



Official Memorandum

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To: SLDMWA Water Resources Committee Members and Alternates

From: Scott Petersen, Chief Strategic and Administrative Officer

Date: November 2, 2026

RE: Update on Water Policy/Resources Activities

This memorandum summarizes water policy developments since the last report across the standing topic areas within the Committee's purview. It opens with a one-page dashboard and the items requiring Committee attention; detailed reporting follows, and standing program backgrounds are consolidated in Appendix A.

This Month at a Glance

Topic	Development this period	Authority action	Next milestone
1. CVP/SWP Long-Term Operations	Green Sturgeon cumulative salvage reached a final 44 fish for Water Year 2026 against the 14-fish incidental take limit (Sept. 26 final assessment ¹) — the second consecutive year exceeded; consultation with NMFS reinitiated; effects assessed as non-lethal; one mortality was observed Sept. 25 of a fish compromised before collection, and all other fish were released alive. Analysis of further Action 5 operational refinements continues.	Monitoring via Fish and Water Operations Group; coordinating with Reclamation.	NMFS consultation path forward; WY 2027 take threshold in effect
2. State Water Board – Bay-Delta Plan	The Board released a revised final Plan Oct. 16 and change sheets through Oct. 27 responding to comments, and held its adoption meeting Oct. 28–29. Phase 1 Tuolumne VA staff report pending.	Water Authority and member agency comments submitted; coordination with member agencies and HRL partners continues.	Flow methodology development; HRL water right confirmations due June 1, 2027
3. SJR Restoration Program	2026 Restoration Allocation set at 281,739 AF at Gravelly Ford (Normal-Dry year type).	Reviewing recommended flow schedule.	Reclamation action on flow schedule
4. Delta Conveyance / Delta Stewardship Council	USACE finalized its NEPA Record of Decision (July 8); DWR submitted a Revised Certification of Consistency on remanded items (July 24). Three appeals of the revised certification were filed (effective Aug. 24). The Council held its appeal hearing Oct. 15.	Monitoring appeal window and permitting phase.	Council determination expected by Dec. 9, 2026

¹ Request from Authority staff



Topic	Development this period	Authority action	Next milestone
5. Reclamation Manual	WTR 11-01 (Title XVI feasibility study review) comment period closed Oct. 29. [Confirm: Authority comment status.]	—	—
6. SJV Water Blueprint	Unified Water Plan provided to Reclamation for review; board strategic planning session held Sept. 16; Metropolitan groundwater banking study underway.	Participating in planning and study efforts.	Report to Congress; 2027 program scoping
7. SJV Collaborative Action Program	“Vision for the San Joaquin Valley” released May 29; Phase II work groups continuing.	Participating in work groups.	Work group products; prioritization tool criteria

Upcoming Deadlines and Milestones

- December 9, 2026: Delta Stewardship Council determination expected on appeals of the Delta Conveyance Project revised Certification of Consistency.
- June 1, 2027 [if the Plan is adopted]: HRL participants must submit final confirmation of water rights participating in the VA pathway (Change Sheet #2).

Policy Items

1. Federal Actions – CVP/SWP Long-Term Operations

Green Sturgeon Incidental Take and Reinitiation of Consultation

What happened: Cumulative expanded salvage for Water Year 2026 first exceeded the 14-fish annual incidental take limit in the 2024 NMFS Biological Opinion on June 13 and closed the water year at 44 fish (13 fish collected — 6 at CVP and 7 at SWP facilities — with expanded totals reflecting sampling protocols), including two final salvage events on September 25. This is the second consecutive water year the limit has been exceeded (WY 2025 expanded salvage: 20 fish). Salvaged fish measured 347–597 mm, corresponding to Ages 1–3. One mortality was observed on September 25 at the CVP Tracy Fish Collection Facility — the fish was emaciated and barely gilling when collected, suggesting it was compromised before reaching the facility — and all other fish salvaged in WY 2026 were released alive. Reclamation issued its final Green Sturgeon assessment on September 26 and has reinitiated consultation with the National Marine Fisheries Service.

Why it matters: The final September 26 assessment attributes the increase to higher juvenile production following favorable hydrology in Water Years 2023–2025 — Red Bluff monitoring has recorded its highest juvenile index in 26 years — and to warming South Delta temperatures hypothesized to shift juveniles toward more saline habitats; warm temperatures may also contribute to compromised fish condition. During the most recent salvage events (September 22–28), the export zone of influence was within the medium-low range under more negative Old and Middle River flows, extending up the OMR corridor as far north as Holland Cut and Mildred Island — a larger footprint than during the springtime events. Salvage effects are expected to remain non-lethal: all WY 2026 fish exceeded 280 mm, the size at which louver studies show 100 percent



passage success; predation risk for fish above 200 mm is minimal; and annual salvage since OMR management began in 2009 (0–44 fish) remains well below pre-2009 levels (0–333 fish). The assessment concludes that no information suggests the additional salvage poses risks to the population beyond those considered in the December 2025 Action 5 Record of Decision. The consultation outcome nonetheless bears watching for potential operational implications.

Authority action: Staff is monitoring through the Fish and Water Operations Group and coordinating with Reclamation.

Next steps: The cumulative take threshold reset on September 30 with the new water year; juvenile and subadult presence in the Delta through the fall means continued salvage is possible under the WY 2027 threshold. Staff will report on the consultation path forward with NMFS.

Action 5 Record of Decision (Executive Order 14181 Implementation)

What happened: In January 2025, President Trump issued Executive Order 14181, directing analysis of potential changes to operations under the December 2024 Record of Decision. On December 4, 2025, Reclamation executed a Record of Decision on the Long-Term Operations of the CVP and SWP (“Action 5”), updating the operations adopted in the December 2024 ROD and associated Biological Opinions. Action 5:²³

- Removes the Delta Smelt Summer and Fall Habitat Action (Fall X2), based on U.S. Fish and Wildlife Service findings that the action is not anticipated to have observable effects on delta smelt survival;
- Removes the early-implementation Delta export reduction associated with the Healthy Rivers and Landscapes (HRL) program, given uncertainty in the timing of potential State Water Board adoption of the HRL Program; and
- Updates Delta operating criteria to expand Old and Middle River (OMR) management to no more negative than –5,000 cfs, with a storm-flex action to –6,500 cfs, supported by predictive tools for real-time assessment of environmental conditions.

