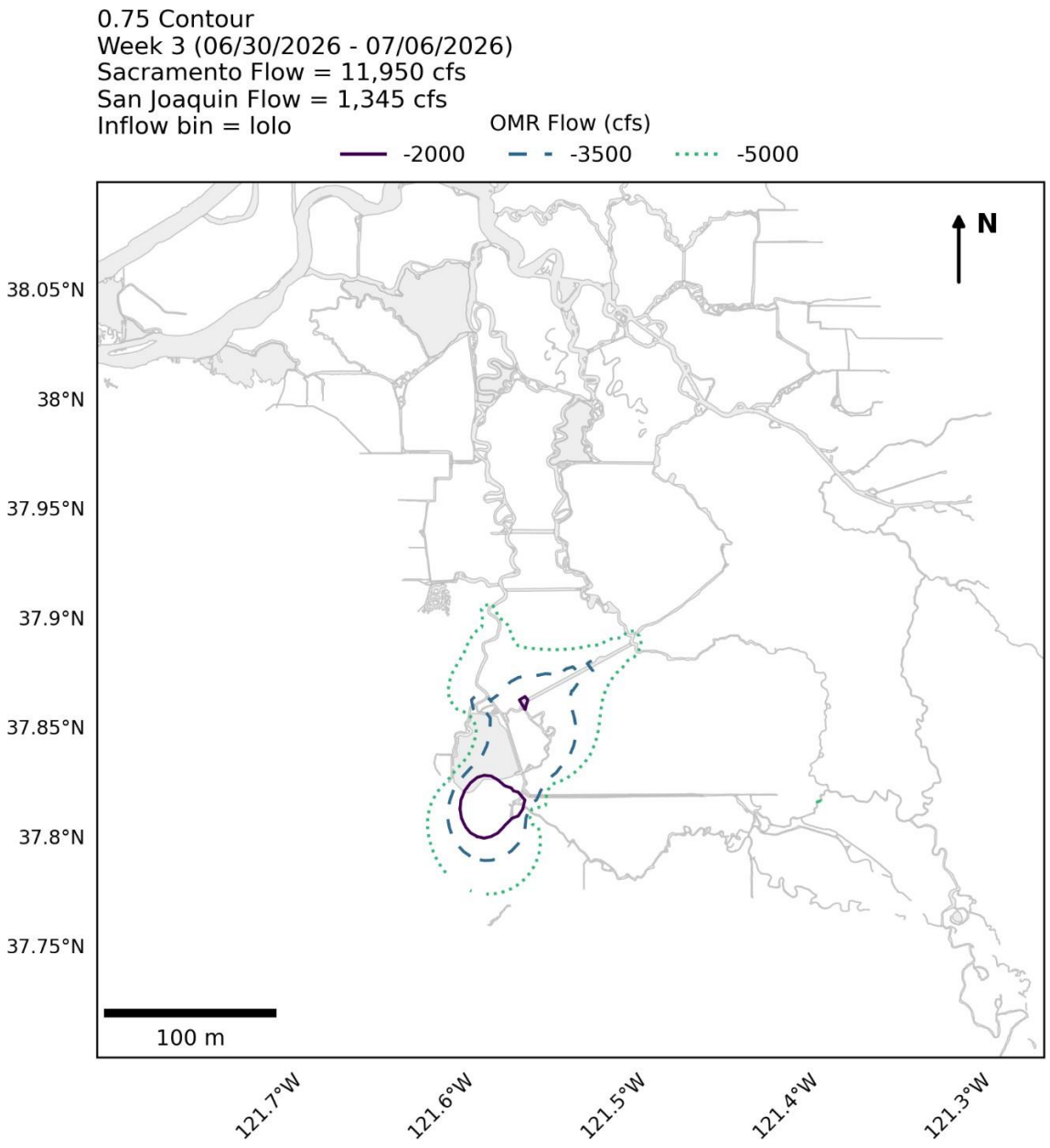


Figure A4. Modeled 0.75 Probability Contours for Week 3 (June 30–July 6, 2026) Under Alternative Old and Middle River Flow Scenarios

Figure A4 depicts a map of the south Delta showing modeled 0.75 probability contours for Week 3 (June 30–July 6, 2026). The map displays contour boundaries for three Old and Middle River (OMR) flow scenarios (−2,000, −3,500, and −5,000 cfs) overlaid on the Delta channel network. The figure also lists the corresponding Sacramento River and San Joaquin River inflows and the inflow classification used for the model. A north arrow and a 100-meter scale bar are included for reference.

Table A3 Proportion of DSM2 Channel Length with Hydrologic Alteration 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: 06/16/2026 - 06/22/2026	-6,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 1: 06/16/2026 - 06/22/2026	-5,000	652.23	96.8%	19.84	2.9%	1.58	0.2%
Week 1: 06/16/2026 - 06/22/2026	-3,500	664.25	98.6%	8.55	1.3%	0.85	0.1%
Week 1: 06/16/2026 - 06/22/2026	-2,000	671.25	99.6%	1.55	0.2%	0.85	0.1%
Week 2: 06/23/2026 - 06/29/2026	-6,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 2: 06/23/2026 - 06/29/2026	-5,000	651.23	96.6%	21.58	3.2%	1.58	0.2%
Week 2: 06/23/2026 - 06/29/2026	-3,500	659.19	97.7%	14.35	2.1%	0.85	0.1%
Week 2: 06/23/2026 - 06/29/2026	-2,000	672.00	99.6%	1.55	0.2%	0.85	0.1%
Week 3: 06/30/2026 - 07/06/2026	-6,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 3: 06/30/2026 - 07/06/2026	-5,000	650.36	96.4%	22.45	3.3%	1.58	0.2%
Week 3: 06/30/2026 - 07/06/2026	-3,500	660.30	97.9%	13.24	2.0%	0.85	0.1%
Week 3: 06/30/2026 - 07/06/2026	-2,000	672.00	99.6%	1.55	0.2%	0.85	0.1%

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

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

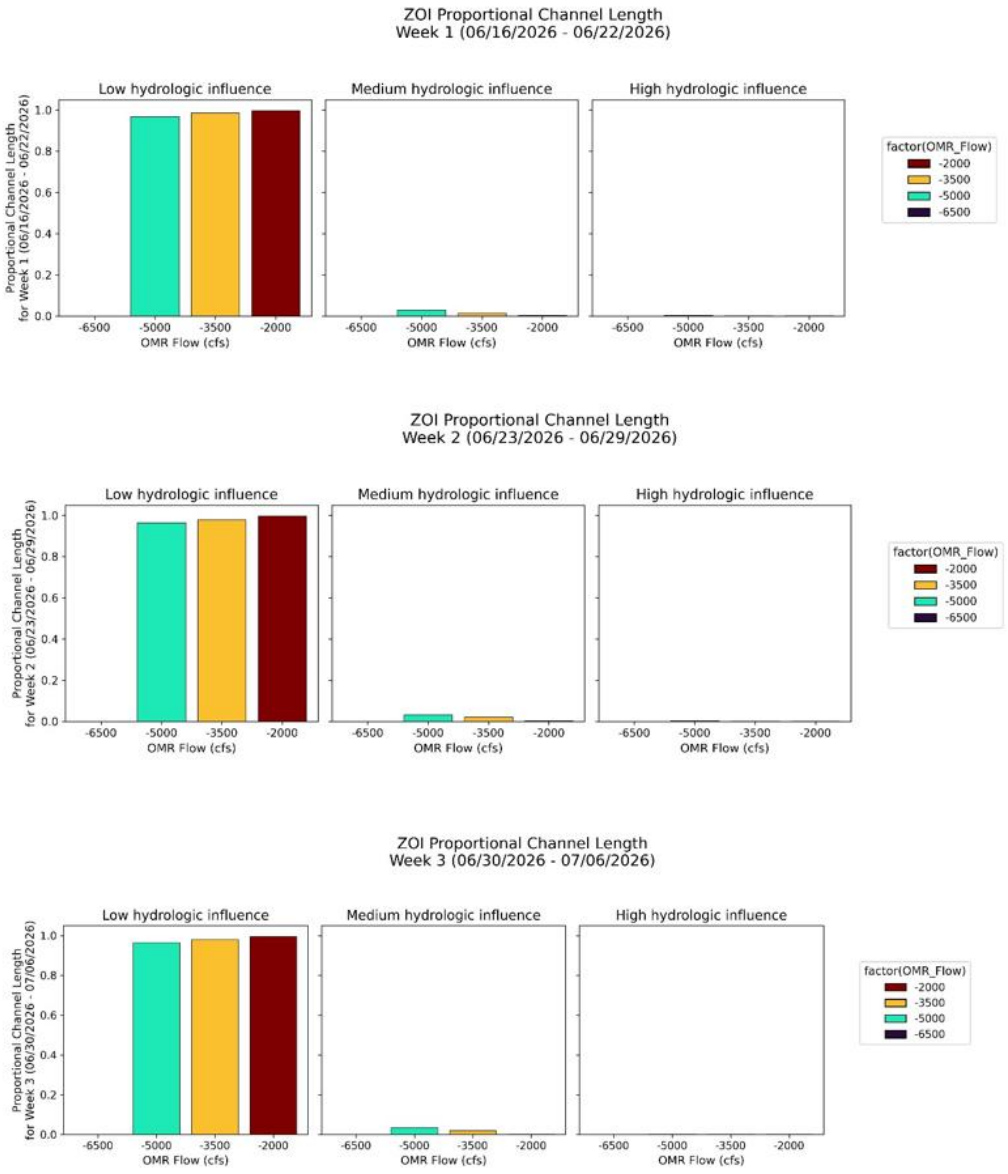


Figure A5. Proportional Channel Length for Week 1 to 3

Figure A5 depicts nine bar charts showing the proportional channel length within the modeled Zone of Influence (ZOI) across three weekly periods (Week 1: June 16–22, 2026; Week 2: June 23–29, 2026; and Week 3: June 30–July 6, 2026). For each week, separate panels display results for low, medium, and high hydrologic influence conditions. Within each panel, colored bars represent the proportion of channel length associated with Old and Middle River (OMR) flow scenarios of −2,000, −3,500, −5,000, and −6,500 cfs. The y-axis shows proportional channel length, and the x-axis lists the OMR flow scenarios.

PTM (Particle Tracking Model) Results

PTM Flux Evaluation Period: 06/16/2026 – 07/06/2026

Particles Injected: 06/16/2026

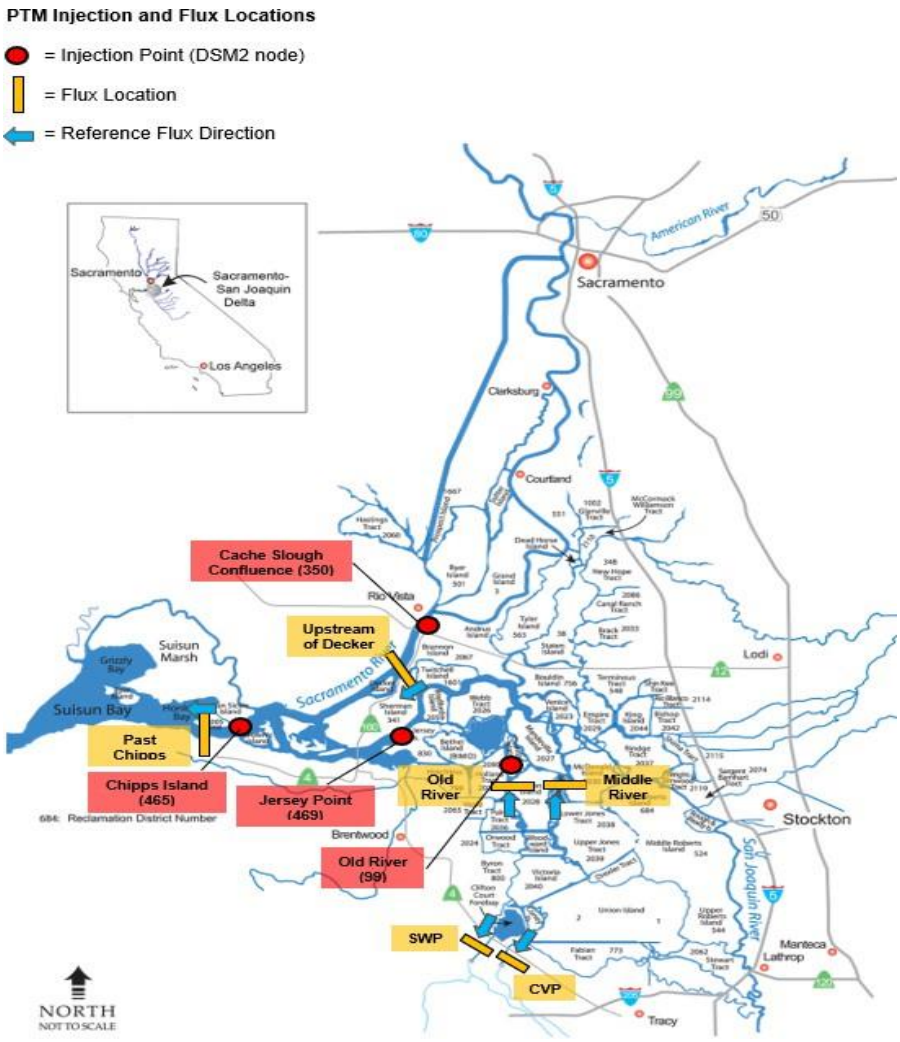


Figure A6. Map of PTM Injection and Flux Locations

Figure A6 depicts a map of the Sacramento–San Joaquin Delta showing the locations of Particle Tracking Model (PTM) particle injection points and flux locations used in the modeling analysis. Red circles indicate PTM injection locations at DSM2 nodes, yellow bars indicate flux locations, and blue arrows indicate the reference direction for flux calculations. Labeled injection locations include Cache Slough Confluence (Node 350), Chipps Island (Node 465), Jersey Point (Node 469), and Old River (Node 99). Flux locations include Past Chipps, Upstream of Decker, Old River, Middle River, and the State Water Project (SWP) and Central Valley Project (CVP) export facilities. An inset map shows the location of the Sacramento–San Joaquin Delta within California.

Neutrally Buoyant Particles (NP)

Table A4. 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: 06/16/2026 - 06/22/2026	-6,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 1: 06/16/2026 - 06/22/2026	-5,000	57.5	-0.1	42.5	0.0	0.0	0.0
Week 1: 06/16/2026 - 06/22/2026	-3,500	60.3	0.0	39.7	0.0	0.0	0.0
Week 1: 06/16/2026 - 06/22/2026	-2,000	66.5	-0.1	33.5	0.0	0.0	0.0
Week 2: 06/23/2026 - 06/29/2026	-6,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 2: 06/23/2026 - 06/29/2026	-5,000	62.6	0.6	37.5	0.1	0.0	0.0
Week 2: 06/23/2026 - 06/29/2026	-3,500	67.1	0.1	32.9	0.0	0.0	0.0
Week 2: 06/23/2026 - 06/29/2026	-2,000	73.1	0.1	26.9	0.0	0.0	0.0
Week 3: 06/30/2026 - 07/06/2026	-6,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 3: 06/30/2026 - 07/06/2026	-5,000	72.1	1.0	28.2	0.2	0.1	0.0
Week 3: 06/30/2026 - 07/06/2026	-3,500	79.3	0.6	20.8	0.0	0.0	0.0
Week 3: 06/30/2026 - 07/06/2026	-2,000	84.5	0.2	15.6	0.1	0.0	0.0

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

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

Table A5. 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: 06/16/2026 - 06/22/2026	-6,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 1: 06/16/2026 - 06/22/2026	-5,000	0.5	54.1	99.6	0.1	0.0	0.0
Week 1: 06/16/2026 - 06/22/2026	-3,500	0.8	55.8	99.3	0.1	0.0	0.0
Week 1: 06/16/2026 - 06/22/2026	-2,000	0.9	57.7	99.1	0.0	0.0	0.0
Week 2: 06/23/2026 - 06/29/2026	-6,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 2: 06/23/2026 - 06/29/2026	-5,000	11.8	67.2	90.1	1.4	0.3	0.2
Week 2: 06/23/2026 - 06/29/2026	-3,500	15.2	68.5	85.8	0.6	0.1	0.2
Week 2: 06/23/2026 - 06/29/2026	-2,000	17.8	69.9	82.6	0.3	0.0	0.0
Week 3: 06/30/2026 - 07/06/2026	-6,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 3: 06/30/2026 - 07/06/2026	-5,000	28.2	72.2	76.0	2.2	1.3	0.7
Week 3: 06/30/2026 - 07/06/2026	-3,500	34.8	73.6	68.0	1.6	0.6	0.5
Week 3: 06/30/2026 - 07/06/2026	-2,000	42.3	75.1	58.2	0.5	0.0	0.0

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

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

Table A6. 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: 06/16/2026 - 06/22/2026	-6,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 1: 06/16/2026 - 06/22/2026	-5,000	1.6	12.9	100.1	1.6	0.0	0.1
Week 1: 06/16/2026 - 06/22/2026	-3,500	1.4	12.6	99.7	1.2	0.0	0.0
Week 1: 06/16/2026 - 06/22/2026	-2,000	2.5	13.8	98.0	0.6	0.0	0.0
Week 2: 06/23/2026 - 06/29/2026	-6,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 2: 06/23/2026 - 06/29/2026	-5,000	11.8	67.2	90.1	1.4	0.3	0.2
Week 2: 06/23/2026 - 06/29/2026	-3,500	15.2	68.5	85.8	0.6	0.1	0.2
Week 2: 06/23/2026 - 06/29/2026	-2,000	17.8	69.9	82.6	0.3	0.0	0.0
Week 3: 06/30/2026 - 07/06/2026	-6,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 3: 06/30/2026 - 07/06/2026	-5,000	28.2	72.2	76.0	2.2	1.3	0.7
Week 3: 06/30/2026 - 07/06/2026	-3,500	34.8	73.6	68.0	1.6	0.6	0.5
Week 3: 06/30/2026 - 07/06/2026	-2,000	42.3	75.1	58.2	0.5	0.0	0.0

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

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

Table A7. 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: 06/16/2026 - 06/22/2026	-6,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 1: 06/16/2026 - 06/22/2026	-5,000	0.0	0.2	16.5	52.1	22.6	8.8
Week 1: 06/16/2026 - 06/22/2026	-3,500	0.0	0.5	28.7	61.6	8.0	1.7
Week 1: 06/16/2026 - 06/22/2026	-2,000	0.0	0.4	48.3	51.7	0.0	0.0
Week 2: 06/23/2026 - 06/29/2026	-6,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 2: 06/23/2026 - 06/29/2026	-5,000	0.0	0.6	11.8	25.8	33.5	28.9
Week 2: 06/23/2026 - 06/29/2026	-3,500	0.2	2.4	21.2	37.3	26.2	15.1
Week 2: 06/23/2026 - 06/29/2026	-2,000	0.3	3.2	41.9	43.5	12.2	2.1
Week 3: 06/30/2026 - 07/06/2026	-6,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 3: 06/30/2026 - 07/06/2026	-5,000	0.1	1.4	9.8	15.5	37.4	37.2
Week 3: 06/30/2026 - 07/06/2026	-3,500	1.6	4.6	17.1	27.0	30.3	24.0
Week 3: 06/30/2026 - 07/06/2026	-2,000	4.5	7.0	33.4	38.2	16.9	7.0