Why it matters: Modeling estimates a 250–400 TAF improvement in combined CVP/SWP export capability under Action 5, with the SWP share uncertain pending how the SWP operates under its Incidental Take Permit for California Endangered Species Act compliance. These changes bear directly on South-of-Delta supply reliability for member agencies.

Next steps: Additional analysis is underway on further operational changes that could improve water supply while maintaining species protections, and on alternative methods to address effects on ESA-listed species and advance recovery.

Trinity River Division ESA Consultation

What happened: On June 5, Reclamation transmitted a Cooperating Agency draft Supplemental EIS for the 2021 Reinitiation of Consultation on Long-Term Operation of the CVP and SWP – Trinity River Division.

Authority action: The Water Authority submitted comments in coordination with member agencies.

² <https://www.govinfo.gov/content/pkg/FR-2025-01-31/pdf/2025-02174.pdf>

³ https://www.usbr.gov/mp/nepa/nepa_project_details.php?Project_ID=54661



2. State Water Resources Control Board

Bay-Delta Plan – Phase 1 (Lower San Joaquin River and Southern Delta Salinity)

What happened: Following the Board's September 19, 2025 notice on the Draft Scientific Basis Report Supplement for the Tuolumne River Voluntary Agreement, the Water Authority provided comments. Procedural history for Phase 1 is summarized in Appendix A.⁴

Next steps: (i) final draft Staff Report for the Tuolumne River VA; (ii) Board workshop and consideration of the Tuolumne River VA; (iii) final draft EIR and regulation implementing Lower San Joaquin River flows and Southern Delta salinity; and (iv) Board consideration of the implementing regulation.

Bay-Delta Plan – Phase 2 (Sacramento/Delta)

What happened: Written comments on the August 19 final draft were filed by the September 18 deadline and posted publicly. On October 16, the Board released a revised final Plan with clarifications and minor revisions responding to those comments, followed by change sheets through October 27. Among other items, the change sheets set a June 1, 2027 deadline for HRL participants to submit final confirmation of the water rights participating in the VA pathway; establish processes for removing water rights from the VA pathway, with the regulatory provisions applying upon removal; specify permanent state water purchase volumes by water year type (65 TAF in critical years to 123 TAF in wet years); and add Delta Independent Science Board review to any staff recommendation to modify or terminate the VA pathway. The Board held its adoption meeting on October 28–29.

Why it matters: The Phase 2 framework will set the regulatory baseline — or the VA alternative to it — governing Delta outflows and interior flows that shape member agencies' supplies. The scope of VA participation will determine which pathway applies to which water rights. On September 4, Reclamation released a letter commenting on the draft Final Bay-Delta Plan, detailing key concerns, and Westlands Water District issued a press statement.

Authority action: On August 19, the Water Authority, Westlands Water District, and Friant Water Authority issued a joint statement that the HRL Program could be the best path forward for California if key concerns are addressed, emphasizing sound science, operational flexibility, and protection of both natural resources and water supply reliability. The Authority submitted provision-by-provision comments on the final draft by the September 18 deadline, coordinated with member agencies and HRL partners.

Next steps: If adopted, the Board will immediately begin developing a methodology to protect flows under both pathways; HRL participants must confirm participating water rights by June 1, 2027; and staff will return with analysis of the adopted Plan and pathway implications for member agencies.

3. Delta Conveyance Project and Delta Stewardship Council

U.S. Army Corps of Engineers Record of Decision

What happened: On July 8, the U.S. Army Corps of Engineers, Sacramento District, finalized its Record of Decision for the proposed Delta Conveyance Project, completing the agency's programmatic environmental review under NEPA. The decision allows USACE to begin evaluating future permit applications — including

⁴ Request from Authority staff



under Clean Water Act Section 404 and Rivers and Harbors Act Section 10 — for project components within its jurisdiction.

Delta Plan Certification of Consistency – Remanded Items

What happened: Following the Delta Stewardship Council’s April 23, 2026 determination — which dismissed or denied most appeals and remanded two policy areas — DWR submitted a Revised Certification of Consistency on July 24, 2026. For Delta Plan Policy ER P5, DWR describes its consideration and avoidance or mitigation of the potential for DCP facilities to improve habitat conditions for the invasive golden mussel; for Policy DP P2, DWR describes how it considered and reduced conflicts between the Twin Cities Complex and Sac Sewer’s Harvest Water project. DWR has determined the covered action is consistent with both policies.

Next steps: Three appeals of the revised certification (C20262) were filed, including by the Counties of San Joaquin, Solano, and Yolo, Central Delta Water Agency, and Local Agencies of the North Delta, with an effective date of August 24, 2026. The Council held its public hearing on the appeals on October 15 and took no action at the hearing; its determination is expected by December 9, 2026. Staff is monitoring the proceedings and the federal permitting phase.

6. U.S. Bureau of Reclamation – Reclamation Manual

The comment period on WTR 11-01, the Title XVI Water Reclamation and Reuse Program Projects feasibility study review process, closed October 29. o other Reclamation Manual documents are out for comment.