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

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

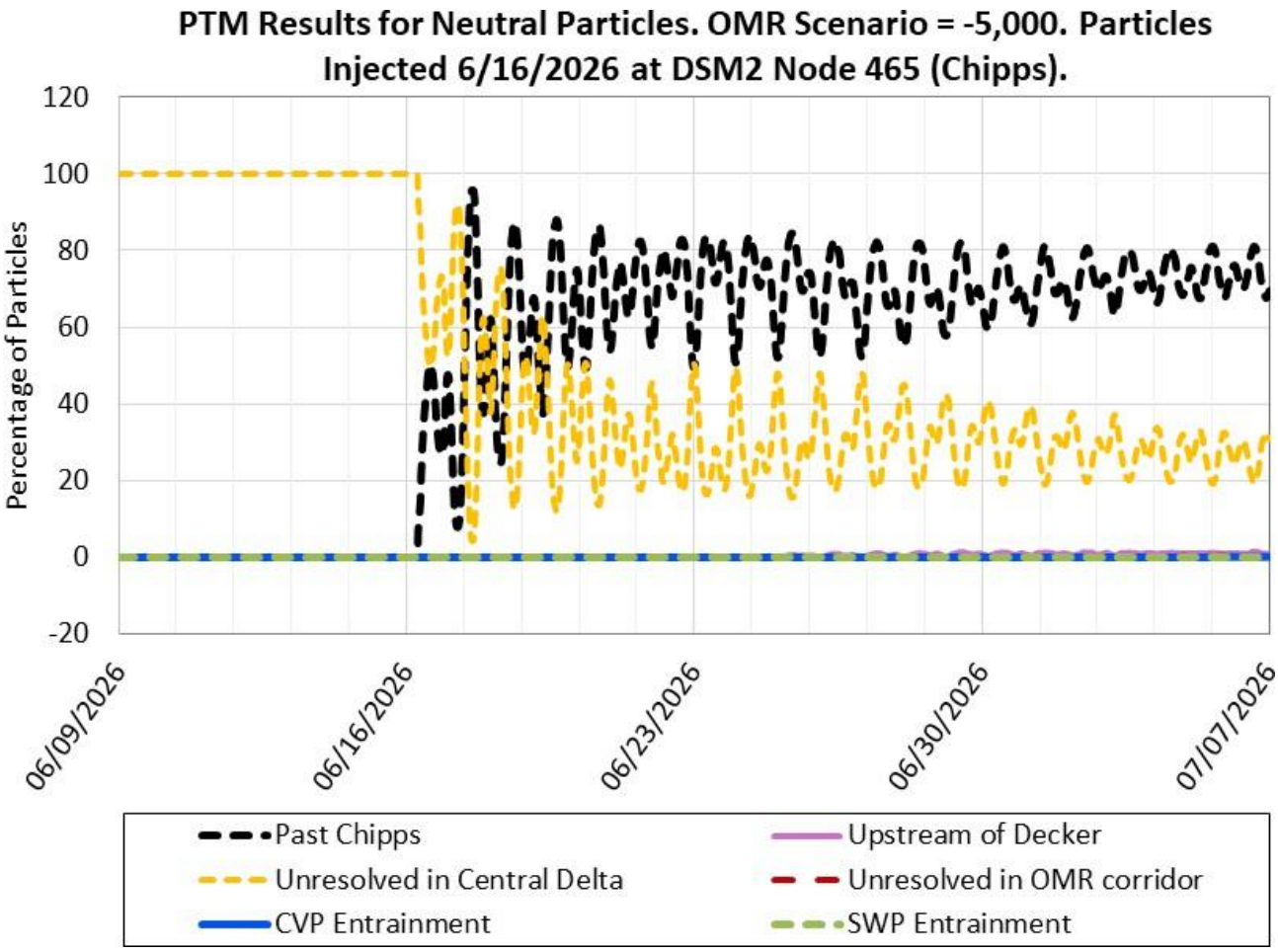


Figure A7. PTM Results for Neutral Particles Injected at Chipps Island (DSM2 Node 465) Under the −5,000 cfs Old and Middle River Flow Scenario

Figure A7 depicts a line graph showing the simulated fate of neutral particles injected on June 16, 2026, at DSM2 Node 465 (Chipps Island) under an Old and Middle River (OMR) flow scenario of −5,000 cfs. The x-axis shows the simulation period from June 9 through July 7, 2026, and the y-axis shows the percentage of injected particles. Colored lines represent the percentage of particles passing Chipps Island, remaining unresolved in the Central Delta, entrained at the Central Valley Project (CVP) and State Water Project (SWP) export facilities, passing upstream of Decker, or remaining unresolved within the OMR corridor.

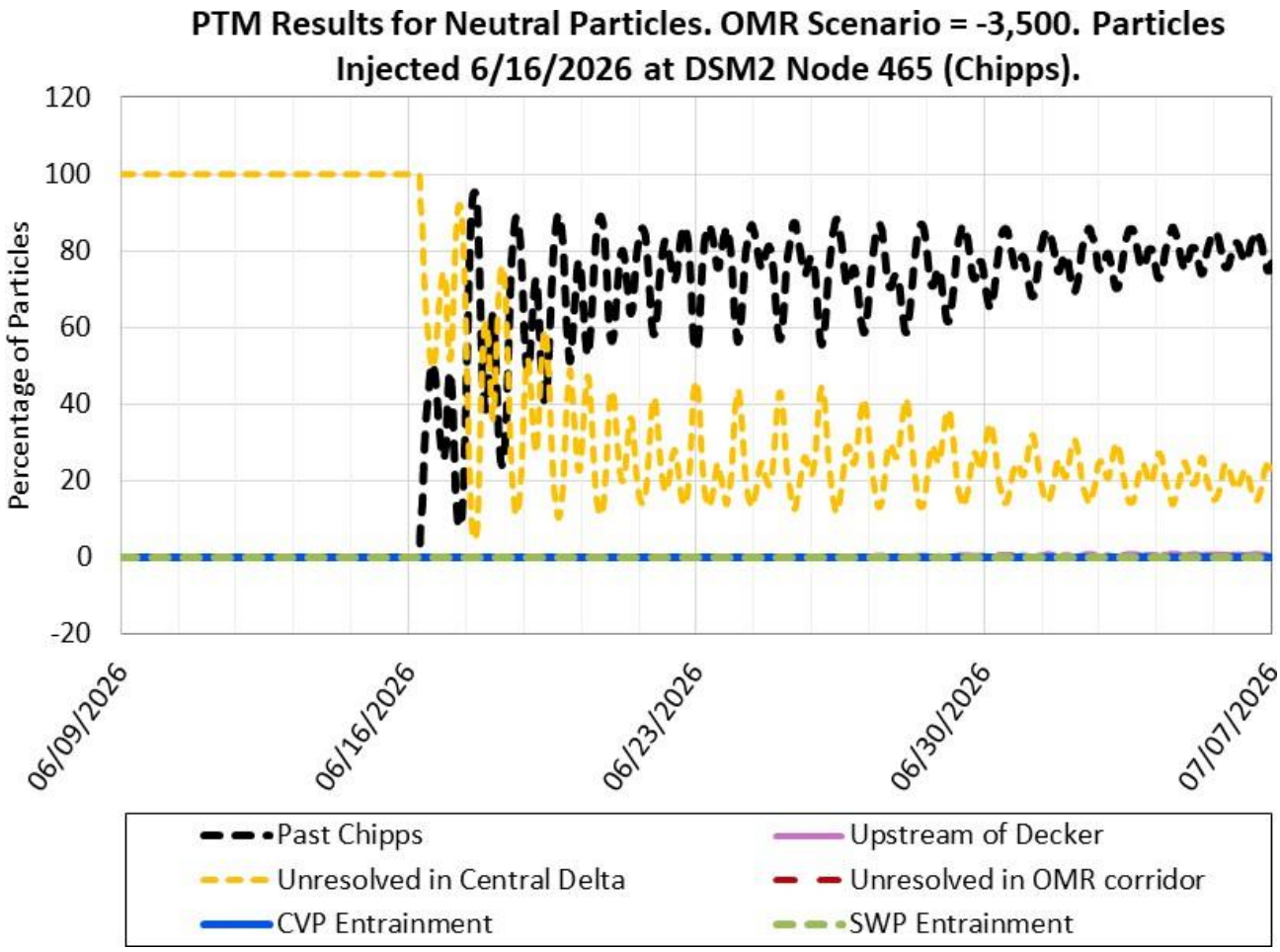


Figure A8. PTM Results for Neutral Particles Injected at Chipps Island (DSM2 Node 465) Under the −3,500 cfs Old and Middle River Flow Scenario

Figure A8 depicts a line graph showing the simulated fate of neutral particles injected on June 16, 2026, at DSM2 Node 465 (Chipps Island) under an Old and Middle River (OMR) flow scenario of −3,500 cfs. The x-axis shows the simulation period from June 9 through July 7, 2026, and the y-axis shows the percentage of injected particles. Colored lines represent the percentage of particles passing Chipps Island, remaining unresolved in the Central Delta, entrained at the Central Valley Project (CVP) and State Water Project (SWP) export facilities, passing upstream of Decker, or remaining unresolved within the OMR corridor.

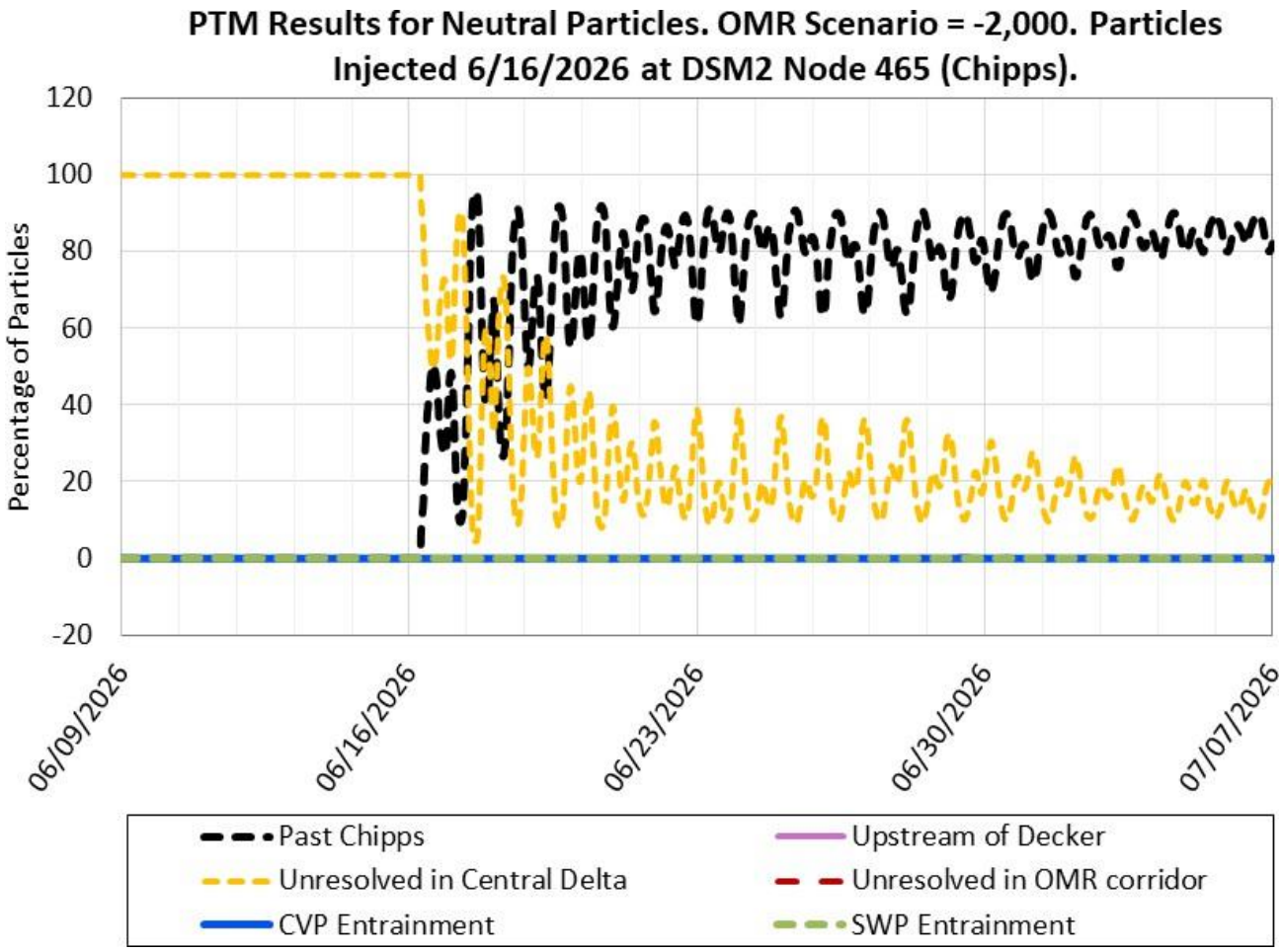


Figure A9. PTM Results for Neutral Particles Injected at Chipps Island (DSM2 Node 465) Under the −2,000 cfs Old and Middle River Flow Scenario

Figure A9 depicts a line graph showing the simulated fate of neutral particles injected on June 16, 2026, at DSM2 Node 465 (Chipps Island) under an Old and Middle River (OMR) flow scenario of −2,000 cfs. The x-axis shows the simulation period from June 9 through July 7, 2026, and the y-axis shows the percentage of injected particles. Colored lines represent the percentage of particles passing Chipps Island, remaining unresolved in the Central Delta, entrained at the Central Valley Project (CVP) and State Water Project (SWP) export facilities, passing upstream of Decker, or remaining unresolved within the OMR corridor.

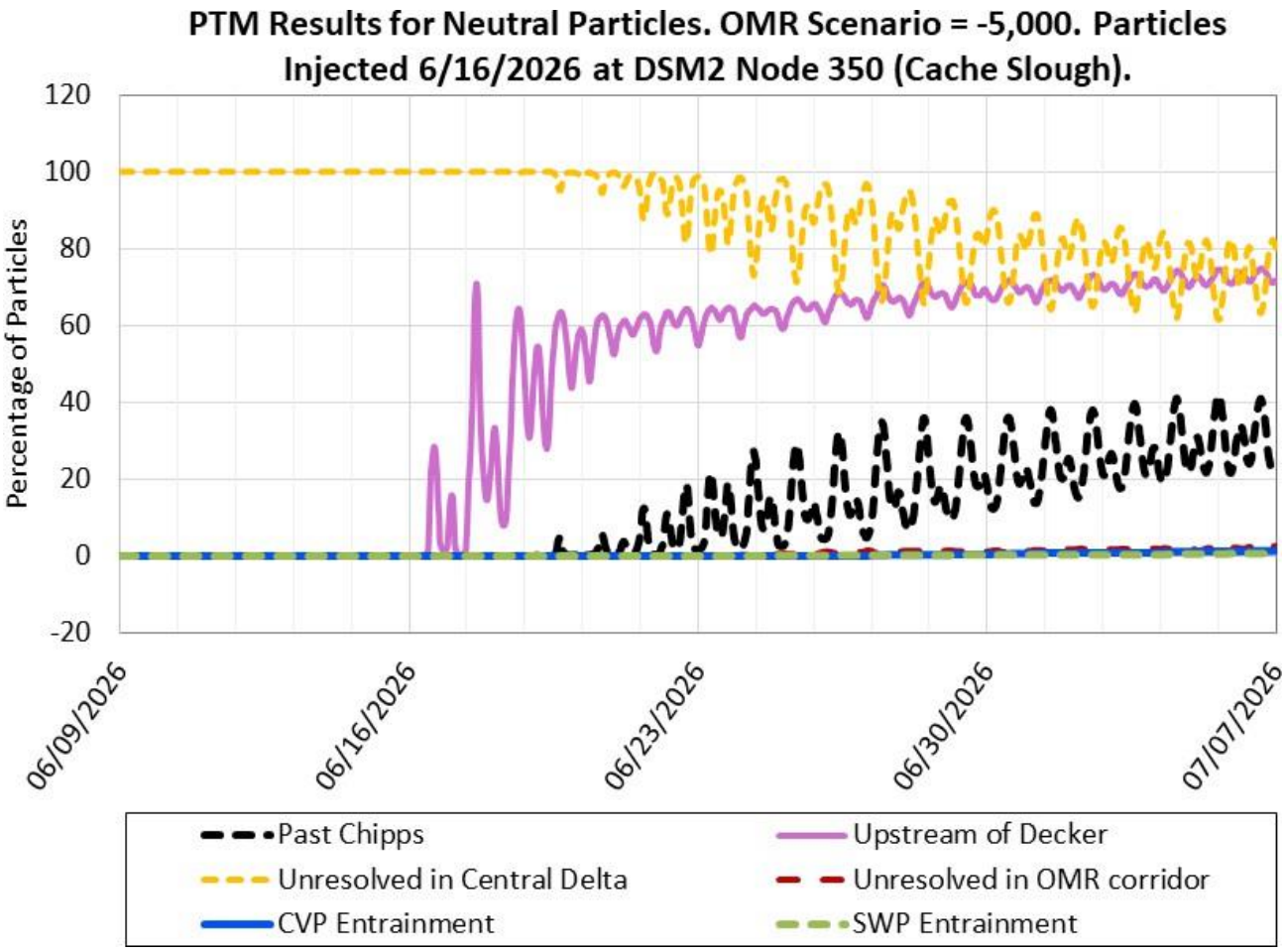


Figure A10. PTM Results for Neutral Particles Injected at Cache Slough (DSM2 Node 350) Under the −5,000 cfs Old and Middle River Flow Scenario

Figure A10 depicts a line graph showing the simulated fate of neutral particles injected on June 16, 2026, at DSM2 Node 350 (Cache Slough) under an Old and Middle River (OMR) flow scenario of −5,000 cfs. The x-axis shows the simulation period from June 9 through July 7, 2026, and the y-axis shows the percentage of injected particles. Colored lines represent the percentage of particles passing Chipps Island, remaining unresolved in the Central Delta, entrained at the Central Valley Project (CVP) and State Water Project (SWP) export facilities, passing upstream of Decker, or remaining unresolved within the OMR corridor.

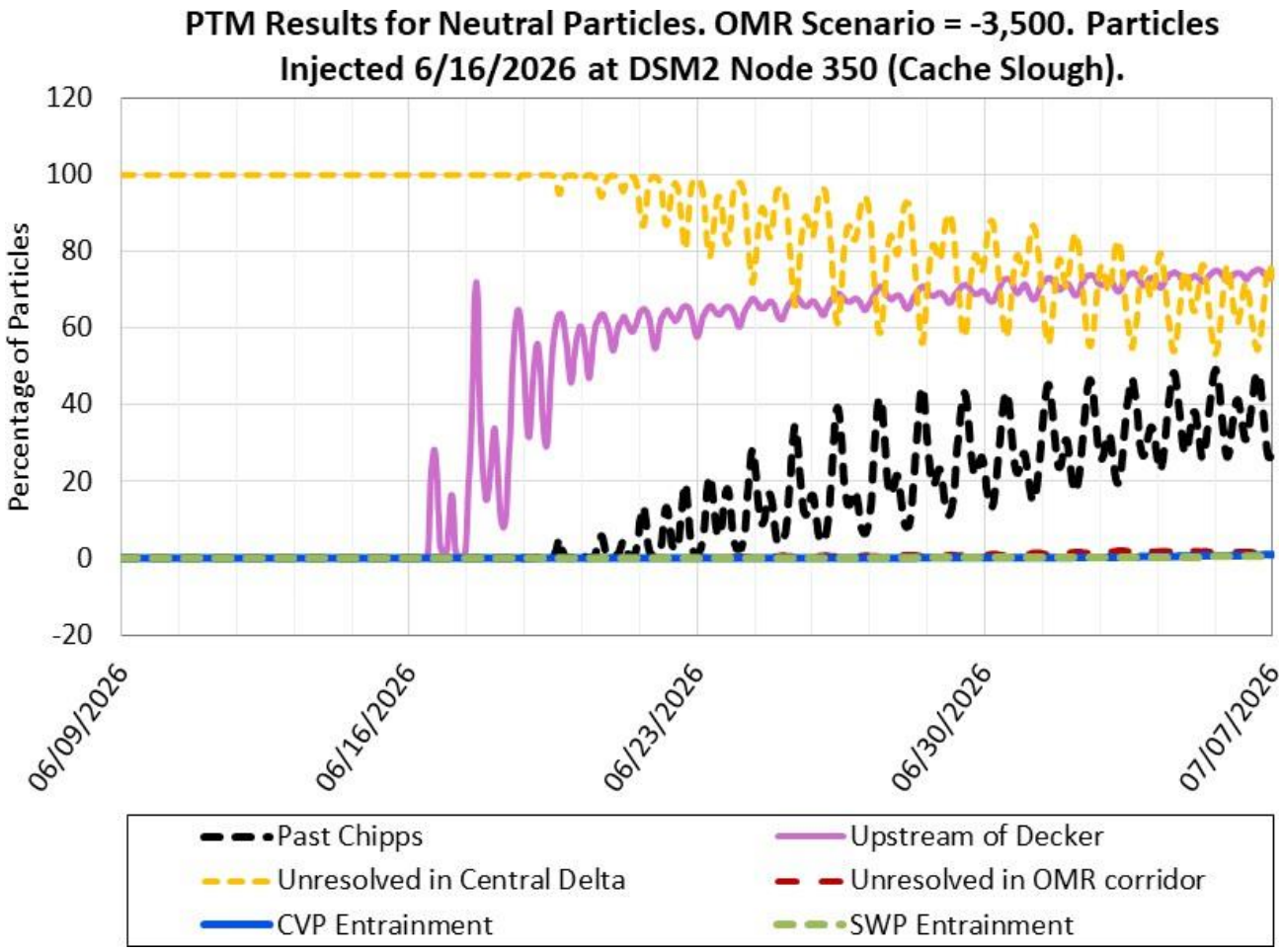


Figure A11. PTM Results for Neutral Particles Injected at Cache Slough (DSM2 Node 350) Under the −3,500 cfs Old and Middle River Flow Scenario

Figure A11 depicts a line graph showing the simulated fate of neutral particles injected on June 16, 2026, at DSM2 Node 350 (Cache Slough) under an Old and Middle River (OMR) flow scenario of −3,500 cfs. The x-axis shows the simulation period from June 9 through July 7, 2026, and the y-axis shows the percentage of injected particles. Colored lines represent the percentage of particles passing Chipps Island, remaining unresolved in the Central Delta, entrained at the Central Valley Project (CVP) and State Water Project (SWP) export facilities, passing upstream of Decker, or remaining unresolved within the OMR corridor.

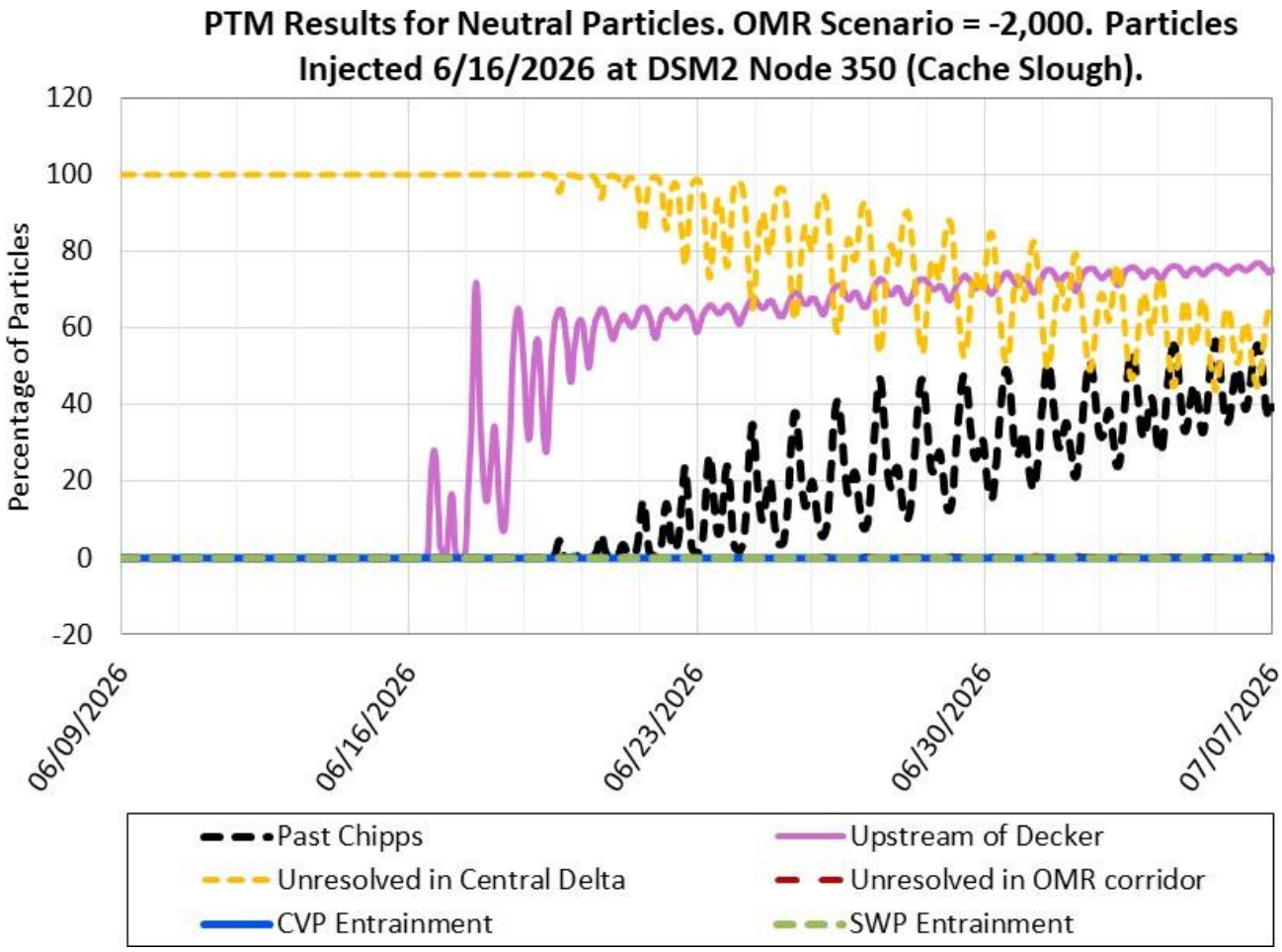


Figure A12. PTM Results for Neutral Particles Injected at Cache Slough (DSM2 Node 350) Under the −2,000 cfs Old and Middle River Flow Scenario

Figure A12 depicts a line graph showing the simulated fate of neutral particles injected on June 16, 2026, at DSM2 Node 350 (Cache Slough) under an Old and Middle River (OMR) flow scenario of −2,000 cfs. The x-axis shows the simulation period from June 9 through July 7, 2026, and the y-axis shows the percentage of injected particles. Colored lines represent the percentage of particles passing Chipps Island, remaining unresolved in the Central Delta, entrained at the Central Valley Project (CVP) and State Water Project (SWP) export facilities, passing upstream of Decker, or remaining unresolved within the OMR corridor.

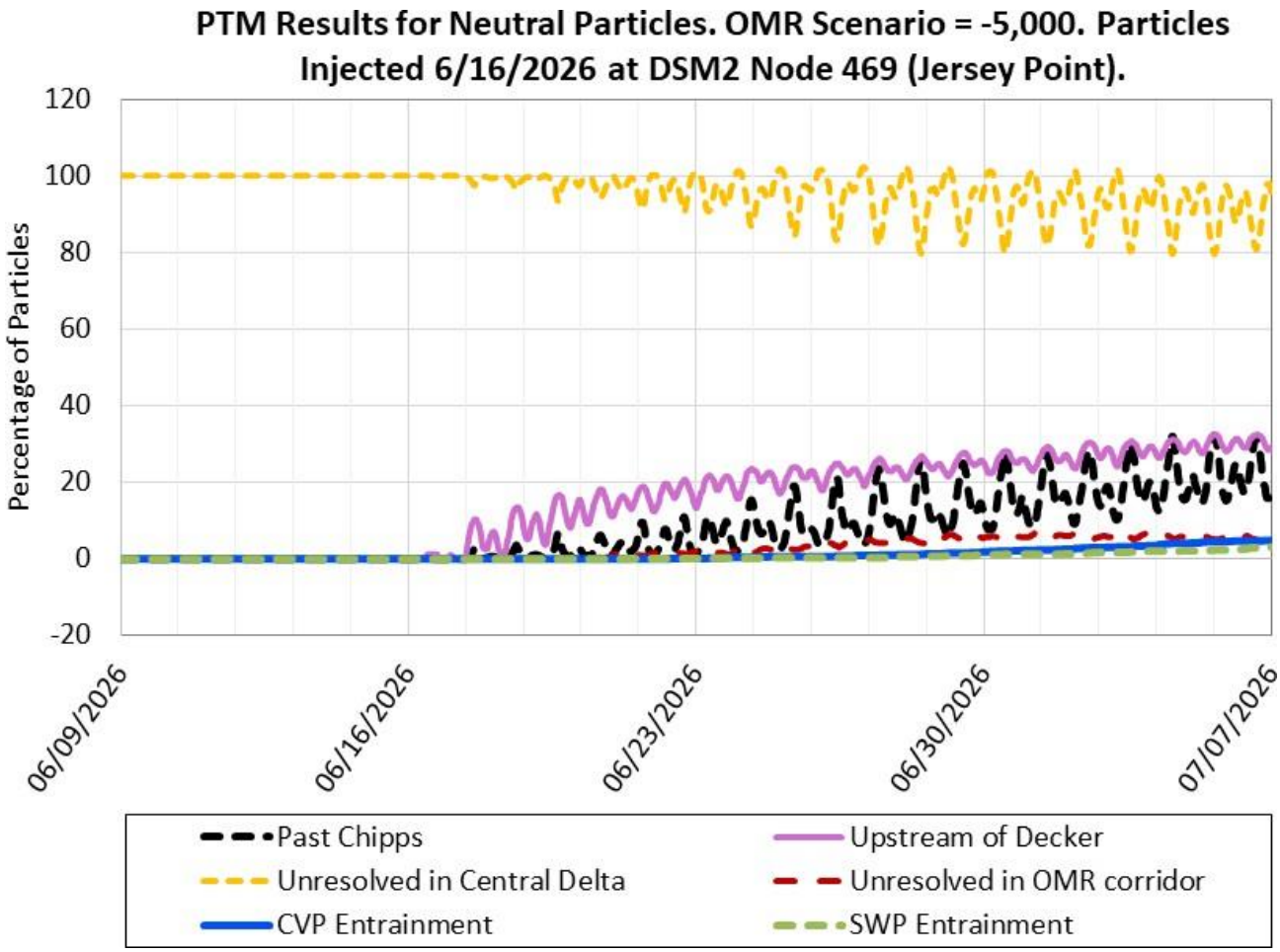


Figure A13. PTM Results for Neutral Particles Injected at Jersey Point (DSM2 Node 469) Under the −5,000 cfs Old and Middle River Flow Scenario

Figure A13 depicts a line graph showing the simulated fate of neutral particles injected on June 16, 2026, at DSM2 Node 469 (Jersey Point) under an Old and Middle River (OMR) flow scenario of −5,000 cfs. The x-axis shows the simulation period from June 9 through July 7, 2026, and the y-axis shows the percentage of injected particles. Colored lines represent the percentage of particles passing Chipps Island, remaining unresolved in the Central Delta, entrained at the Central Valley Project (CVP) and State Water Project (SWP) export facilities, passing upstream of Decker, or remaining unresolved within the OMR corridor.

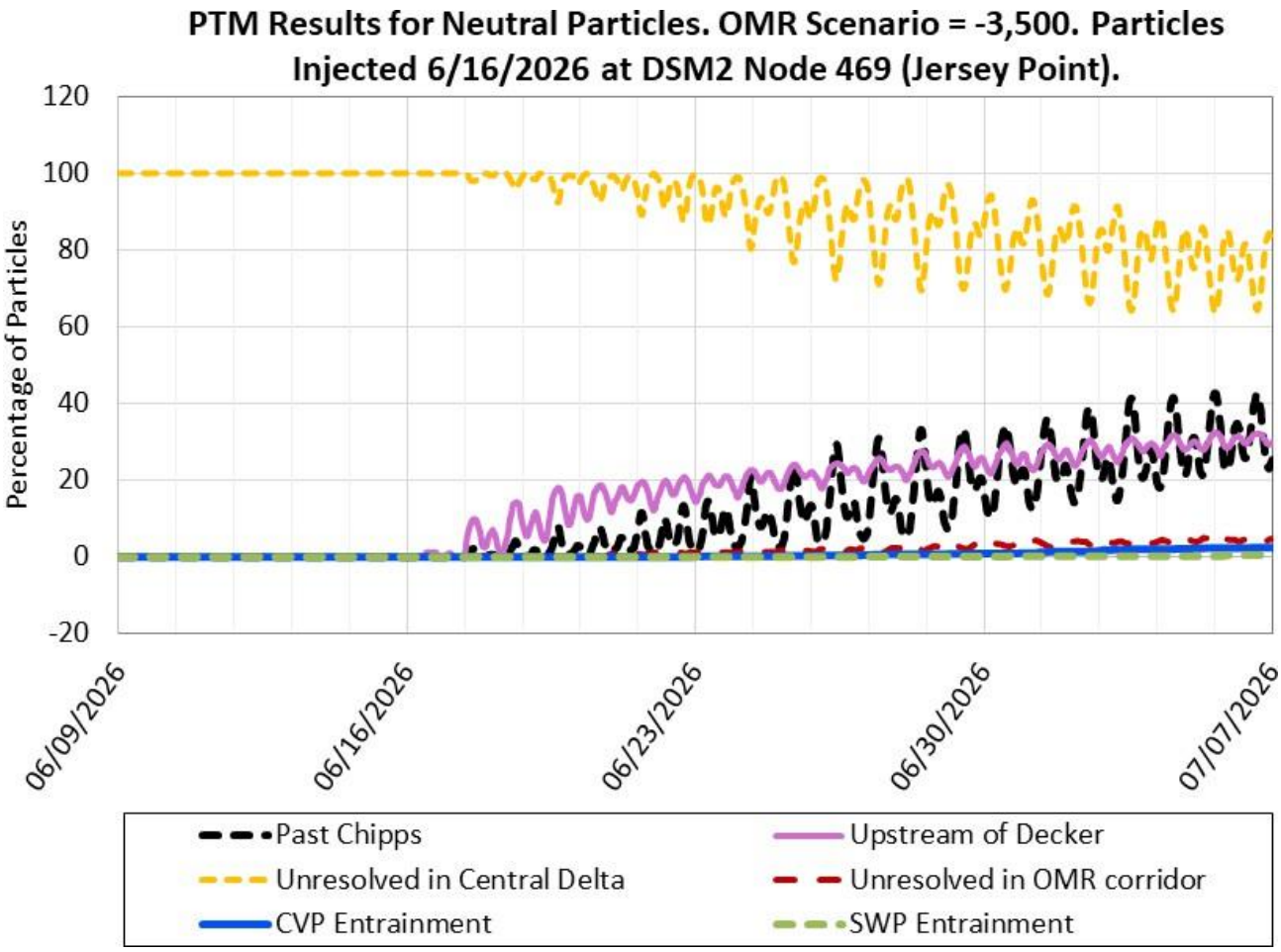


Figure A14. PTM Results for Neutral Particles Injected at Jersey Point (DSM2 Node 469) Under the −3,500 cfs Old and Middle River Flow Scenario

Figure A14 depicts a line graph showing the simulated fate of neutral particles injected on June 16, 2026, at DSM2 Node 469 (Jersey Point) under an Old and Middle River (OMR) flow scenario of −3,500 cfs. The x-axis shows the simulation period from June 9 through July 7, 2026, and the y-axis shows the percentage of injected particles. Colored lines represent the percentage of particles passing Chipps Island, remaining unresolved in the Central Delta, entrained at the Central Valley Project (CVP) and State Water Project (SWP) export facilities, passing upstream of Decker, or remaining unresolved within the OMR corridor.

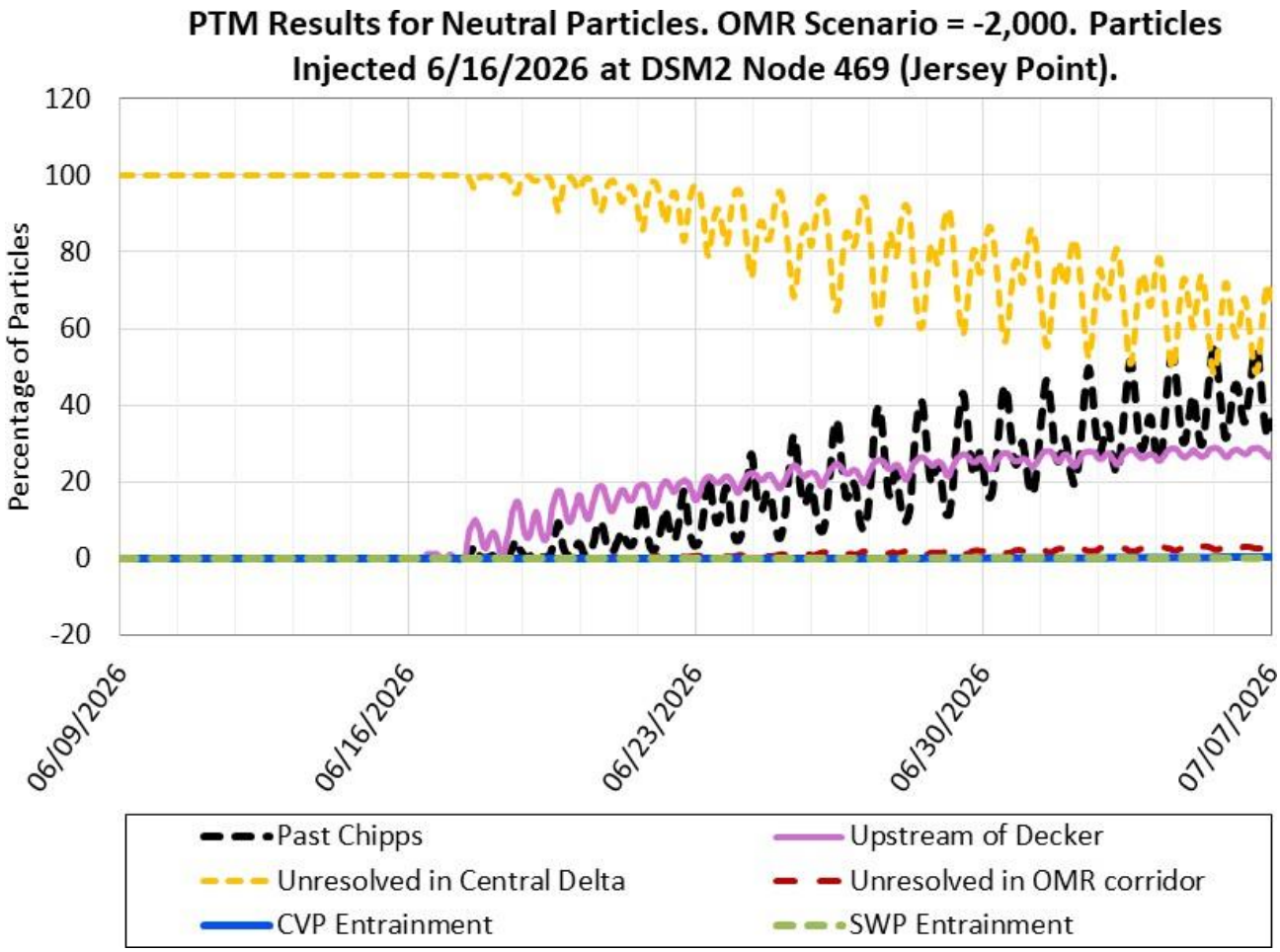


Figure A15. PTM Results for Neutral Particles Injected at Jersey Point (DSM2 Node 469) Under the −2,000 cfs Old and Middle River Flow Scenario

Figure A15 depicts a line graph showing the simulated fate of neutral particles injected on June 16, 2026, at DSM2 Node 469 (Jersey Point) under an Old and Middle River (OMR) flow scenario of −2,000 cfs. The x-axis shows the simulation period from June 9 through July 7, 2026, and the y-axis shows the percentage of injected particles. Colored lines represent the percentage of particles passing Chipps Island, remaining unresolved in the Central Delta, entrained at the Central Valley Project (CVP) and State Water Project (SWP) export facilities, passing upstream of Decker, or remaining unresolved within the OMR corridor.