7. San Joaquin Valley Water Blueprint

Organizational background, mission, and strategic priorities appear in Appendix A. Developments this period:

- **Unified Water Plan:** The Blueprint and the California Water Institute at Fresno State, with Stantec, provided the Unified Water Plan for the San Joaquin Valley to Reclamation for review. The Plan integrates the adopted Groundwater Sustainability Plans of all 16 Valley subbasins across the eight-county region, quantifies a supply-demand gap of approximately 2.5 million acre-feet per year by 2040, and shows that coordinated investment can shift the land transition from an unmanaged loss of up to one million acres to a managed repurposing of up to 400,000 acres⁵.
- **Board strategic planning:** The Blueprint board held its strategic planning session on September 16, following release of the Unified Water Plan, to define the scope of future organizational activities — legislative advocacy, policy, and communications — for 2027 and beyond.
- **SB 72 / California Water Plan:** Senate Bill 72 (Caballero) directs DWR to identify and evaluate climate adaptation strategies to help meet water supply targets in the California Water Plan. The Blueprint has been invited to participate in DWR’s Adaptation Strategies “Test of Concept,” a pilot for the regional planning, technical evaluation, and engagement approach to be applied statewide for CWP 2033.
- **Groundwater banking study with Metropolitan Water District:** Metropolitan has approved the scope of work and budget, and the joint groundwater banking study is underway.

⁵ <https://waterblueprintca.com/information/the-unified-water-plan/>



- **Gubernatorial priorities letter:** A draft letter proposes a two-term water agenda for the next California administration, identifying an approximately 2.5 million acre-foot annual structural shortfall in the Valley and recommending a coordinated Unified Water Plan approach: drinking water reliability for disadvantaged communities; restored capacity in the California Aqueduct, Delta-Mendota Canal, and Friant-Kern Canal; groundwater recharge and demand reduction; large-scale storage and supply infrastructure; flood reduction; habitat restoration; farmland repurposing; and economic transition support — alongside streamlined permitting, sustainable funding, and science-based decision-making.⁶

8. San Joaquin Valley Water Collaborative Action Program

What happened: On May 29, the CAP released its “Vision for the San Joaquin Valley,” detailing desired outcomes, investment strategies, and policy reforms to transition the region toward sustainable water management for people, agriculture, and the environment. Phase II work groups (Safe Drinking Water; Sustainable Water Supplies; Ecosystem Health; Land Use, Demand Reduction and Land Repurposing; Implementation) continue meeting, and a Steering Committee subgroup is reviewing example prioritization tools to craft a work plan and initial criteria. Program background appears in Appendix A.

⁶ Request from Authority staff



Appendix A – Program Backgrounds (Standing Reference)

This appendix consolidates procedural history and organizational background that previously appeared in the body of each monthly report. It is refreshed quarterly or as programs materially change.

Bay-Delta Water Quality Control Plan Update

The State Water Board is updating its 2006 Water Quality Control Plan for the San Francisco Bay/Sacramento–San Joaquin Delta Estuary in two phases: Phase 1 (San Joaquin River flows and southern Delta salinity) and Phase 2 (Sacramento River and tributaries, Delta eastside tributaries, Delta outflows, and interior Delta flows). At its December 12, 2018 meeting, the Board adopted the Phase 1 amendments and Final Substitute Environmental Document⁷; at the same meeting, DWR and the Department of Fish and Wildlife presented proposed Voluntary Settlement Agreements on behalf of Reclamation, DWR, and the public water agencies they serve⁸. The Board did not adopt the proposals in lieu of the Phase 1 amendments, but directed staff to incorporate a Delta watershed-wide agreement as an alternative in a future comprehensive Plan update.

On July 18, 2022, the Board issued a Notice of Preparation and CEQA scoping for the regulation implementing Lower San Joaquin River flow and Southern Delta salinity objectives⁹; the Authority and member agencies provided scoping comments¹⁰. Phase 1 implementation was then delayed by litigation. On the Phase 2 side, the Board released a draft Plan in October 2024 and a revised draft in July 2025 reflecting public input; on September 16, 2025, the Board rescinded its noticed hearing, and subsequent workshops and a written comment period concluded in early 2026 (see body of report for current status).

San Joaquin Valley Water Blueprint

The Water Blueprint represents water users, districts, farmers, and municipalities across the Central Valley. Its problem statement: California faces a major water supply shortfall that could affect one million acres and cost \$7.2 billion in farm revenue and 85,000 jobs statewide. The Blueprint advocates a combination of infrastructure investment and policy change to capture excess wet-year flows and replenish aquifers. Mission: “Unifying the San Joaquin Valley’s voice to advance an accessible, reliable solution for a balanced water future for all.” Strategic priorities (current plan period, running through 2026): advocacy; groundwater quality and disadvantaged communities; land use and environmental planning; outreach and communications; SGMA implementation; water supply goals; and governance, operations, and finance.

⁷ Available at https://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2018/rs2018_0059.pdf.

⁸ Available at <https://water.ca.gov/-/media/DWR-Website/Web-Pages/Blogs/Voluntary-Settlement-Agreement-Meeting-Materials-Dec-12-2018-DWR-CDFW-CNRA.pdf>.

⁹ Available at https://www.waterboards.ca.gov/public_notices/notices/20220715-implementation-nop-and-scoping-dwr-baydelta.pdf

¹⁰ Request from Authority staff



San Joaquin Valley Water Collaborative Action Program

The CAP Plenary Group adopted work groups to implement the CAP Term Sheet, adopted November 22, 2022¹¹. The Bureau of Reclamation currently funds the CAP, supporting overall process management and facilitation and development of a prioritization tool for use by CAP participants, agencies, stakeholders, and the public in evaluating policy recommendations, programmatic changes, and projects to achieve sustainable water management in the San Joaquin Valley.

San Joaquin River Restoration Program – Resources

Restoration Flows information: restoresjr.net/flows. Restoration Administrator recommendations: restoresjr.net/flows/flow-scheduling.