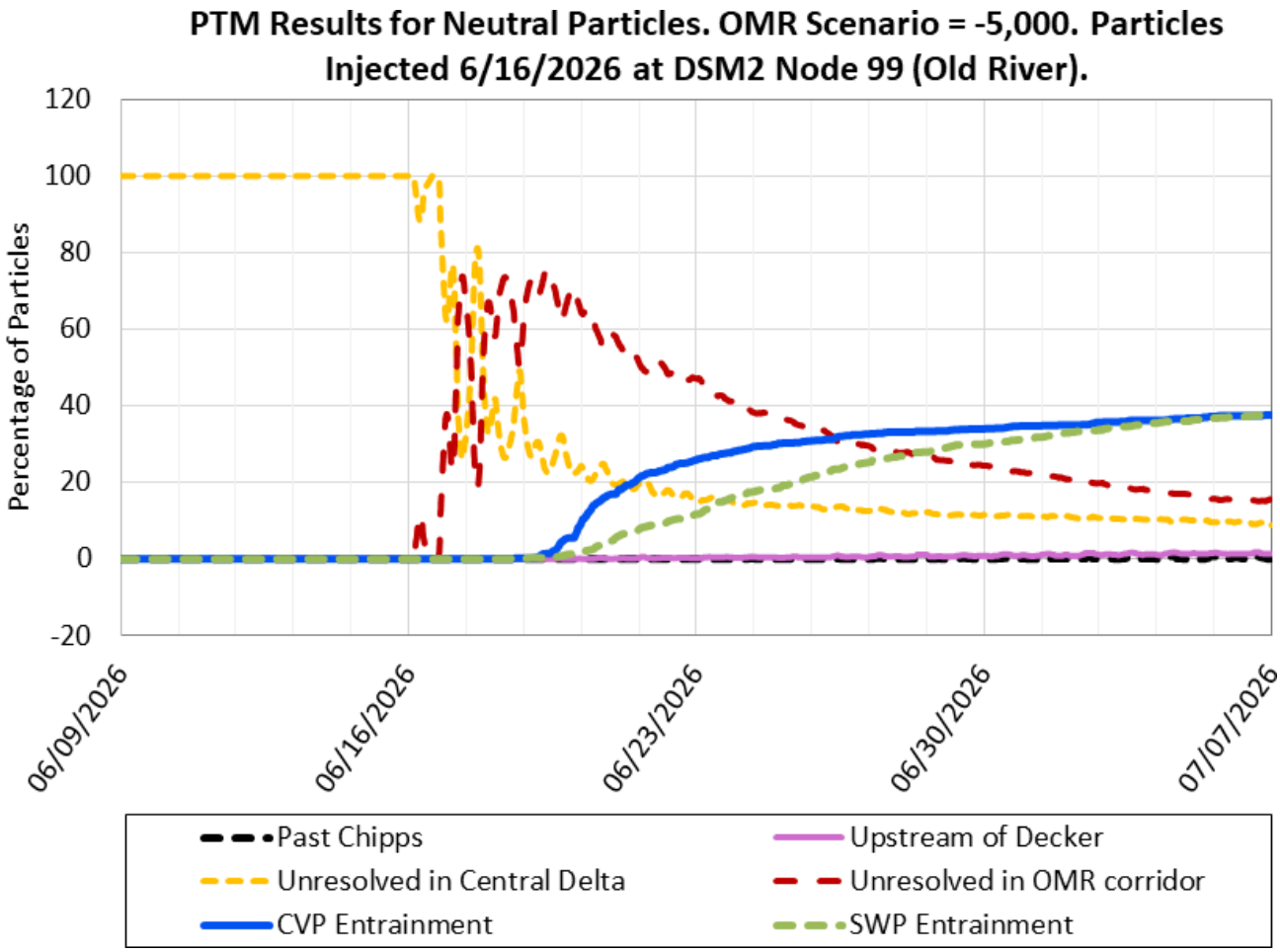


Figure A16. PTM Results for Neutral Particles Injected at Old River (DSM2 Node 99) Under the −5,000 cfs Old and Middle River Flow Scenario

Figure A16 depicts a line graph showing the simulated fate of neutral particles injected on June 16, 2026, at DSM2 Node 99 (Old River) under an Old and Middle River (OMR) flow scenario of −5,000 cfs. The x-axis shows the simulation period from June 9 through July 7, 2026, and the y-axis shows the percentage of injected particles. Colored lines represent the percentage of particles passing Chipps Island, remaining unresolved in the Central Delta, entrained at the Central Valley Project (CVP) and State Water Project (SWP) export facilities, passing upstream of Decker, or remaining unresolved within the OMR corridor.

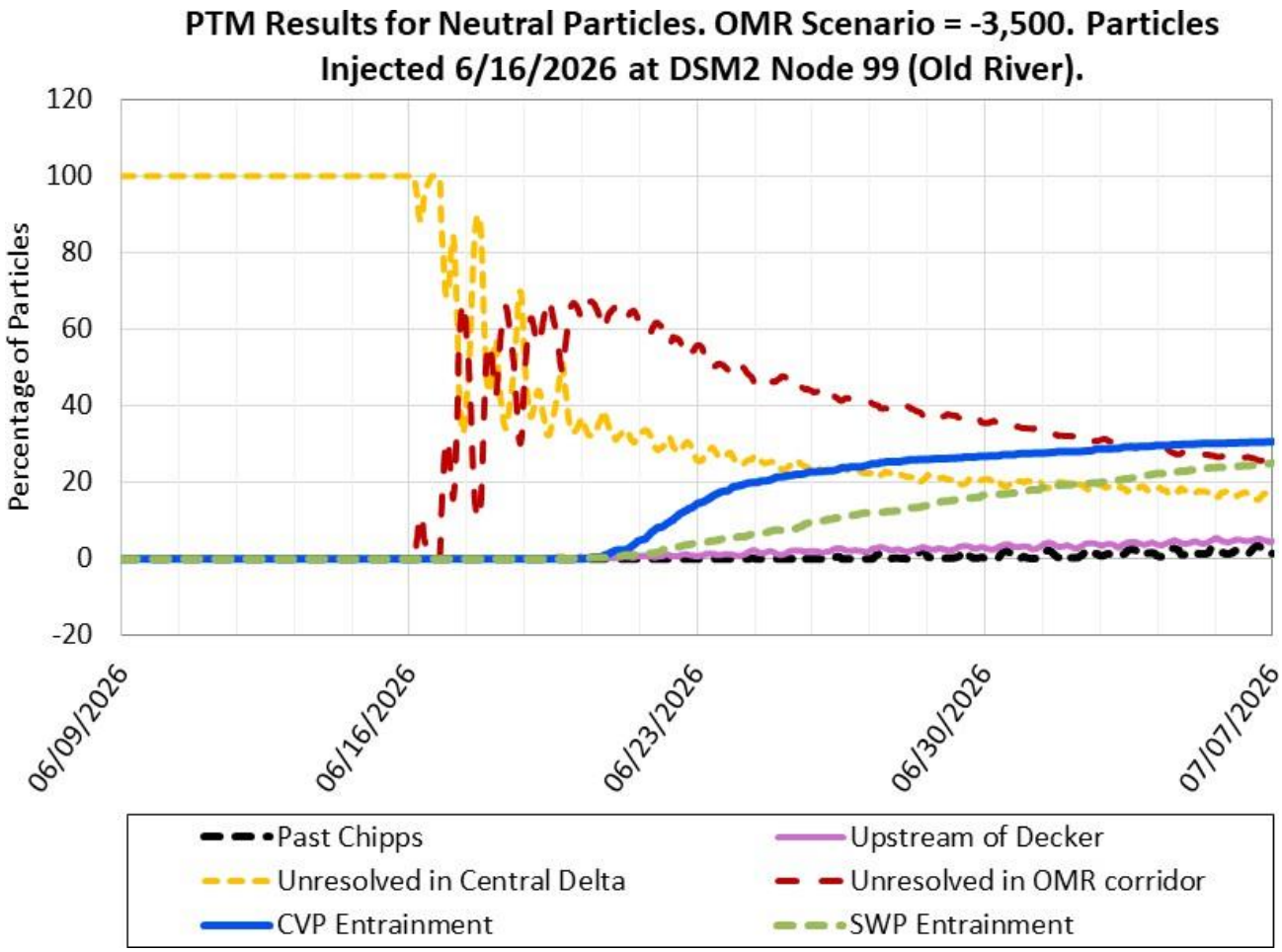


Figure A17. PTM Results for Neutral Particles Injected at Old River (DSM2 Node 99) Under the −3,500 cfs Old and Middle River Flow Scenario

Figure A17 depicts a line graph showing the simulated fate of neutral particles injected on June 16, 2026, at DSM2 Node 99 (Old River) under an Old and Middle River (OMR) flow scenario of −3,500 cfs. The x-axis shows the simulation period from June 9 through July 7, 2026, and the y-axis shows the percentage of injected particles. Colored lines represent the percentage of particles passing Chipps Island, remaining unresolved in the Central Delta, entrained at the Central Valley Project (CVP) and State Water Project (SWP) export facilities, passing upstream of Decker, or remaining unresolved within the OMR corridor.

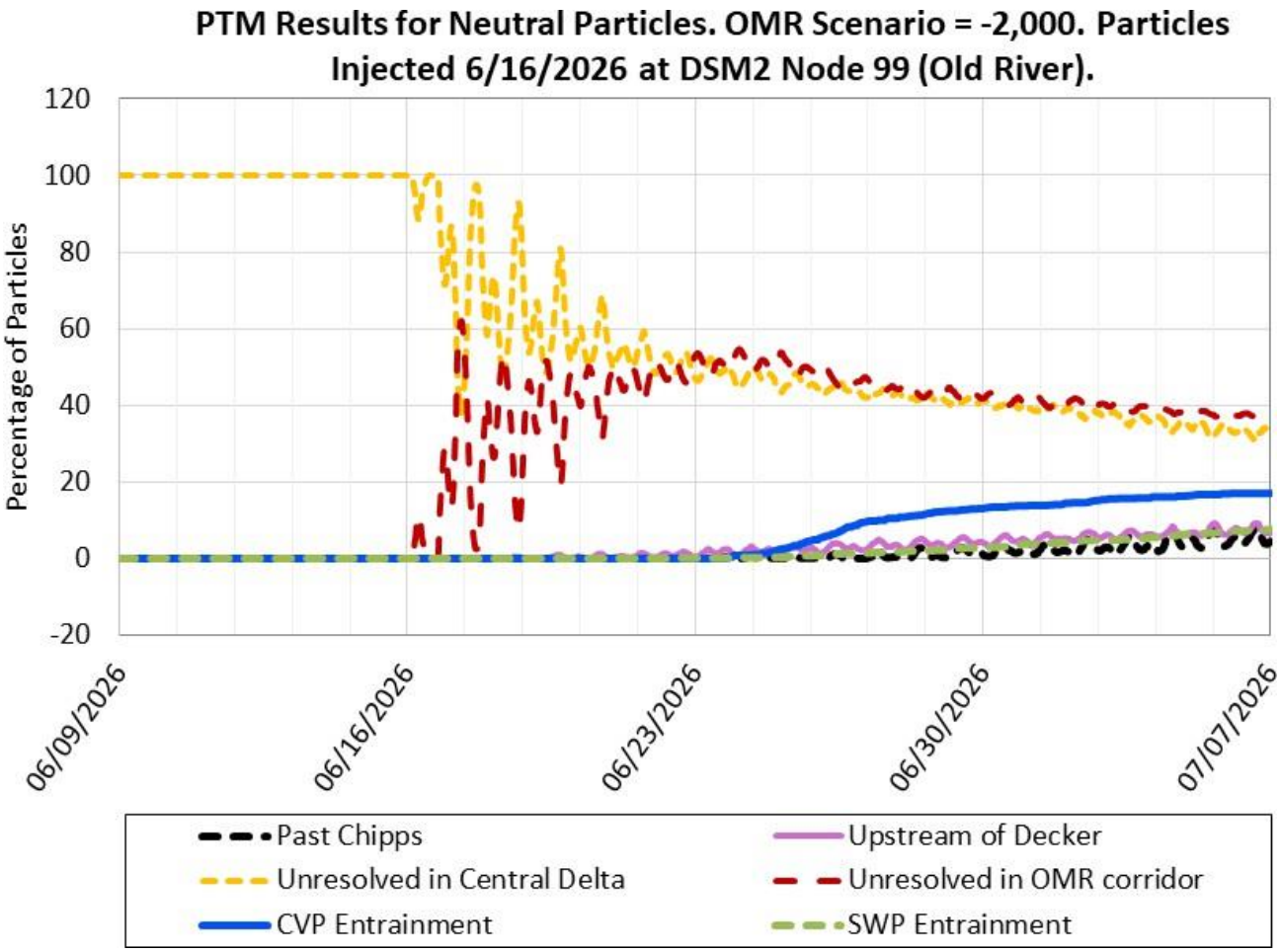


Figure A18. PTM Results for Neutral Particles Injected at Old River (DSM2 Node 99) Under the −2,000 cfs Old and Middle River Flow Scenario

Figure A18 depicts a line graph showing the simulated fate of neutral particles injected on June 16, 2026, at DSM2 Node 99 (Old River) under an Old and Middle River (OMR) flow scenario of −2,000 cfs. The x-axis shows the simulation period from June 9 through July 7, 2026, and the y-axis shows the percentage of injected particles. Colored lines represent the percentage of particles passing Chipps Island, remaining unresolved in the Central Delta, entrained at the Central Valley Project (CVP) and State Water Project (SWP) export facilities, passing upstream of Decker, or remaining unresolved within the OMR corridor.

Surface Oriented Particles (PP)

Table A8. 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: 06/16/2026 - 06/22/2026	-6,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 1: 06/16/2026 - 06/22/2026	-5,000	69.0	-0.1	31.0	0.0	0.0	0.0
Week 1: 06/16/2026 - 06/22/2026	-3,500	74.5	-0.2	25.5	0.0	0.0	0.0
Week 1: 06/16/2026 - 06/22/2026	-2,000	75.9	-0.1	24.1	0.0	0.0	0.0
Week 2: 06/23/2026 - 06/29/2026	-6,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 2: 06/23/2026 - 06/29/2026	-5,000	75.6	0.3	24.4	0.0	0.0	0.0
Week 2: 06/23/2026 - 06/29/2026	-3,500	82.2	-0.1	17.9	0.1	0.0	0.0
Week 2: 06/23/2026 - 06/29/2026	-2,000	86.1	-0.2	13.9	0.0	0.0	0.0
Week 3: 06/30/2026 - 07/06/2026	-6,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 3: 06/30/2026 - 07/06/2026	-5,000	86.5	0.6	13.6	0.1	0.0	0.0
Week 3: 06/30/2026 - 07/06/2026	-3,500	90.9	0.5	9.4	0.2	0.0	0.1
Week 3: 06/30/2026 - 07/06/2026	-2,000	93.9	0.0	6.2	0.1	0.0	0.0

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

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

Table A9. 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: 06/16/2026 - 06/22/2026	-6,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 1: 06/16/2026 - 06/22/2026	-5,000	3.8	50.8	96.6	0.4	0.0	0.0
Week 1: 06/16/2026 - 06/22/2026	-3,500	5.2	53.9	95.2	0.4	0.0	0.0
Week 1: 06/16/2026 - 06/22/2026	-2,000	6.4	53.7	93.8	0.2	0.0	0.0
Week 2: 06/23/2026 - 06/29/2026	-6,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 2: 06/23/2026 - 06/29/2026	-5,000	21.8	63.3	80.8	1.8	0.6	0.2
Week 2: 06/23/2026 - 06/29/2026	-3,500	27.8	66.3	73.7	1.0	0.3	0.1
Week 2: 06/23/2026 - 06/29/2026	-2,000	31.4	63.7	69.3	0.6	0.1	0.0
Week 3: 06/30/2026 - 07/06/2026	-6,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 3: 06/30/2026 - 07/06/2026	-5,000	43.4	69.4	62.5	3.0	2.1	0.8
Week 3: 06/30/2026 - 07/06/2026	-3,500	51.7	71.7	51.4	2.3	0.6	0.2
Week 3: 06/30/2026 - 07/06/2026	-2,000	56.3	70.5	45.1	1.1	0.1	0.1

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

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

Table A10. 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: 06/16/2026 - 06/22/2026	-6,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 1: 06/16/2026 - 06/22/2026	-5,000	5.8	11.6	96.8	2.3	0.1	0.2
Week 1: 06/16/2026 - 06/22/2026	-3,500	6.2	14.5	96.0	2.1	0.0	0.1
Week 1: 06/16/2026 - 06/22/2026	-2,000	8.3	13.5	93.0	1.2	0.0	0.0
Week 2: 06/23/2026 - 06/29/2026	-6,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 2: 06/23/2026 - 06/29/2026	-5,000	17.1	22.4	90.3	4.3	2.1	1.0
Week 2: 06/23/2026 - 06/29/2026	-3,500	28.6	22.5	76.6	3.5	1.2	0.5
Week 2: 06/23/2026 - 06/29/2026	-2,000	33.9	21.9	68.1	1.7	0.2	0.1
Week 3: 06/30/2026 - 07/06/2026	-6,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 3: 06/30/2026 - 07/06/2026	-5,000	35.2	26.5	77.9	5.3	5.7	2.1
Week 3: 06/30/2026 - 07/06/2026	-3,500	48.4	26.4	60.3	4.7	2.8	1.2
Week 3: 06/30/2026 - 07/06/2026	-2,000	60.2	25.0	42.6	2.1	0.6	0.1

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

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

Table A11. 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: 06/16/2026 - 06/22/2026	-6,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 1: 06/16/2026 - 06/22/2026	-5,000	0.0	0.2	19.0	45.9	25.6	9.4
Week 1: 06/16/2026 - 06/22/2026	-3,500	0.0	0.5	30.5	52.5	12.9	4.1
Week 1: 06/16/2026 - 06/22/2026	-2,000	0.0	0.3	47.6	52.1	0.2	0.1
Week 2: 06/23/2026 - 06/29/2026	-6,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 2: 06/23/2026 - 06/29/2026	-5,000	0.0	1.2	14.3	24.9	33.8	27.0
Week 2: 06/23/2026 - 06/29/2026	-3,500	1.1	2.3	23.4	33.4	25.1	17.1
Week 2: 06/23/2026 - 06/29/2026	-2,000	1.7	4.7	41.0	41.6	11.8	3.9
Week 3: 06/30/2026 - 07/06/2026	-6,500	N/A	N/A	N/A	N/A	N/A	N/A
Week 3: 06/30/2026 - 07/06/2026	-5,000	1.8	2.7	10.8	16.0	37.8	33.6
Week 3: 06/30/2026 - 07/06/2026	-3,500	4.5	4.9	15.9	23.9	29.7	26.0
Week 3: 06/30/2026 - 07/06/2026	-2,000	8.8	8.5	30.8	35.9	15.6	8.9

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

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

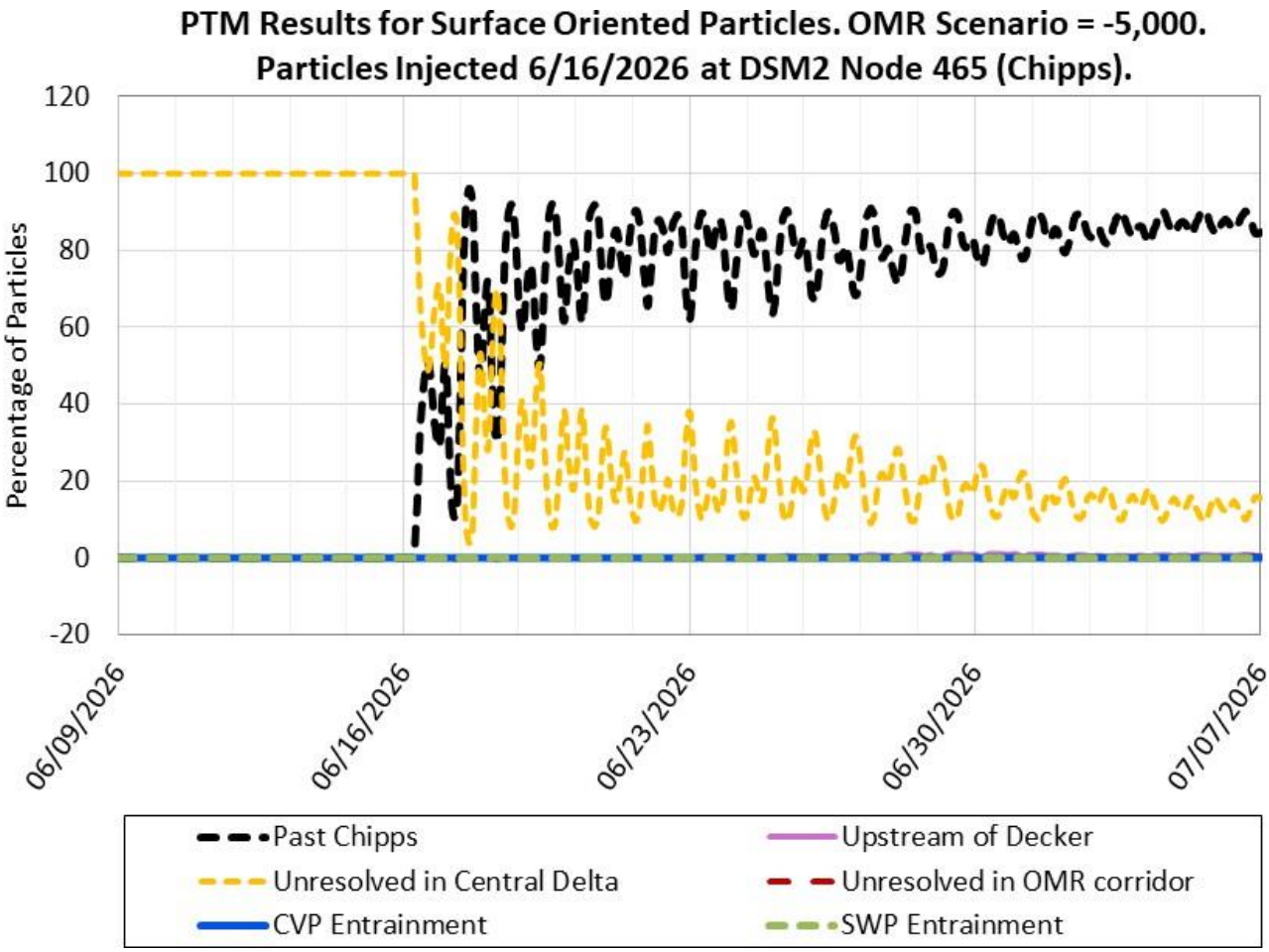


Figure A19. PTM Results for Surface-Oriented Particles Injected at Chipps Island (DSM2 Node 465) Under the −5,000 cfs Old and Middle River Flow Scenario

Figure A19 depicts a line graph showing the simulated fate of surface-oriented particles injected on June 16, 2026, at DSM2 Node 465 (Chipps Island) under an Old and Middle River (OMR) flow scenario of −5,000 cfs. The x-axis shows the simulation period from June 9 through July 7, 2026, and the y-axis shows the percentage of injected particles. Colored lines represent the percentage of particles passing Chipps Island, remaining unresolved in the Central Delta, entrained at the Central Valley Project (CVP) and State Water Project (SWP) export facilities, passing upstream of Decker, or remaining unresolved within the OMR corridor.

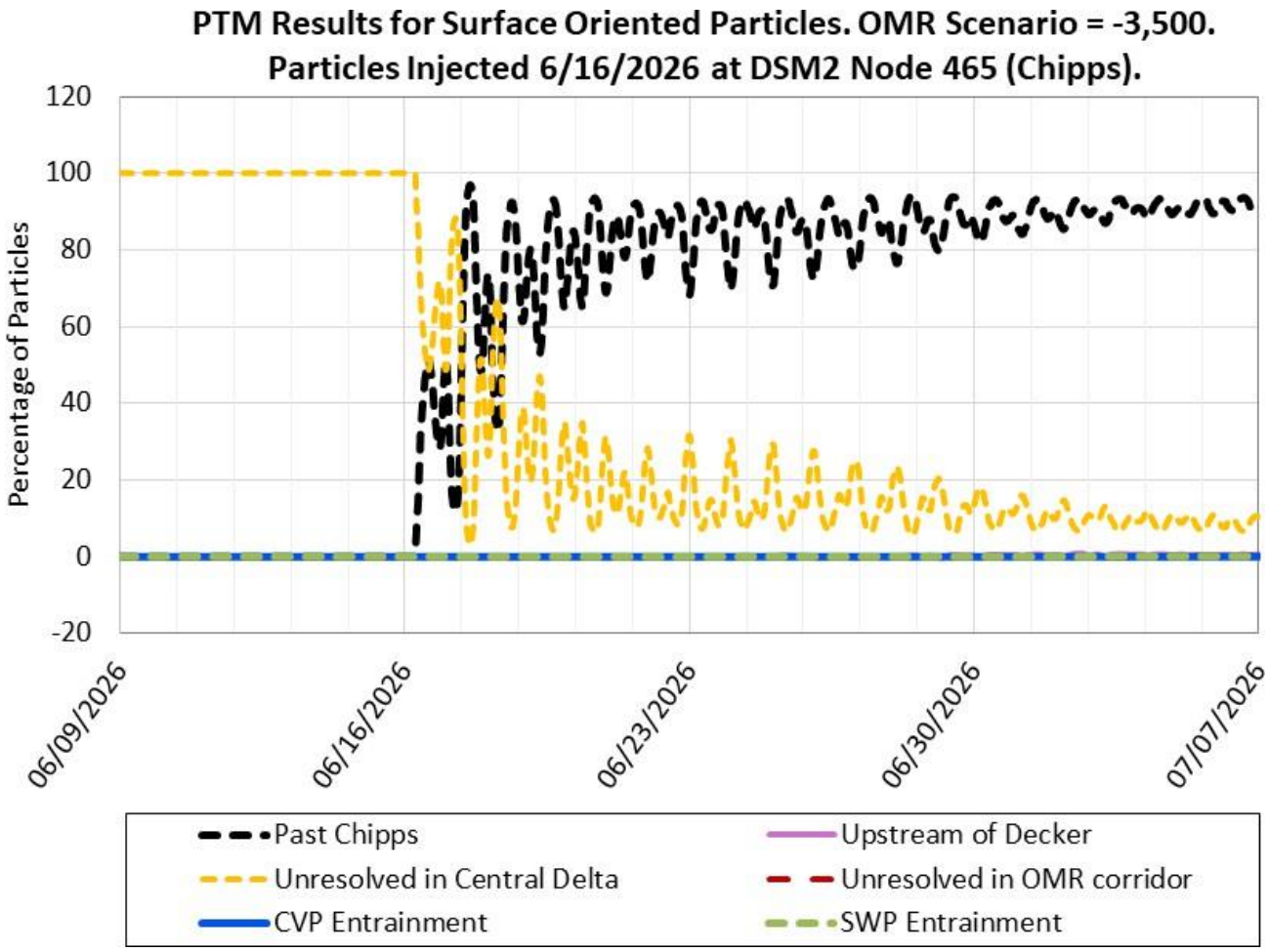


Figure A20. PTM Results for Surface-Oriented Particles Injected at Chipps Island (DSM2 Node 465) Under the −3,500 cfs Old and Middle River Flow Scenario

Figure A20 depicts a line graph showing the simulated fate of surface-oriented particles injected on June 16, 2026, at DSM2 Node 465 (Chipps Island) under an Old and Middle River (OMR) flow scenario of −3,500 cfs. The x-axis shows the simulation period from June 9 through July 7, 2026, and the y-axis shows the percentage of injected particles. Colored lines represent the percentage of particles passing Chipps Island, remaining unresolved in the Central Delta, entrained at the Central Valley Project (CVP) and State Water Project (SWP) export facilities, passing upstream of Decker, or remaining unresolved within the OMR corridor.

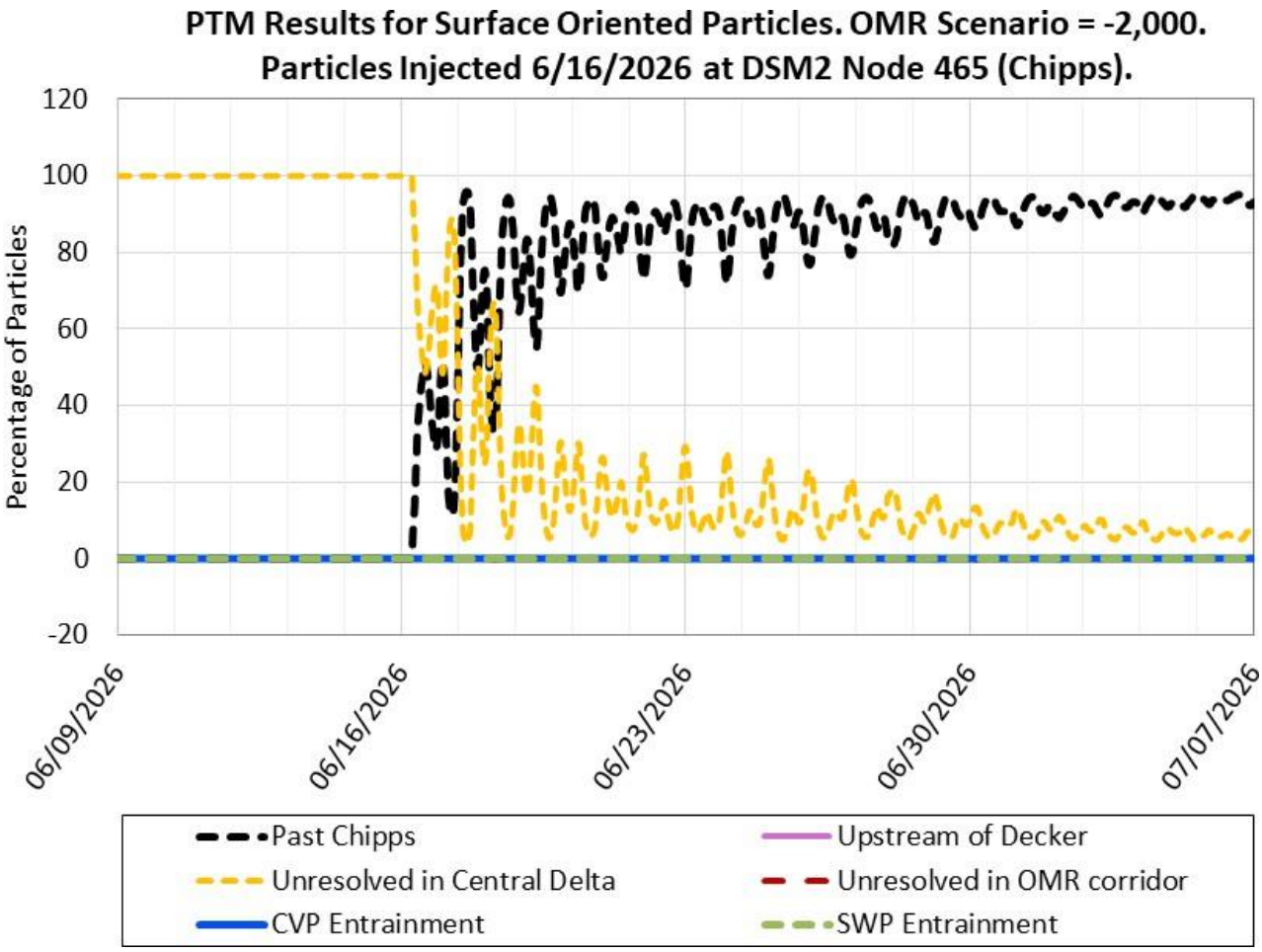


Figure A21. PTM Results for Surface-Oriented Particles Injected at Chipps Island (DSM2 Node 465) Under the −2,000 cfs Old and Middle River Flow Scenario

Figure A21 depicts a line graph showing the simulated fate of surface-oriented particles injected on June 16, 2026, at DSM2 Node 465 (Chipps Island) under an Old and Middle River (OMR) flow scenario of −2,000 cfs. The x-axis shows the simulation period from June 9 through July 7, 2026, and the y-axis shows the percentage of injected particles. Colored lines represent the percentage of particles passing Chipps Island, remaining unresolved in the Central Delta, entrained at the Central Valley Project (CVP) and State Water Project (SWP) export facilities, passing upstream of Decker, or remaining unresolved within the OMR corridor.

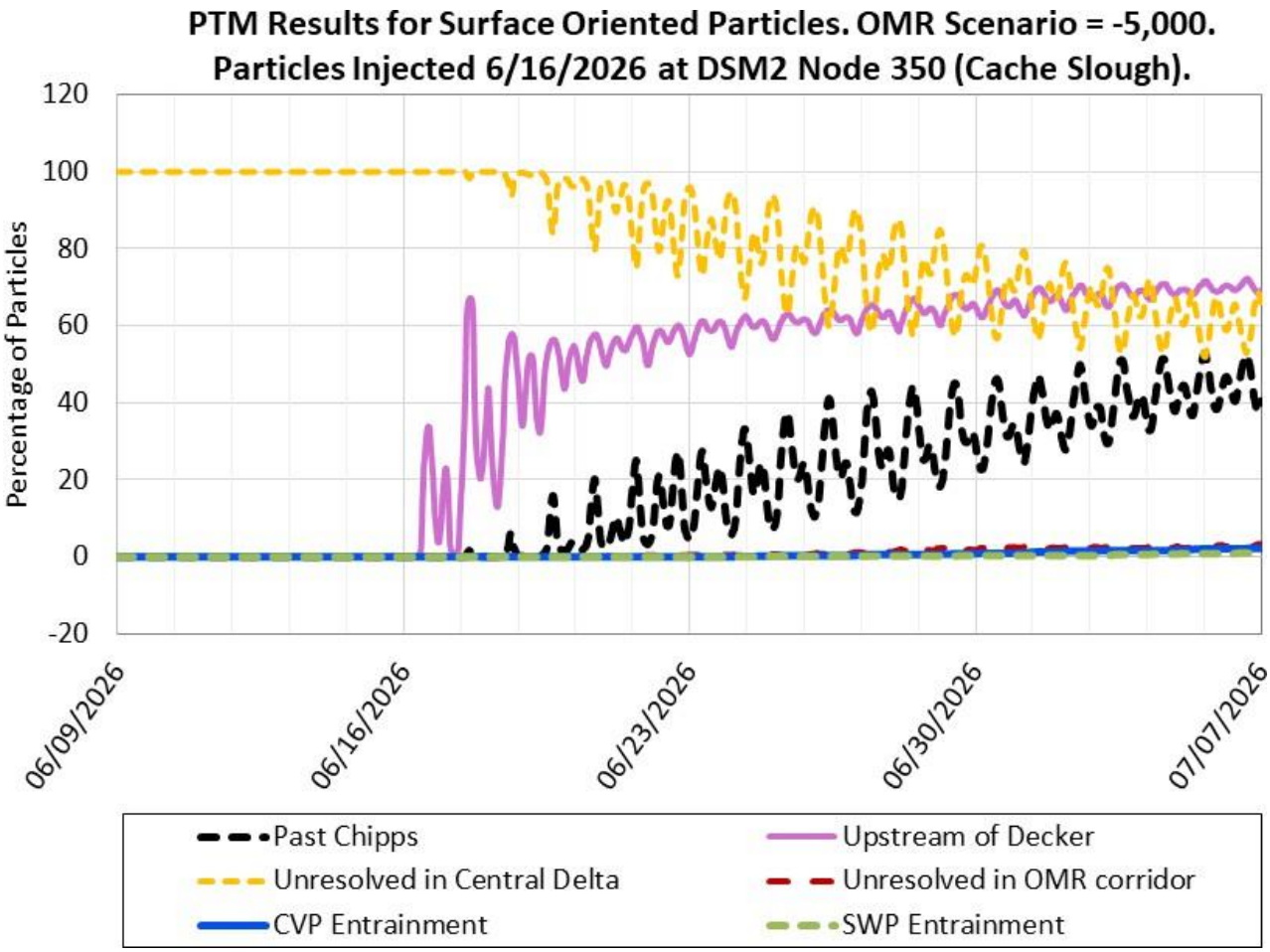


Figure A22. PTM Results for Surface-Oriented Particles Injected at Cache Slough (DSM2 Node 350) Under the −5,000 cfs Old and Middle River Flow Scenario

Figure A22 depicts a line graph showing the simulated fate of surface-oriented particles injected on June 16, 2026, at DSM2 Node 350 (Cache Slough) under an Old and Middle River (OMR) flow scenario of −5,000 cfs. The x-axis shows the simulation period from June 9 through July 7, 2026, and the y-axis shows the percentage of injected particles. Colored lines represent the percentage of particles passing Chipps Island, remaining unresolved in the Central Delta, entrained at the Central Valley Project (CVP) and State Water Project (SWP) export facilities, passing upstream of Decker, or remaining unresolved within the OMR corridor.

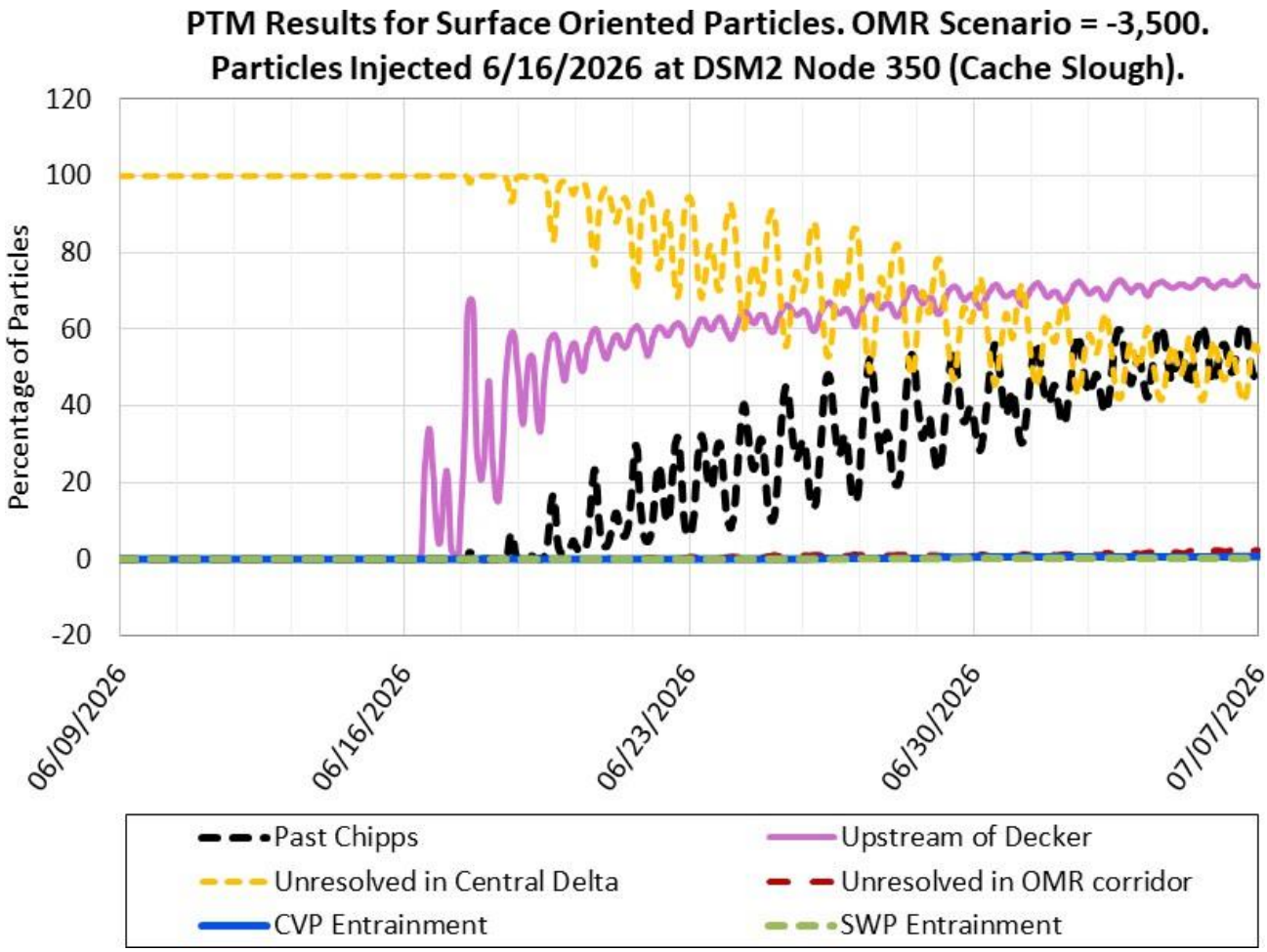


Figure A23. PTM Results for Surface-Oriented Particles Injected at Cache Slough (DSM2 Node 350) Under the −3,500 cfs Old and Middle River Flow Scenario

Figure A23 depicts a line graph showing the simulated fate of surface-oriented particles injected on June 16, 2026, at DSM2 Node 350 (Cache Slough) under an Old and Middle River (OMR) flow scenario of −3,500 cfs. The x-axis shows the simulation period from June 9 through July 7, 2026, and the y-axis shows the percentage of injected particles. Colored lines represent the percentage of particles passing Chipps Island, remaining unresolved in the Central Delta, entrained at the Central Valley Project (CVP) and State Water Project (SWP) export facilities, passing upstream of Decker, or remaining unresolved within the OMR corridor.