¹¹ Request from Authority staff

Assessment of CVP and SWP Delta Operations on Green Sturgeon

September 26, 2026

Executive Summary

On June 13, the cumulative salvage of 15 green sturgeon exceeded the incidental take statement in the 2024 NMFS Biological Opinion of 14 fish per water year. On September 25, there were two fish salvaged increasing cumulative salvage to 44 green sturgeon. Juvenile green sturgeon are typically in the Delta year-round and salvaged at low levels. This is the second year in a row that the annual incidental take limit was exceeded. Salvage and release effects are expected to be non-lethal.

During the most recent salvage event, the zone of influence (ZOI) from export pumping was within the medium-low range with more negative Old and Middle River flows. Juvenile green sturgeon reside and migrate between Delta habitats and regions to find optimal physiological conditions, which may expose them to salvage facilities.

Variation in green sturgeon salvage may reflect year-to-year differences in spawning success related to river flows, as well as Delta conditions affecting juvenile dispersal and vulnerability to entrainment. No information, including literature, observation, or modeling suggests the additional salvage poses risks to the population beyond those considered in the 2025 LTO Record of Decision (ROD).

Operational and Regulatory Conditions

Green sturgeon annual cumulative salvage exceeded the annual (14 individuals) incidental take limit (ITL) set by the 2024 NMFS Biological Opinion on June 13 when the salvage total reached 15 individuals. The cumulative salvage ITL threshold resets on September 30, 2026.

Biology Distribution and Evaluation of Green Sturgeon

Delta Life Stages

Juvenile/Adult/Subadult

Historic Information

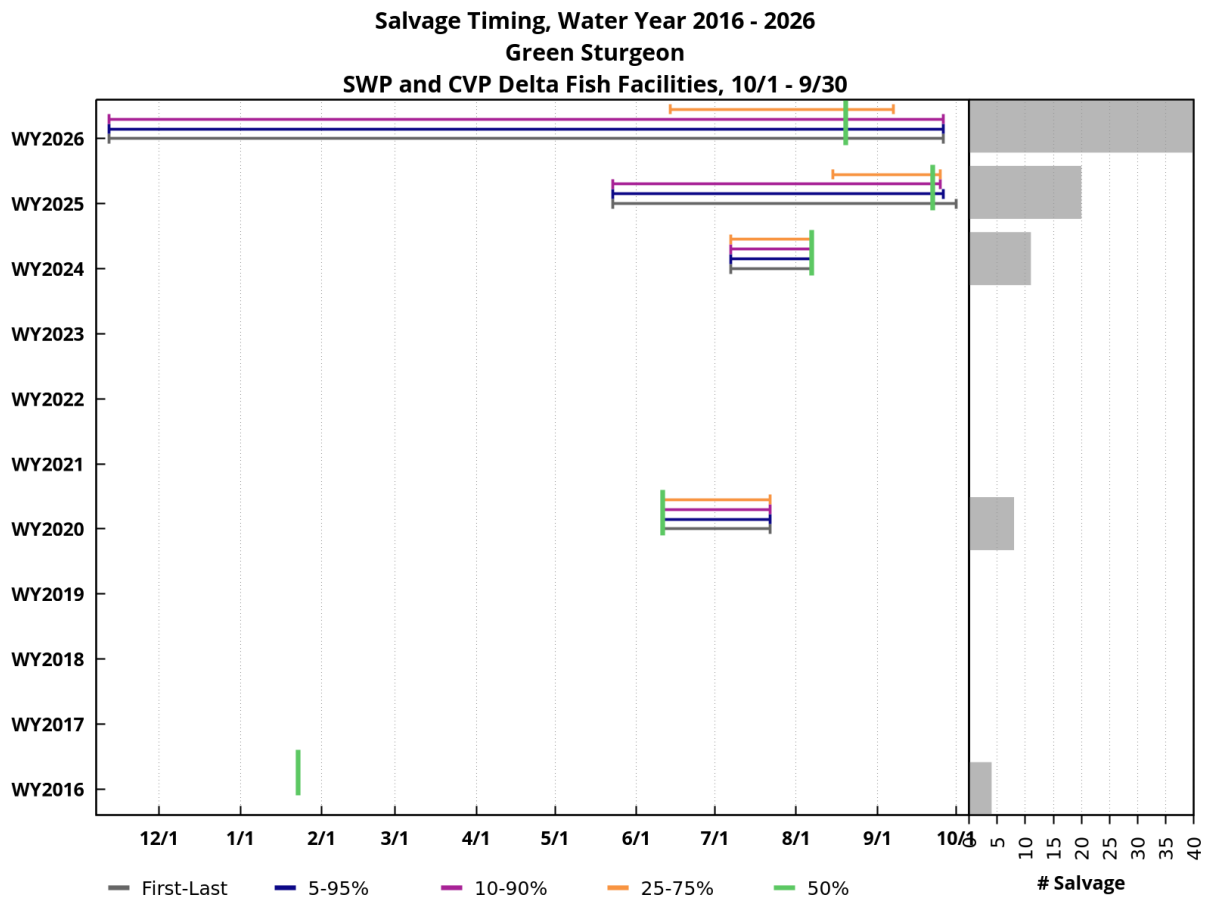
Subadult/Adult: Most abundant during spring spawning migration period of March through May, and post spawning out-migration periods May through June (early outmigrants) or September through January (late outmigrants) depending on interannual flow conditions in the spring and winter (Table 1). Adults are present year-round to a lesser extent in the Delta, but mainly in San Pablo Bay. In 2021, the adult abundance estimate was 13,161 (Dudley et al. 2026, NMFS 2021).