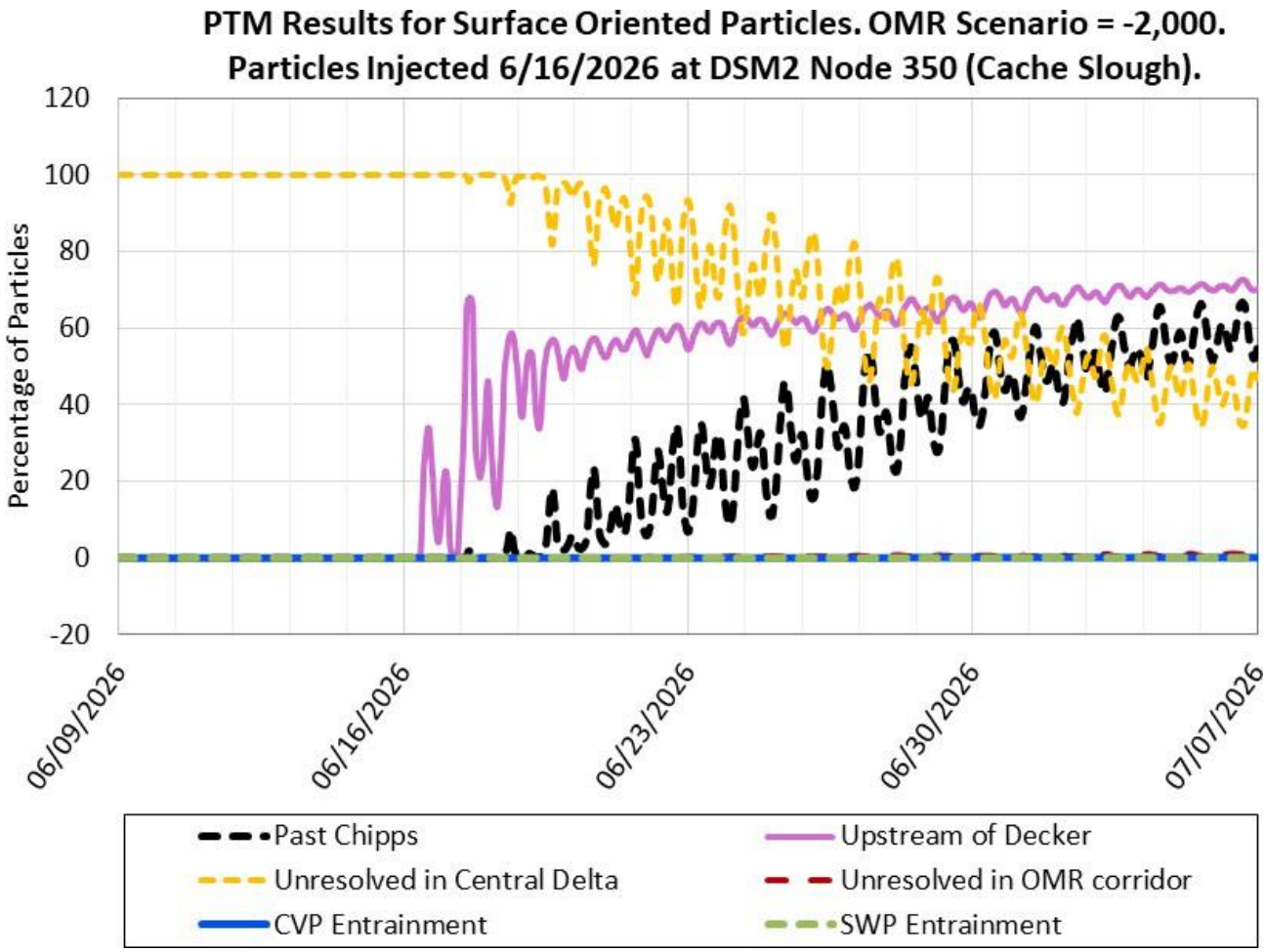


Figure A24. PTM Results for Surface-Oriented Particles Injected at Cache Slough (DSM2 Node 350) Under the −2,000 cfs Old and Middle River Flow Scenario

Figure A24 depicts a line graph showing the simulated fate of surface-oriented particles injected on June 16, 2026, at DSM2 Node 350 (Cache Slough) under an Old and Middle River (OMR) flow scenario of −2,000 cfs. The x-axis shows the simulation period from June 9 through July 7, 2026, and the y-axis shows the percentage of injected particles. Colored lines represent the percentage of particles passing Chipps Island, remaining unresolved in the Central Delta, entrained at the Central Valley Project (CVP) and State Water Project (SWP) export facilities, passing upstream of Decker, or remaining unresolved within the OMR corridor.

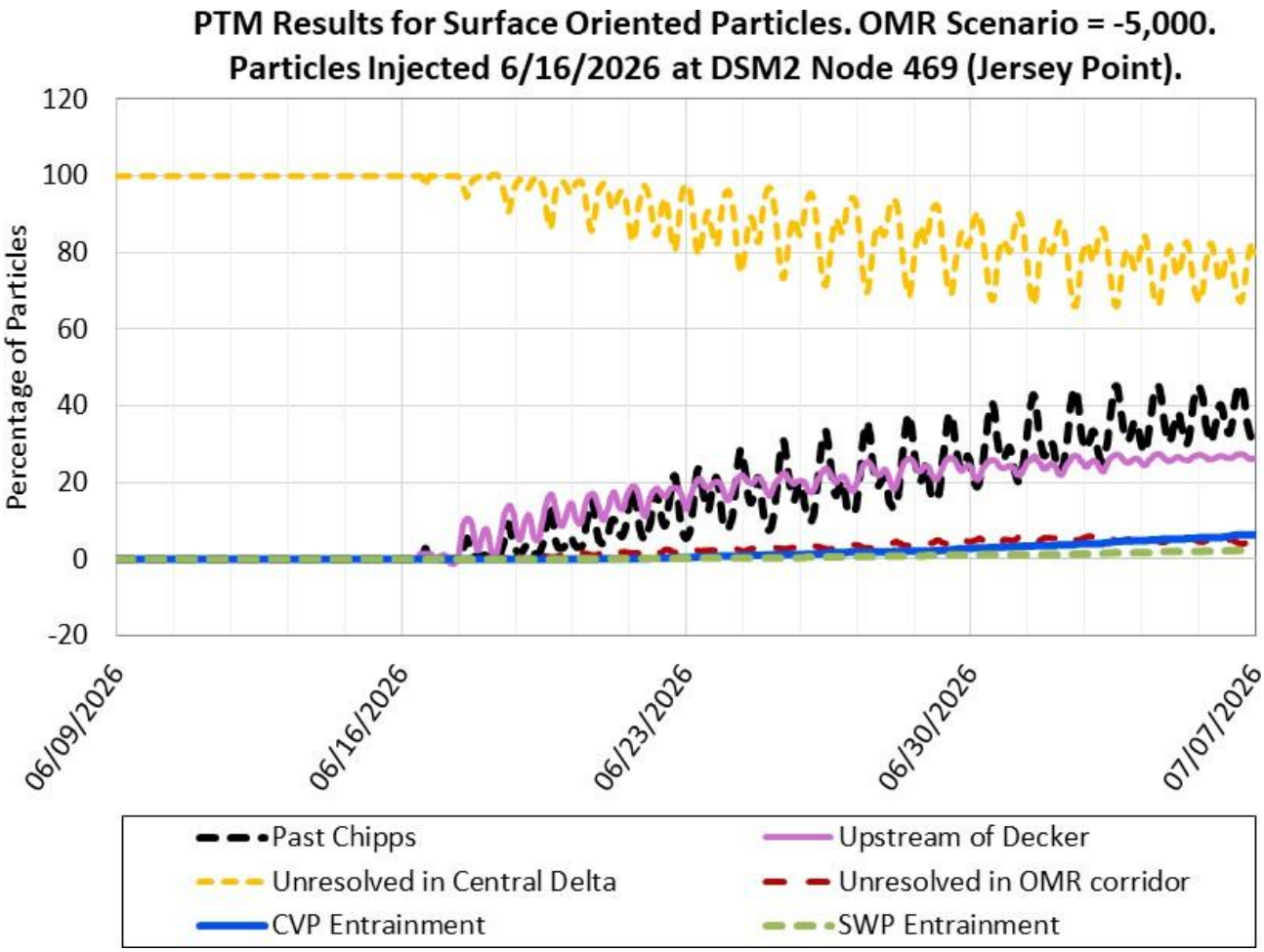


Figure A25. PTM Results for Surface-Oriented Particles Injected at Jersey Point (DSM2 Node 469) Under the −5,000 cfs Old and Middle River Flow Scenario

Figure A25 depicts a line graph showing the simulated fate of surface-oriented particles injected on June 16, 2026, at DSM2 Node 469 (Jersey Point) under an Old and Middle River (OMR) flow scenario of −5,000 cfs. The x-axis shows the simulation period from June 9 through July 7, 2026, and the y-axis shows the percentage of injected particles. Colored lines represent the percentage of particles passing Chipps Island, remaining unresolved in the Central Delta, entrained at the Central Valley Project (CVP) and State Water Project (SWP) export facilities, passing upstream of Decker, or remaining unresolved within the OMR corridor.

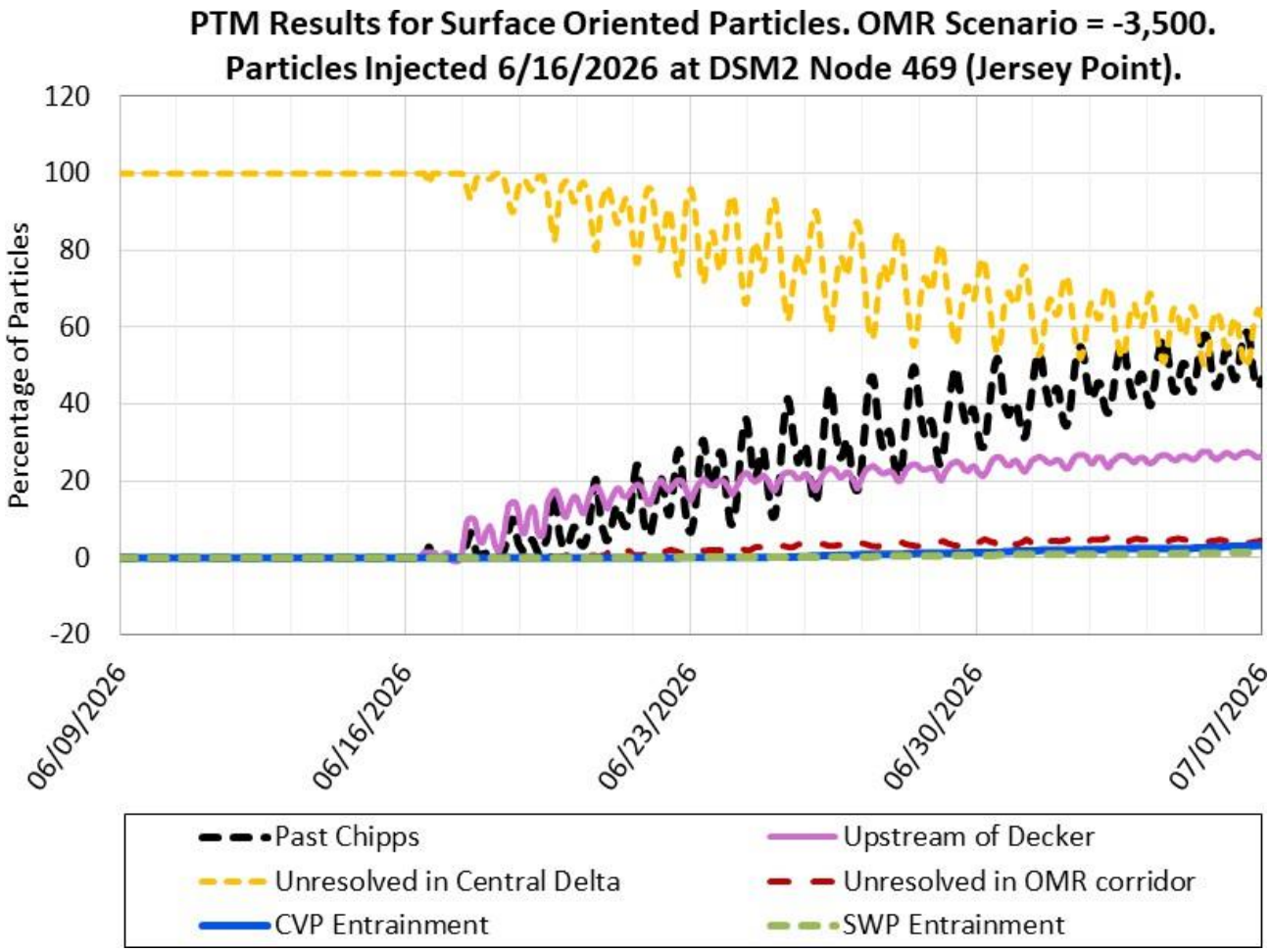


Figure A26. PTM Results for Surface-Oriented Particles Injected at Jersey Point (DSM2 Node 469) Under the −3,500 cfs Old and Middle River Flow Scenario

Figure A26 depicts a line graph showing the simulated fate of surface-oriented particles injected on June 16, 2026, at DSM2 Node 469 (Jersey Point) under an Old and Middle River (OMR) flow scenario of −3,500 cfs. The x-axis shows the simulation period from June 9 through July 7, 2026, and the y-axis shows the percentage of injected particles. Colored lines represent the percentage of particles passing Chipps Island, remaining unresolved in the Central Delta, entrained at the Central Valley Project (CVP) and State Water Project (SWP) export facilities, passing upstream of Decker, or remaining unresolved within the OMR corridor.

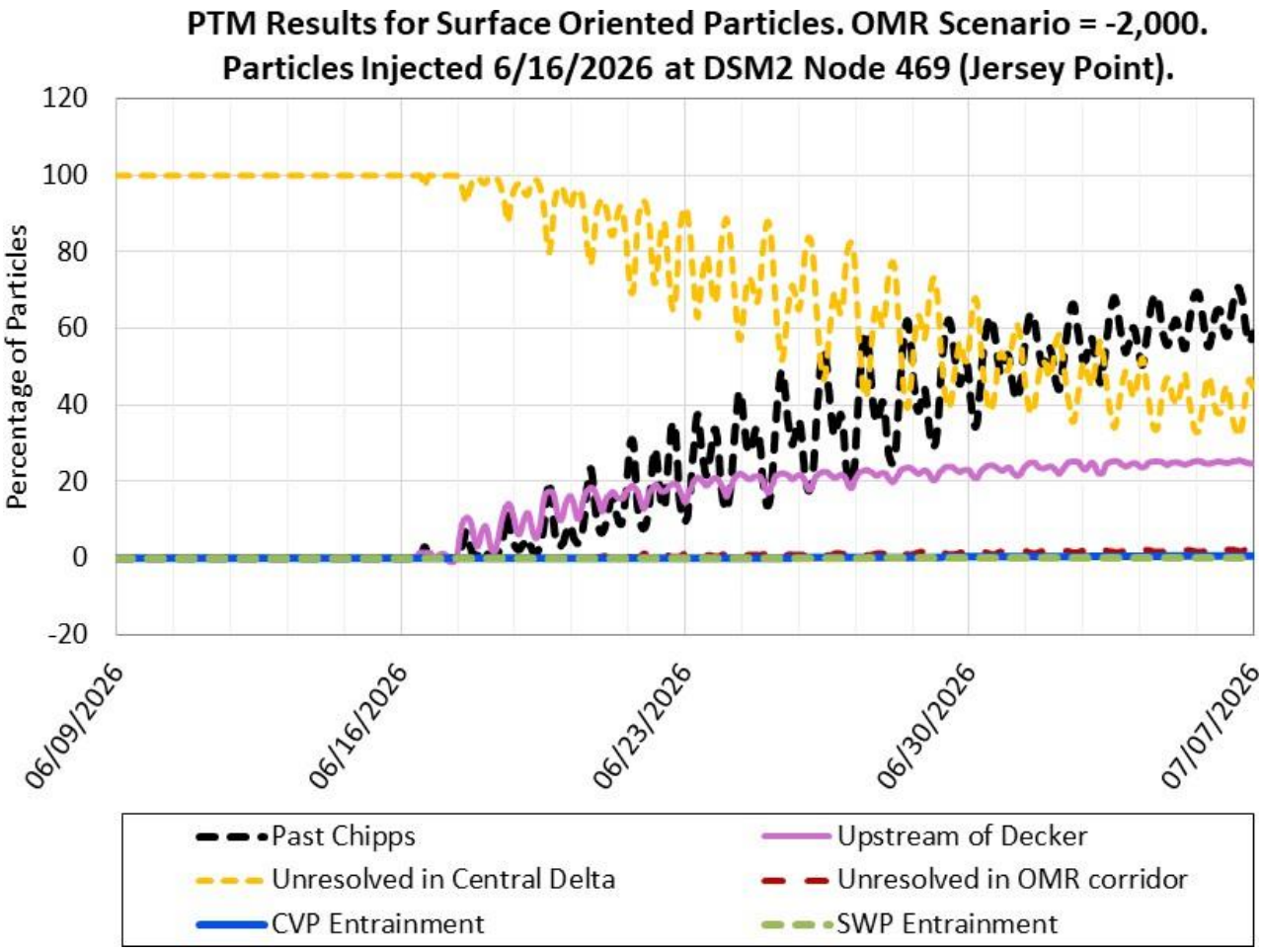


Figure A27. PTM Results for Surface-Oriented Particles Injected at Jersey Point (DSM2 Node 469) Under the −2,000 cfs Old and Middle River Flow Scenario

Figure A27 depicts a line graph showing the simulated fate of surface-oriented particles injected on June 16, 2026, at DSM2 Node 469 (Jersey Point) under an Old and Middle River (OMR) flow scenario of −2,000 cfs. The x-axis shows the simulation period from June 9 through July 7, 2026, and the y-axis shows the percentage of injected particles. Colored lines represent the percentage of particles passing Chipps Island, remaining unresolved in the Central Delta, entrained at the Central Valley Project (CVP) and State Water Project (SWP) export facilities, passing upstream of Decker, or remaining unresolved within the OMR corridor.