Year	Early Downriver Migration				Late Downriver Migration			
	Count	First Date	Mean Date	Last Date	Count	First Date	Mean Date	Last Date
2007	1	Aug 17	–	–	3	Dec 7	Dec 18	Jan 6
2008	0	–	–	–	–	–	–	–
2009	0	–	–	–	3	Oct 14	Nov 16	Jan 14
2010	0	–	–	–	3	Dec 7	Dec 9	Dec 11
2011	1	Jun 28	–	–	1	Jan 23	–	–
2012	10	May 24	Jun 14	Jul 24	7	Nov 21	Nov 25	Dec 2
2013	3	Jul 1	Jul 7	Jul 12	10	Dec 15	Feb 5	Feb 14
2014	3	May 22	Jun 11	Jul 26	10	Dec 1	Dec 4	Dec 6
2015	4	May 20	Jun 23	Jul 26	16	Oct 15	Dec 14	Jan 9
2016	9	Apr 15	May 21	Jul 7	17	Sep 22	Nov 13	Dec 12
2017	6	May 18	Jun 9	Jul 7	10	Nov 22	Jan 14	Mar 24

Table 1. Downriver adult migration based on early and late outmigration timing identified in telemetry analysis (Source: USBR 2024).

Juvenile: Age-1 through Age-3 juveniles are present year-round and are detected across Delta regions sampled in resident and migratory fish monitoring surveys. This life stage is migrating, sheltering, foraging, and rearing in the Delta with greater detection in the winter and spring than in the summer and fall (Poletto et al. 2013, Miller et al. 2020, and Thomas et al. 2021). Juveniles tagged with acoustic tags in the Sacramento River near Sherman Island were detected as far upstream as the Cache Slough complex, in the San Joaquin River at the Antioch Bridge, and in Threemile, Horseshoe Bend, and Montezuma Sloughs (Beccio 2021). Seasonal abundance at juvenile acoustic tagging program primary sampling site (near Sherman Island) appears to be highest during summer based on capture and telemetry data. Residence time at the primary sampling site for individual fish ranges from one day to over one year, and telemetry data show outmigration times from the primary sampling site to the Pacific Ocean ranged from 27 to 552 days. Juvenile green sturgeon develop the osmoregulatory capacity to move out of freshwater by 1.5 years (~750mm, Allen and Cech 2007) and are hypothesized to migrate into estuarine conditions to maintain optimal growth. In 2021, the juvenile abundance estimate was 4,387 (NMFS 2021).

Salvage: Since 2008, juvenile salvage has occurred in Water Years 2011, 2016, 2017, 2020, 2024, 2025 and 2026 (Figure 1).



www.cbr.washington.edu/sacramento/

08 Oct 2026 15:32:11 PDT

Figure 1. Historical salvage timing, Water Years 2016-2026. Source: SacPAS Salvage Timing Query (https://www.cbr.washington.edu/sacramento/data/query_salvage_hrt.html).

Current Salvage Information

Cumulative expanded salvage of green sturgeon in WY 2025 and WY 2026 was 20 and 44 fish, respectively (Table 2). In WY 2026, 6 green sturgeon were salvaged at the CVP and 7 were salvaged at the SWP facilities. Total length size of the fish ranged from 347-597 mm and based on Von Bertalanffy growth curves developed in Ulaski and Quist (2021) for Sacramento green sturgeon, the back-calculated ages of these individuals ranged from Age 1 to Age 3.

Table 2. Details for Green Sturgeon Salvage in WY 2025 and WY 2026. "*" indicates mortality.

Date	Facility	Water Year	Catch (n fish)	Salvage (Expanded)	Size (TL)	Age Range (years)
2025-05-22	CVP	WY 2025	1	4	442	1-2
2025-08-14	SWP	WY 2025	1	2	447	1-2
2025-09-21	CVP	WY 2025	1	4	526	1-3
2025-09-24	SWP	WY 2025	2	8	430-497	1-3
2025-09-25	SWP	WY 2025	1	1	500	1-3
2025-09-30	SWP	WY 2025	1	1	431	1-2
2025-11-12	SWP	WY 2026	1	4	496	1-2
2025-11-16	SWP	WY 2026	1	2	507	1-3
2026-03-31	SWP	WY 2026	1	1	597	1-3
2026-04-15	CVP	WY 2026	1	4	445	1-2
2026-06-13	CVP	WY 2026	1	4	376	1
2026-08-05	SWP	WY 2026	1	4	436	1-2
2026-08-13	SWP	WY 2026	1	4	396	1
2026-08-19	CVP	WY 2026	1	4	374	1
2026-08-20	SWP	WY 2026	1	1	495	1-3
2026-08-21	SWP	WY 2026	1	4	491	1-3
2026-09-06	CVP	WY 2026	1	4	438	1-3
2026-09-25*	CVP	WY 2026	1	4	370-415	1-3
2026-09-25	CVP	WY 2026	1	4	411-460	1-3

Fish Monitoring/Surveys

Fish monitoring survey catch of green sturgeon has increased in WY 2025 and 2026 (Table 3). The size of these fish reflect Age 1 to 4 year old fish, based on Ulaski and Quist (2021) and include these detections:

CDFW Juvenile Sturgeon monitoring and tagging (Marc Beccio, pers. comm.):

- 09/15/2026, 1 juvenile green sturgeon tagged in Grizzly Bay, 520 mm FL (1-4 year old). Weight 750 g, estimated brood year 2025.
- 09/15/2026, 1 juvenile green sturgeon tagged in Grizzly Bay, 580 mm FL (1-4 year old). Weight 790 g, estimated brood year 2025.

- 09/15/2026, 1 juvenile green sturgeon tagged in Grizzly Bay, 480 mm FL (1-4 year old). Weight 510 g, estimated brood year 2025.
- 09/15/2026, 1 juvenile green sturgeon tagged in Grizzly Bay, 470 mm FL (1-4 year old). Weight 560 g, estimated brood year 2025.
- 09/22/2026, 1 juvenile green sturgeon tagged in Grizzly Bay, 530 mm FL (1-4 year old). Weight 890 g, estimated brood year 2025.