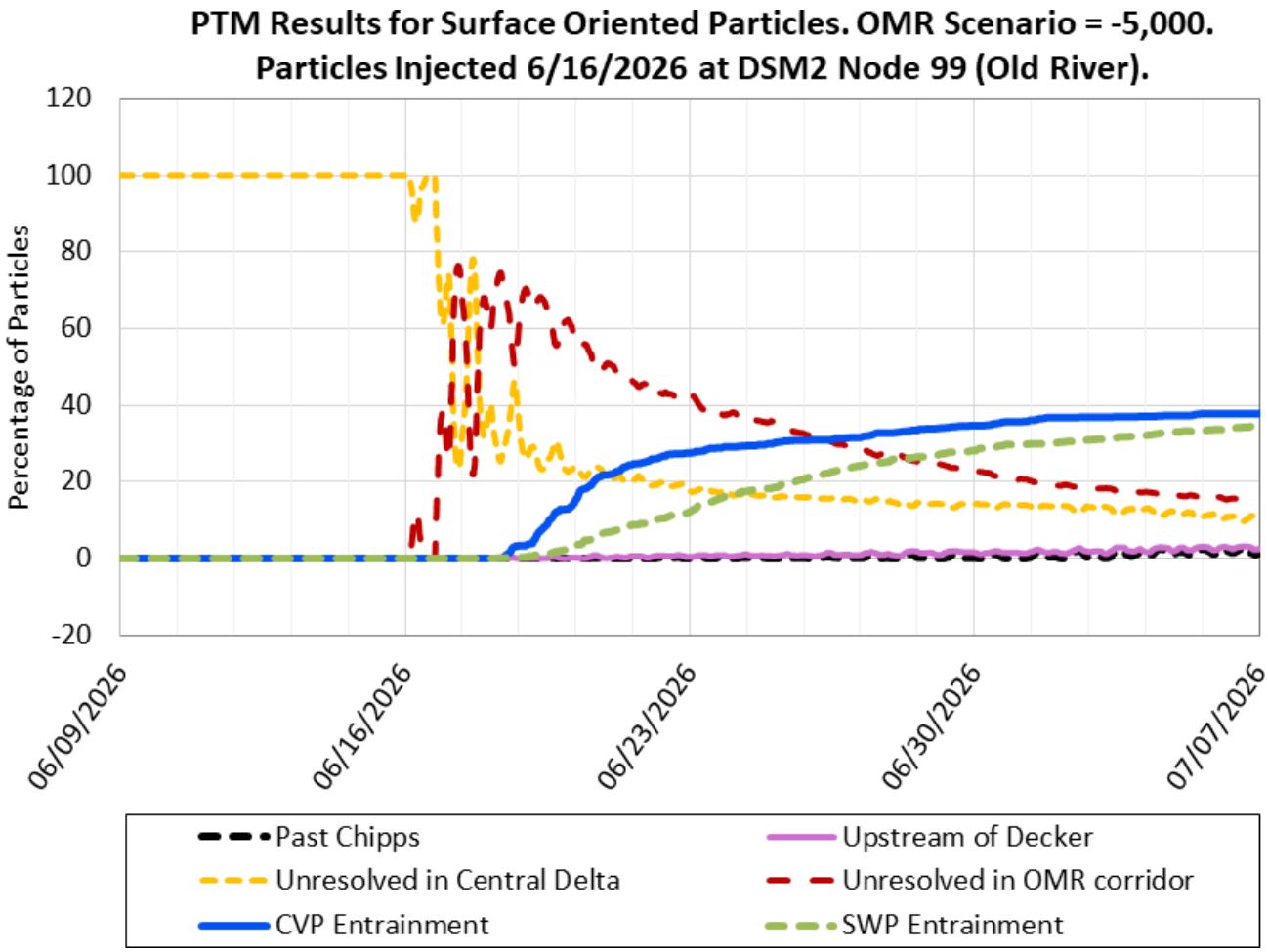


Figure A28. PTM Results for Surface-Oriented Particles Injected at Old River (DSM2 Node 99) Under the −5,000 cfs Old and Middle River Flow Scenario

Figure A28 depicts a line graph showing the simulated fate of surface-oriented particles injected on June 16, 2026, at DSM2 Node 99 (Old River) under an Old and Middle River (OMR) flow scenario of −5,000 cfs. The x-axis shows the simulation period from June 9 through July 7, 2026, and the y-axis shows the percentage of injected particles. Colored lines represent the percentage of particles passing Chipps Island, remaining unresolved in the Central Delta, entrained at the Central Valley Project (CVP) and State Water Project (SWP) export facilities, passing upstream of Decker, or remaining unresolved within the OMR corridor.

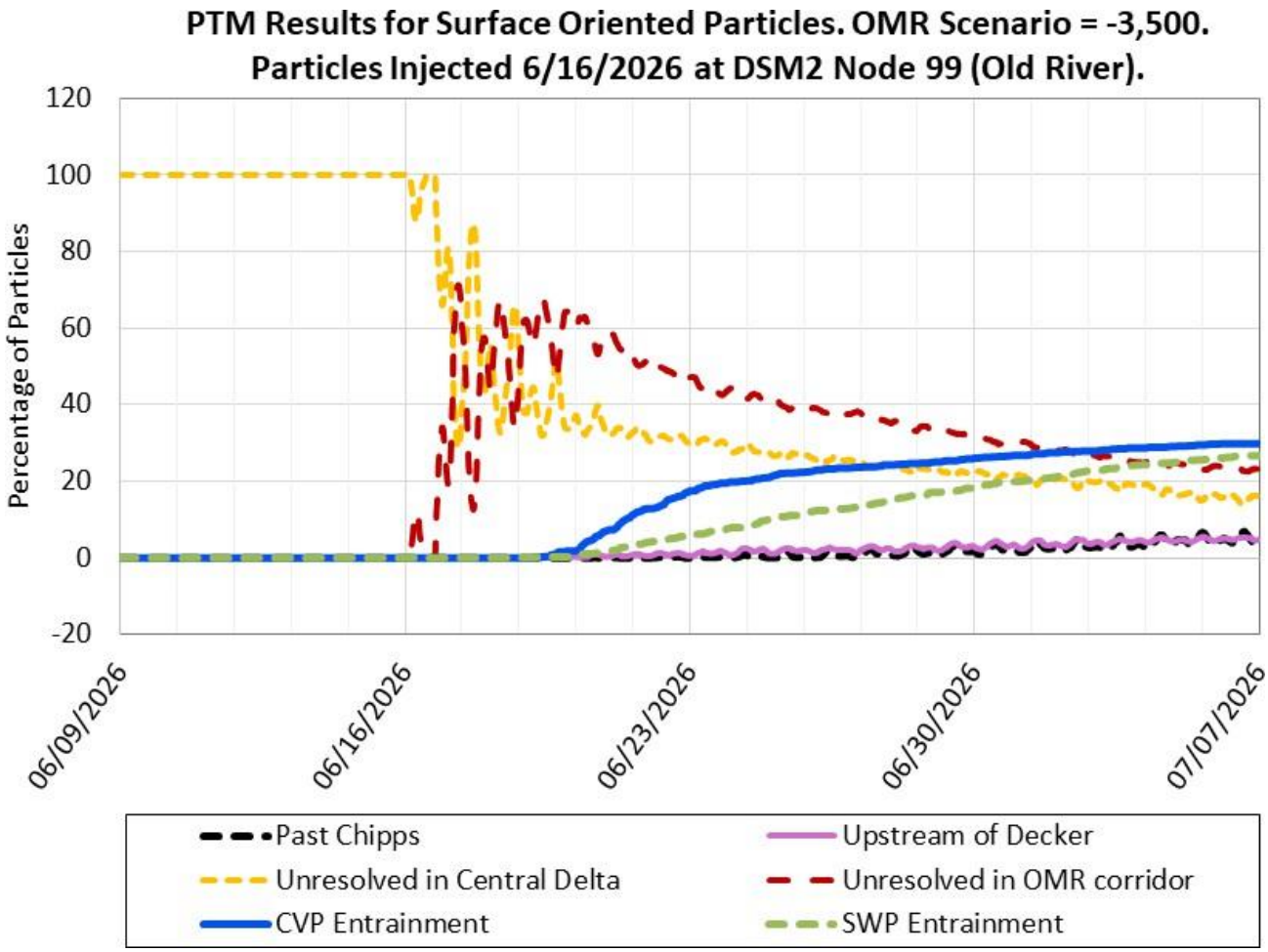


Figure A29. PTM Results for Surface-Oriented Particles Injected at Old River (DSM2 Node 99) Under the −3,500 cfs Old and Middle River Flow Scenario

Figure A29 depicts a line graph showing the simulated fate of surface-oriented particles injected on June 16, 2026, at DSM2 Node 99 (Old River) under an Old and Middle River (OMR) flow scenario of −3,500 cfs. The x-axis shows the simulation period from June 9 through July 7, 2026, and the y-axis shows the percentage of injected particles. Colored lines represent the percentage of particles passing Chipps Island, remaining unresolved in the Central Delta, entrained at the Central Valley Project (CVP) and State Water Project (SWP) export facilities, passing upstream of Decker, or remaining unresolved within the OMR corridor.

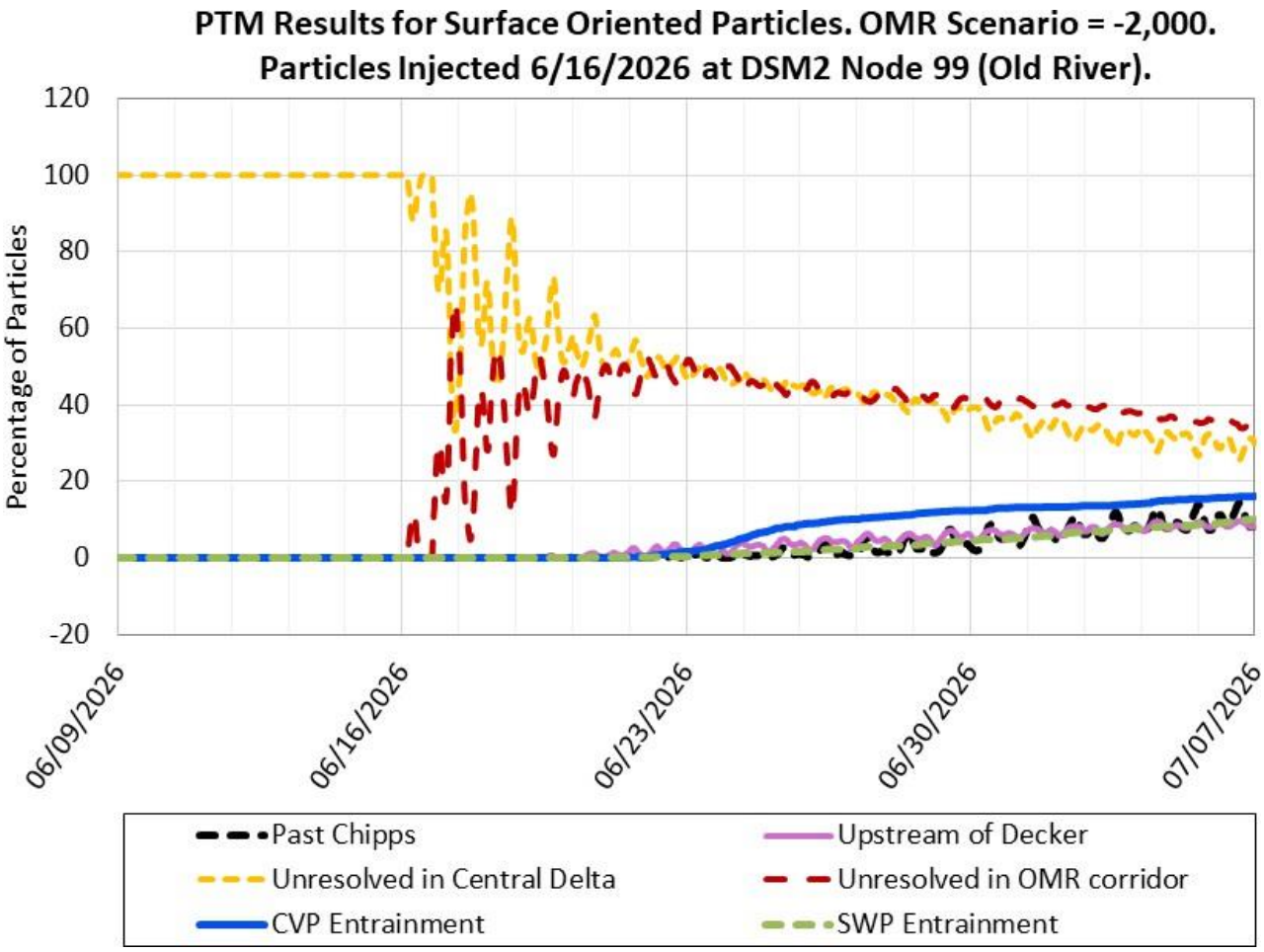


Figure A30. PTM Results for Surface-Oriented Particles Injected at Old River (DSM2 Node 99) Under the −2,000 cfs Old and Middle River Flow Scenario

Figure A30 depicts a line graph showing the simulated fate of surface-oriented particles injected on June 16, 2026, at DSM2 Node 99 (Old River) under an Old and Middle River (OMR) flow scenario of −2,000 cfs. The x-axis shows the simulation period from June 9 through July 7, 2026, and the y-axis shows the percentage of injected particles. Colored lines represent the percentage of particles passing Chipps Island, remaining unresolved in the Central Delta, entrained at the Central Valley Project (CVP) and State Water Project (SWP) export facilities, passing upstream of Decker, or remaining unresolved within the OMR corridor.

ECO-PTM (Ecological Particle Tracking Model)

ECO-PTM Results Evaluation Period: 06/16/2026 – 07/06/2026

Particles Injected: 06/16/2026

Injection Location: Sacramento River at Freeport

Table A12. Salmon Particle Route Ratio After 3 Weeks Ending 07/06/2026

OMR Flow Bin (cfs)	Sutter Slough Route	Steamboat Slough Route	Sacramento River (SS) Route	Sacramento River (GEO) Route	Georgiana Slough Route
-6,500	N/A	N/A	N/A	N/A	N/A
-5,000	0.09	0.07	0.83	0.73	0.25
-3,500	0.10	0.07	0.83	0.74	0.25
-2,000	0.10	0.07	0.83	0.71	0.28

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

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

Table A13. Salmon Particle Route-Specific Survival After 3 Weeks Ending 07/06/2026

OMR Flow Bin (cfs)	Sutter Slough Route	Steamboat Slough Route	Sacramento River Route	Georgiana Slough Route	All Routes Combined
-6,500	N/A	N/A	N/A	N/A	N/A
-5,000	40%	52%	46%	29%	41%
-3,500	35%	53%	45%	25%	40%
-2,000	37%	52%	45%	28%	40%

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

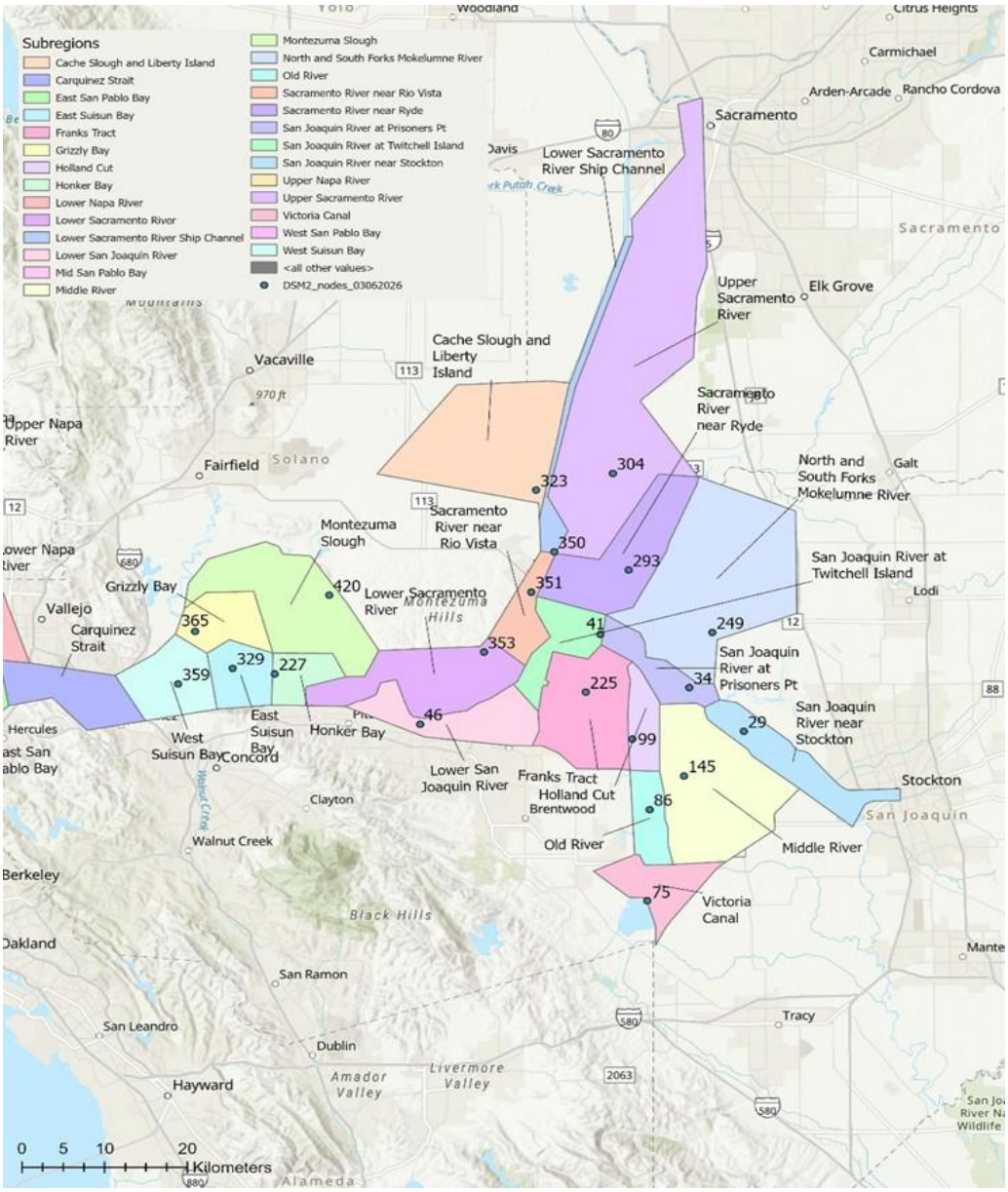
Longfin Smelt Larval Population and PTM Analysis

PTM Results Evaluation Period: 06/16/2026 – 07/06/2026

Particles Injected: 06/16/2026

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

PTM Analysis Method: LFS larva abundance is estimated in each Enhanced Delta Smelt Monitoring (EDSM) program subregion. Cumulative particle flux into CVP and SWP facilities is represented in PTM by one injection location per subregion (Figure A33). LFS larva entrainment is estimated by multiplying the LFS subregion abundance by cumulative particle flux into CVP and SWP facilities from the corresponding subregion injection point. LFS entrainment from each subregion is added together and reported at the LFS Region scale (Figure A34).



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

Figure A31. Map of Delta Showing Longfin Smelt Subregions and DSM2 Nodes

Figure A31 is a map of the Sacramento–San Joaquin Delta showing the longfin smelt subregions used in the DSM2 Particle Tracking Model (PTM), each distinguished by a different color. DSM2 node locations are displayed and labeled throughout the map, along with major waterways and geographic features, including the Sacramento River, San Joaquin River, Old River, Middle River, Cache Slough, Montezuma Slough, Suisun Bay, and Carquinez Strait.

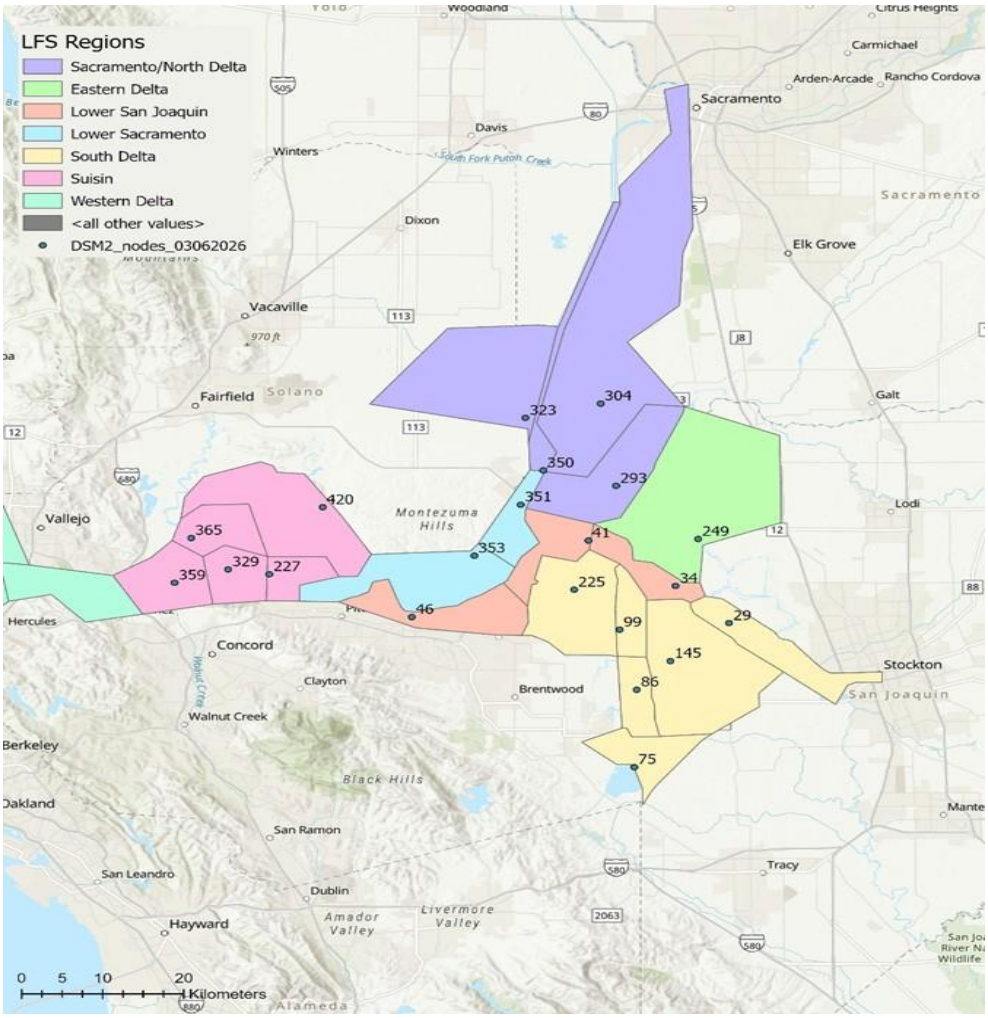


Figure A32. Map of Delta Showing Longfin Smelt Regions and DSM2 Nodes

Figure A32 is a map of the Sacramento–San Joaquin Delta showing the seven longfin smelt (LFS) regions used in the DSM2 Particle Tracking Model (PTM)—Sacramento/North Delta, Eastern Delta, Lower San Joaquin, Lower Sacramento, South Delta, Suisun, and Western Delta—each distinguished by a different color. DSM2 node locations are also displayed, with node numbers labeled throughout the map.

Regional and Delta-wide longfin smelt (LFS) larval population is estimated using SLS survey data from Survey 6 (3/9/2026 – 3/11/2026) and volumetric expansion methods developed by the Six-Agency Monitoring Survey Design Team. As of 04/21/2026, all SLS survey catch data has been processed (Table A14). CDFW has transitioned from the SLS to the 20-mm survey to collect distribution data for post larval-juvenile Longfin Smelt. As of 05/12/2026, processing of the 20mm Survey 1 data is at 51% complete, heavily biased to the eastern and southern Delta. Due to the lack of processed 20mm data from any of the more westerly regions, any proportional entrainment estimates would be strongly biased upward, and SLS Survey 6 data is used to estimate proportional entrainment risk for this assessment.

Table A14. Percent of Smelt Larva Survey Sample Results Processed as of 04/21/2026

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

Key: SLS = Smelt Larva Survey

The DSM2 node used as an injection point, EDSM subregion, and LFS Region for reporting are shown in Table A15.

Table A15. DSM2 Injection Node, EDSM Subregion, and LFS Region

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

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

Table A16. LFS Entrainment Estimate using PTM with Surface Oriented Particles: Week 1 ending 06/22/2026

OMR (cfs)	Combined Exports (cfs)	Region Metric	West	Suisun	Sacramento/ North Delta	Lower San Joaquin	Lower Sacramento	South Delta	East	Total (#)	Total (%)
N/A	N/A	LFS Larva Abundance (Survey 5: 2/23/2026)	117,633,687	145,677,478	304,865	4,078,739	3,695,676	0	0	271,390,445	N/A
-6,500	N/A	PTM Entrained (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
-5,000	5,166	PTM Entrained (%)	0	0	0	0.2	0	0	0	N/A	N/A
-3,500	3,563	PTM Entrained (%)	0	0	0	<0.1	0	0	0	N/A	N/A
-2,000	1,875	PTM Entrained (%)	0	0	0	0	0	0	0	N/A	N/A
-6,500	N/A	LFS Larva Entrained (#)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
-5,000	5,166	LFS Larva Entrained (#)	0	0	0	7,130	0	0	0	7,130	<0.1%
-3,500	3,563	LFS Larva Entrained (#)	0	0	0	650	0	0	0	650	<0.1%
-2,000	1,875	LFS Larva Entrained (#)	0	0	0	0	0	0	0	0	0%

Key: cfs = cubic feet per second LFS = longfin Smelt OMR = Old and Middle River

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 A17. LFS Entrainment Estimate using PTM with Surface Oriented Particles: Week 2 ending 06/29/2026

OMR (cfs)	Combined Exports (cfs)	Region Metric	West	Suisun	Sacramento/ North Delta	Lower San Joaquin	Lower Sacramento	South Delta	East	Total (#)	Total (%)
N/A	N/A	LFS Larva Abundance (Survey 5: 2/23/2026)	117,633,687	145,677,478	304,865	4,078,739	3,695,676	0	0	271,390,445	N/A
-6,500	N/A	PTM Entrained (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
-5,000	5,066	PTM Entrained (%)	0	0	0.4	5.3	0.4	0	0	N/A	N/A
-3,500	3,406	PTM Entrained (%)	0	0	0.1	1.6	0.1	0	0	N/A	N/A
-2,000	1,760	PTM Entrained (%)	0	0	0	0.4	0	0	0	N/A	N/A
-6,500	N/A	LFS Larva Entrained (#)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
-5,000	5,066	LFS Larva Entrained (#)	0	0	1,219	216,546	13,106	0	0	230,872	<0.1%
-3,500	3,406	LFS Larva Entrained (#)	0	0	305	65,773	4,907	0	0	70,985	<0.1%
-2,000	1,760	LFS Larva Entrained (#)	0	0	0	14,702	0	0	0	14,702	<0.1%

Key: cfs = cubic feet per second LFS = longfin Smelt OMR = Old and Middle River

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 A18. LFS Entrainment Estimate using PTM with Surface Oriented Particles: Week 3 ending 07/06/2026

OMR (cfs)	Combined Exports (cfs)	Region Metric	West	Suisun	Sacramento/ North Delta	Lower San Joaquin	Lower Sacramento	South Delta	East	Total (#)	Total (%)
N/A	N/A	LFS Larva Abundance (Survey 5: 2/23/2026)	117,633,687	145,677,478	304,865	4,078,739	3,695,676	0	0	271,390,445	N/A
-6,500	N/A	PTM Entrained (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
-5,000	5,009	PTM Entrained (%)	0	<0.1	2.5	10.8	1.3	0	0	N/A	N/A
-3,500	3,406	PTM Entrained (%)	0	0	0.5	5.2	0.5	0	0	N/A	N/A
-2,000	1,703	PTM Entrained (%)	0	0	0	1.2	<0.1	0	0	N/A	N/A
-6,500	N/A	LFS Larva Entrained (#)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
-5,000	5,009	LFS Larva Entrained (#)	0	8,914	7,622	439,509	49,566	0	0	505,611	0.2%
-3,500	3,406	LFS Larva Entrained (#)	0	0	1,524	213,854	20,094	0	0	235,472	<0.1%
-2,000	1,703	LFS Larva Entrained (#)	0	0	0	49,562	404	0	0	49,965	<0.1%

Key: cfs = cubic feet per second LFS = longfin Smelt OMR = Old and Middle River

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.

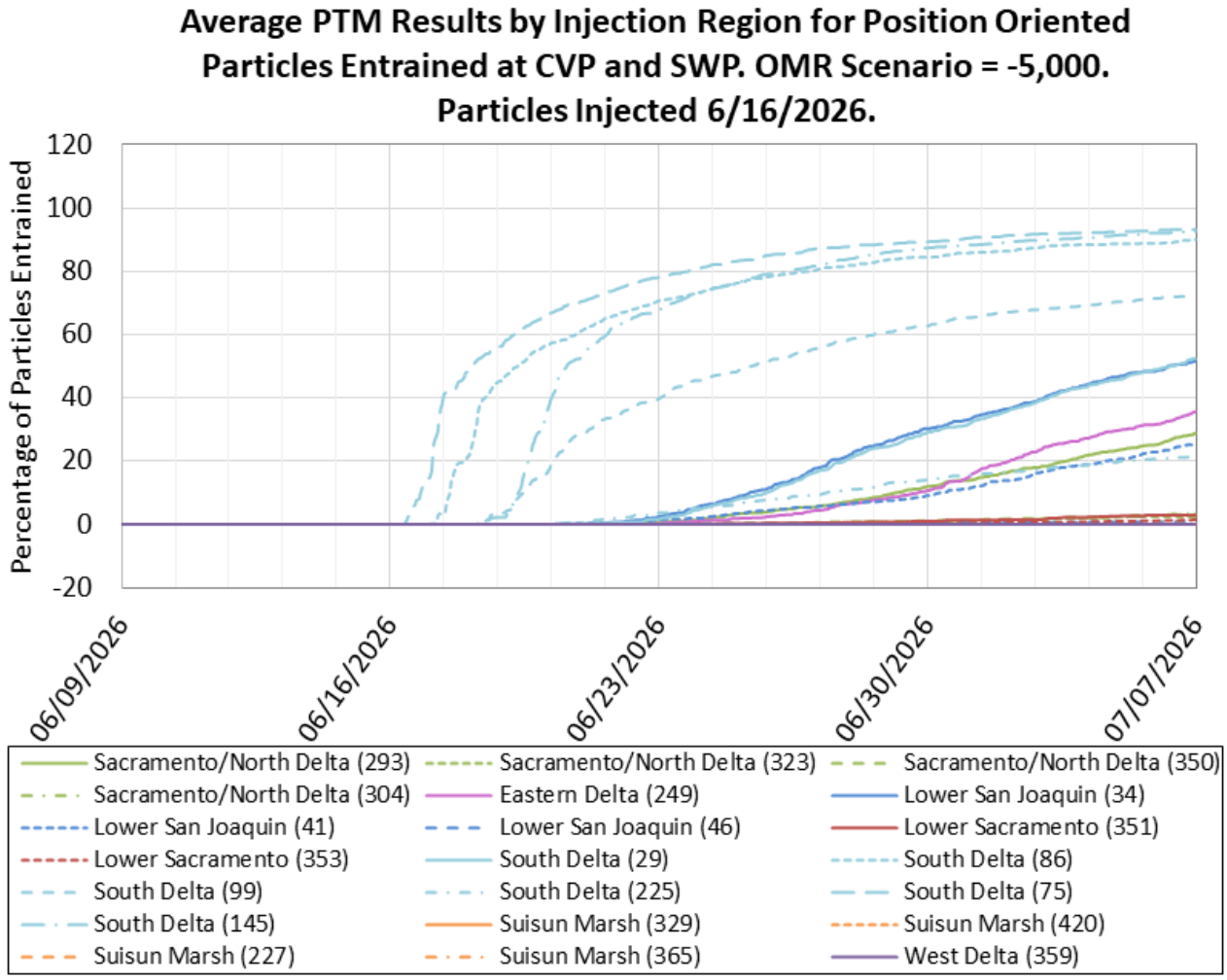


Figure A33. Average PTM Results by Injection Region for Position-Oriented Particles Entrained at CVP and SWP Under the OMR -5,000 Scenario

Figure A33 shows the average PTM results for position-oriented particles injected on June 16, 2026, grouped by longfin smelt region under the OMR -5,000 scenario. The figure displays the cumulative percentage of particles entrained at the Central Valley Project (CVP) and State Water Project (SWP) export facilities over time for injections from each DSM2 node within the seven longfin smelt regions. Each line represents a different injection location, illustrating regional differences in the timing and magnitude of particle entrainment.

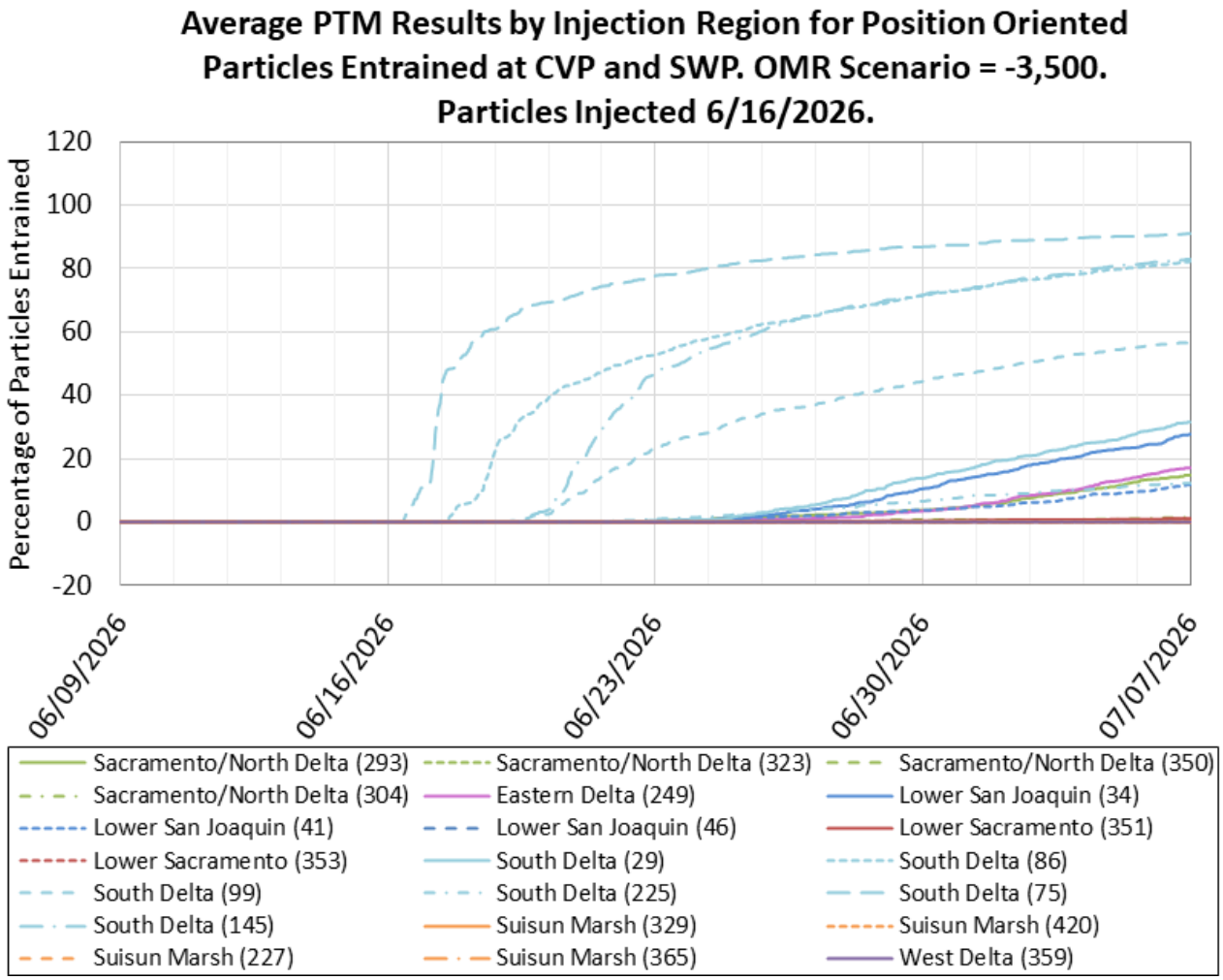


Figure A34. Average PTM Results by Injection Region for Position-Oriented Particles Entrained at CVP and SWP Under the OMR -3,500 Scenario

Figure A34 shows the average PTM results for position-oriented particles injected on June 16, 2026, grouped by longfin smelt region under the OMR -3,500 scenario. The figure displays the cumulative percentage of particles entrained at the Central Valley Project (CVP) and State Water Project (SWP) export facilities over time for injections from each DSM2 node within the seven longfin smelt regions. Each line represents a different injection location, illustrating regional differences in the timing and magnitude of particle entrainment.

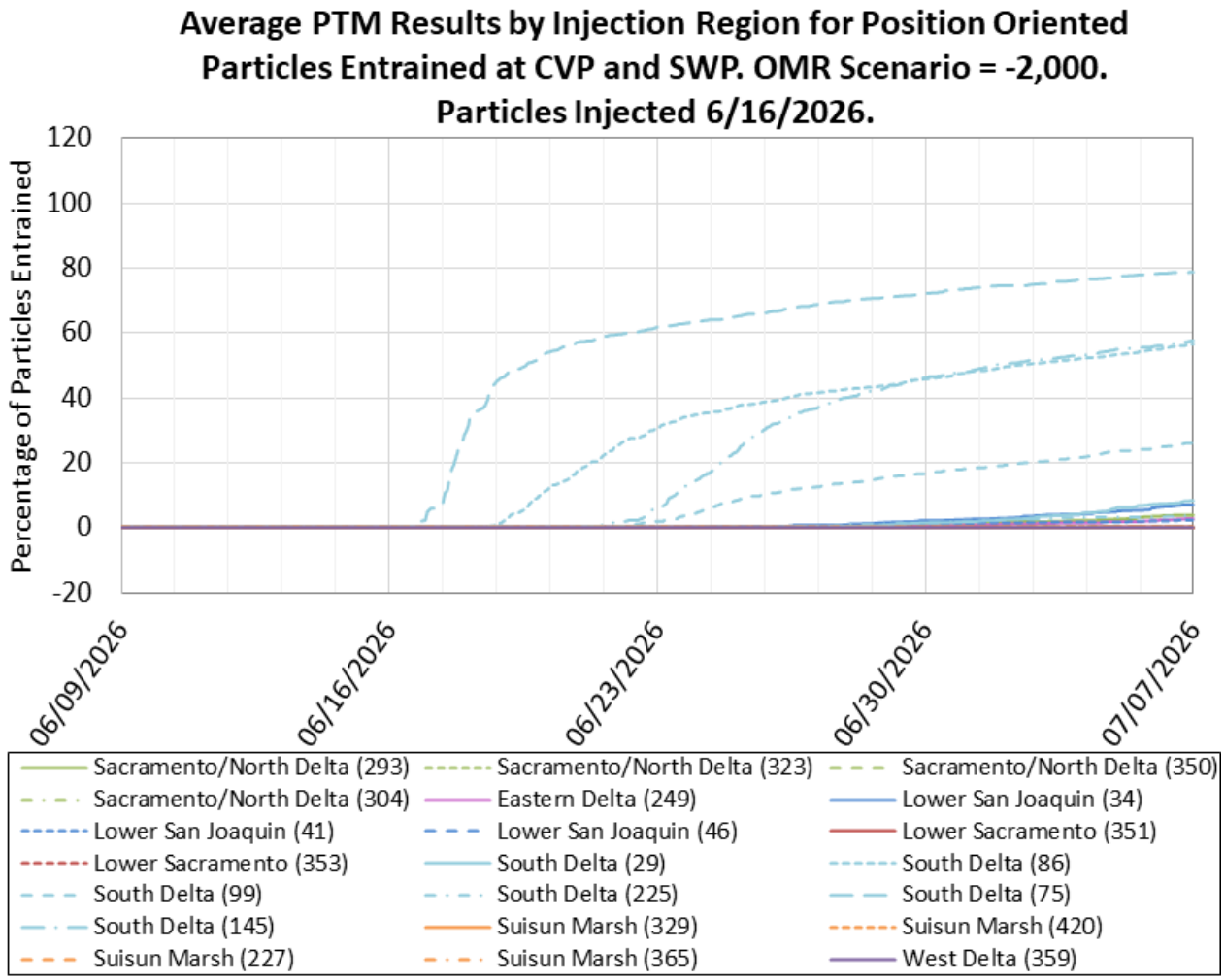


Figure A35. Average PTM Results by Injection Region for Position-Oriented Particles Entrained at CVP and SWP Under the OMR -2,000 Scenario

Figure A35 shows the average PTM results for position-oriented particles injected on June 16, 2026, grouped by longfin smelt region under the OMR -2,000 scenario. The figure displays the cumulative percentage of particles entrained at the Central Valley Project (CVP) and State Water Project (SWP) export facilities over time for injections from each DSM2 node within the seven longfin smelt regions. Each line represents a different injection location, illustrating regional differences in the timing and magnitude of particle entrainment.