Water Year	Salvage Facility Catch	Expanded Salvage	CDFW Bay Study Captures	USFWS Red Bluff Green Sturgeon RST CPUV (fish/ac-ft)
2010	0	0	2	n/a
2011	2	14	0	n/a
2012	0	0	0	n/a
2013	0	0	3	2.86
2014	0	0	4	2.98
2015	0	0	1	3.25
2016	1	4	0	30.35
2017	1	4	1	29.79
2018	0	0	2	0.41
2019	0	0	1	22.19
2020	2	8	0	1.58
2021	0	0	0	12.32
2022	0	0	1	0.02
2023	0	0	0	37.05
2024	3	11	3	9.10
2025	7	20	4	2.88
2026	13	44	TBD	11.37 (Preliminary)

Table 3. Historical Green Sturgeon Catch and Catch Per Unit Volume (CPUV).
[filelib.wildlife.ca.gov - /Public/salvage/Salmon Monitoring Team and Sturgeon/](http://filelib.wildlife.ca.gov/-/Public/salvage/Salmon%20Monitoring%20Team%20and%20Sturgeon/)

Evaluation

- 1) At current operations is salvage of green sturgeon likely to continue?

Possibly. Based on historical salvage data (Figure 1), salvage has occurred through summer and fall months. Juvenile and subadult green sturgeon are observed in the Delta and Bay in the Fall (Miller et al. 2020, Figure 2-3). Limited salvage detections occur during the winter and spring. Biological evaluation of the LTO found that green sturgeon salvage remained low and modeling found it could increase by up to 20% (one additional fish estimated) in Above Normal years (Reclamation 2025, Action 5_Record of Decision, Attachment 1_Exhibit 4 Table I.2-21). The magnitude of these changes falls within the natural variability accounted for in NMFS modeling and within the range of effects evaluated in the NMFS 2024 LTO Biological Opinion (section 7.5.1.3.9 Salvage Density, page 557).

2) Will continued salvage of Green Sturgeon have population level effects?

With limited recent juvenile or adult abundance data, there is high uncertainty regarding the magnitude of green sturgeon salvage and whether it has a population level effect. However, salvage has been lower since LTO operations were modified in 2009 to limit Old and Middle River flows to no more negative than -5,000 cfs (NMFS 2009), and salvage at these lower levels was considered a low threat to the population in the most recent 5-year status review (NMFS 2021). Between 1993 and 2009, before LTO operations were modified to no more than -5000 OMR, green sturgeon salvage occurred at higher levels (0-333 fish). Between 2009-2025, cumulative salvage was lower (0-26 fish). During that period between 2016-2020, salvage (annual salvage= 0 to 8 fish) was lower than the recent five years (2021-2026, annual salvage= 0-44) and considered a low threat in the most recent 5-year status review (NMFS 2021).

Available observations suggest that green sturgeon survive collection, handling, and holding at the salvage facilities, although post-release survival in the Bay-Delta is not measured or monitored. Steel et al. (2022) demonstrated that the rate at which green sturgeon successfully avoided loss through louvers similar to the 1-inch louvers at the salvage facility increased with fish size. Rates ranged from 43%–99% for sturgeon less than 120 mm, with the lowest rate occurring at the highest approach velocity tested. The absence of fish smaller than 120 mm in salvage does not demonstrate that they were not entrained and fish this size are the least likely to be guided into the salvage facilities and therefore the most likely to be lost undetected. In recent years, green sturgeon smaller than 120mm have not been observed in Delta fish monitoring surveys or salvage, although these surveys and salvage frequently capture fish smaller than 120mm. Passage success rates were 99% for sturgeon exceeding 120 mm in length and 100% for sturgeon greater than 280 mm (Steel et al. 2022, Table 1). Given that all sturgeon salvaged in WY 2026 were greater than 280 mm and fish smaller than 120mm have not been observed in the Delta or salvage facilities, these findings suggest that unobserved loss of sturgeon through the louvers towards the pumping plant was likely negligible.

One mortality was observed during salvage operations at the CVP Tracy Fish Collection Facility on September 25, 2026 (Table 2). The fish biologist on duty described the fish as emaciated and barely gilling when collected, and it expired a few minutes later (R. Reyes, USBR, pers. comm.). The fish's emaciated condition suggests it was already compromised before reaching the facility, although the cause of death was not determined. Additionally, green sturgeons held in holding tanks looked healthy prior to release, and all sturgeon salvaged in WY2026 were successfully released alive in the Delta (R. Reyes, USBR, pers comm.).

Monthly predator removal activities remove 99% of predators from CVP bypasses and the secondary channel and only 1 green sturgeon (7/30/2024, 460mm, released healthy) has been observed in these activities since monthly removals began in 2017. Laboratory studies found loss and predation of green sturgeon of the sizes present in the salvage facilities to be extremely low. Baird et al. (2020) indicated that green sturgeon larger than 200 mm face minimal predation risk from common predators such as striped bass and largemouth bass present adjacent to and in salvage facilities.

3) *Is increased facility entrainment in WY 2026 a result of Delta hydrodynamics due to Delta operations or increased population size of green sturgeon due to ongoing population recovery?*

Favorable spring hydrologic conditions during Above Normal (AN) and Wet (W) water years in 2023, 2024, and 2025 may have promoted increased survival rates for early life stages in these years, contributing to increased Age-1+ year old green sturgeon presence in the Delta. Dudley et al. (2026; Figure 6) noted that there is an increasing number of spawners and potentially greater recruitment occurring every 4-year spawning cycle (e.g. brood years 2026, 2022, etc.), which could suggest greater spawner abundance around the dominant year (e.g. on the shoulders of these brood years) and result in greater juvenile production. Annual Red Bluff green sturgeon (CPUV since 2023) has included the highest recorded estimate in 26 years of monitoring (Poytress & McCraney 2025; Table 3), with 4,290 larvae and 26 juveniles caught, and continued larval recruitment in the past few years. Based on length, the fish salvaged this year were likely Age 1-3 year old fish hatched during these favorable spring hydrological conditions (WY 2023- WY 2025).

Green sturgeon salvage this summer may have been influenced by different environmental attributes affecting movement behavior. Based on the real-time hydrodynamic modeling from September 22 through September 28 (Figure 4), the ZOI, which indicates the spatial scale of hydrologic alteration caused by CVP and SWP exports, extended up the Old and Middle River corridor as far north as Holland Cut and Midred Island. This footprint was greater than springtime footprints during earlier salvage events.

An environmental attribute that affects fish behavior is temperature. South Delta water temperatures remained elevated through the summer and began to decline only in August and September (Figure 5), and these seasonal thermal conditions are hypothesized to shape habitat use in this region. Temperatures in September in the South Delta are higher than the relatively narrow thermal range of 15–19°C (Mayfield and Cech 2004, as summarized in Heublein et al. 2017), which laboratory studies indicate reflect when juveniles exhibit optimal growth, metabolic performance, and swimming ability. Taken together, fish salvaged over the summer may encounter multiple co-occurring water quality factors when their habitat is constrained to a limited portion of the South Delta, and these fish may be migrating to find more favorable thermal and salinity conditions. The warm water temperatures may also contribute to the emaciated juvenile green sturgeon being salvaged.

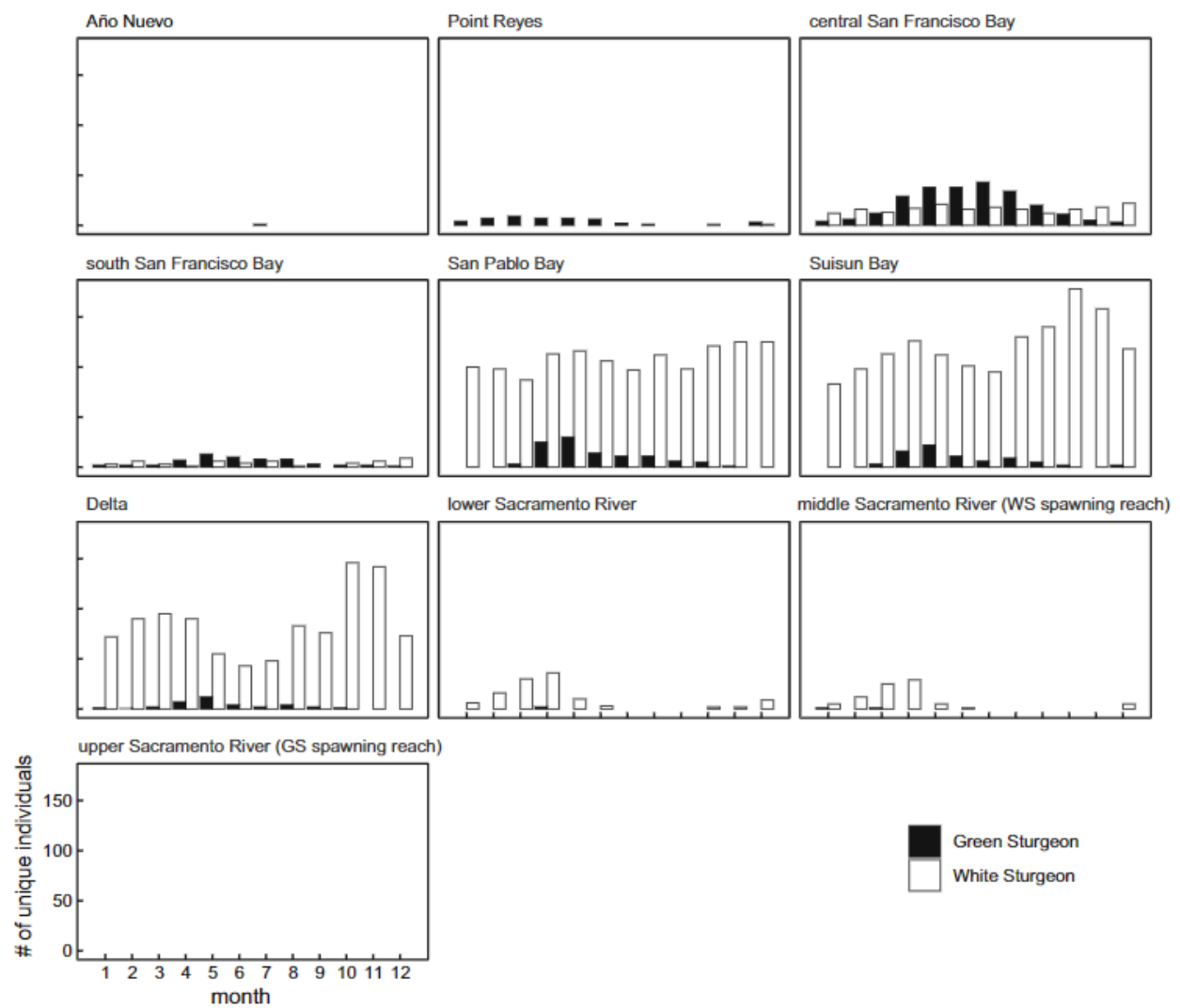


Figure 2. Subadult Green Sturgeon Presence Across all Months by River Reach (Source: Miller et al. 2020).

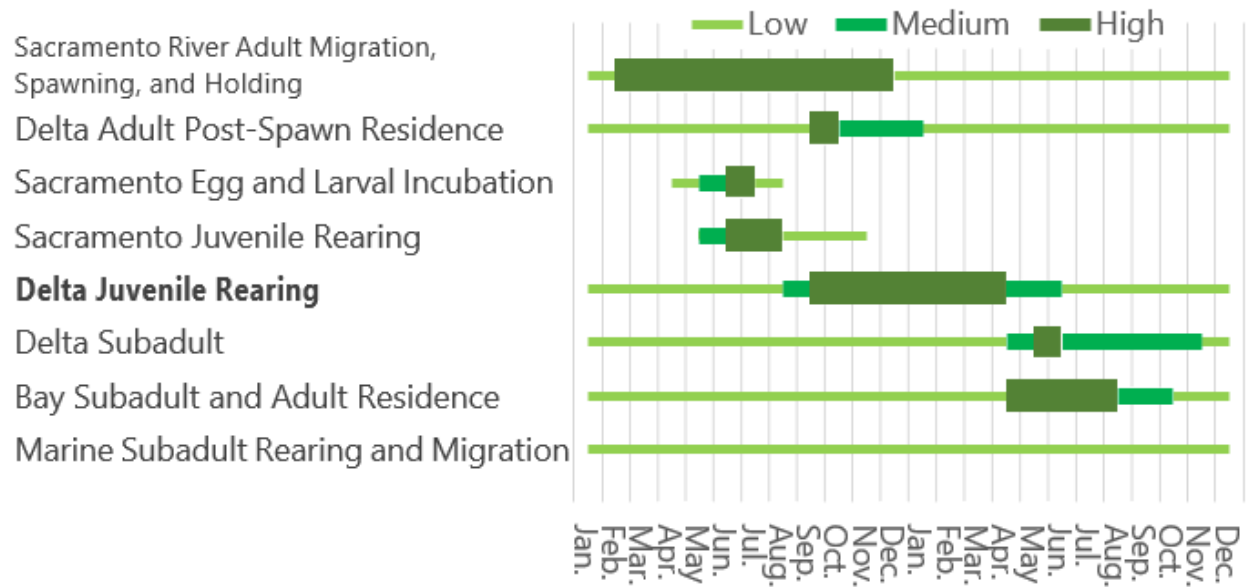


Figure 3. Temporal Life Stage Domains for Green Sturgeon (Source: Figure D-8 from LTO EIS Appendix AB-D)

0.75 Contour
Week 1 (09/22/2026 - 09/28/2026)
Sacramento Flow = 16,996 cfs
San Joaquin Flow = 648 cfs
Inflow bin = medlo

OMR Flow (cfs)
..... -10300

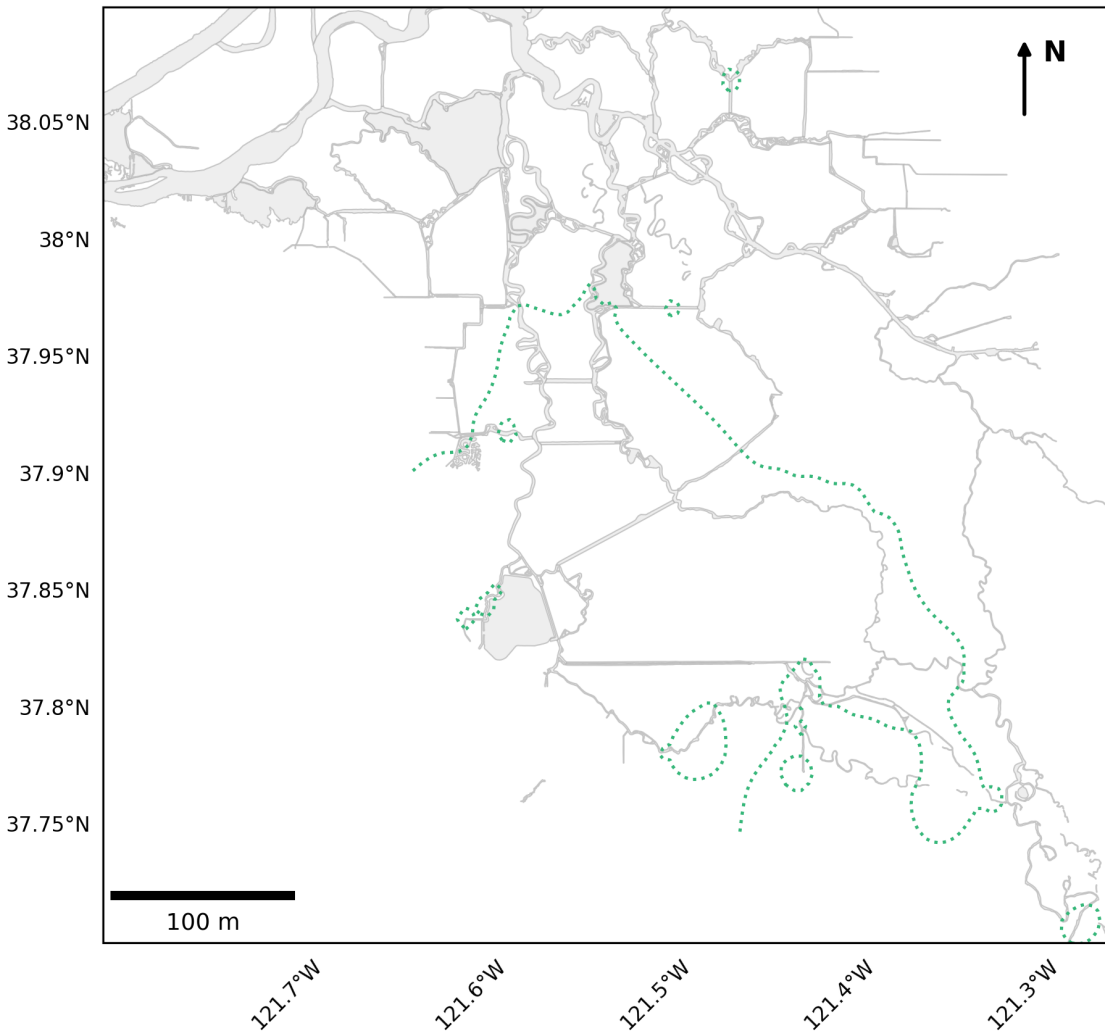


Figure 4. Contour maps delineating Delta export zone of influence under negative OMR Flow (cfs -10,300, during the week of 09/22/2026-09/28/2026). Export pumping was within the medium-low range with more negative Old and Middle River flows. (Source: Stantec 2026, USBR 2024).

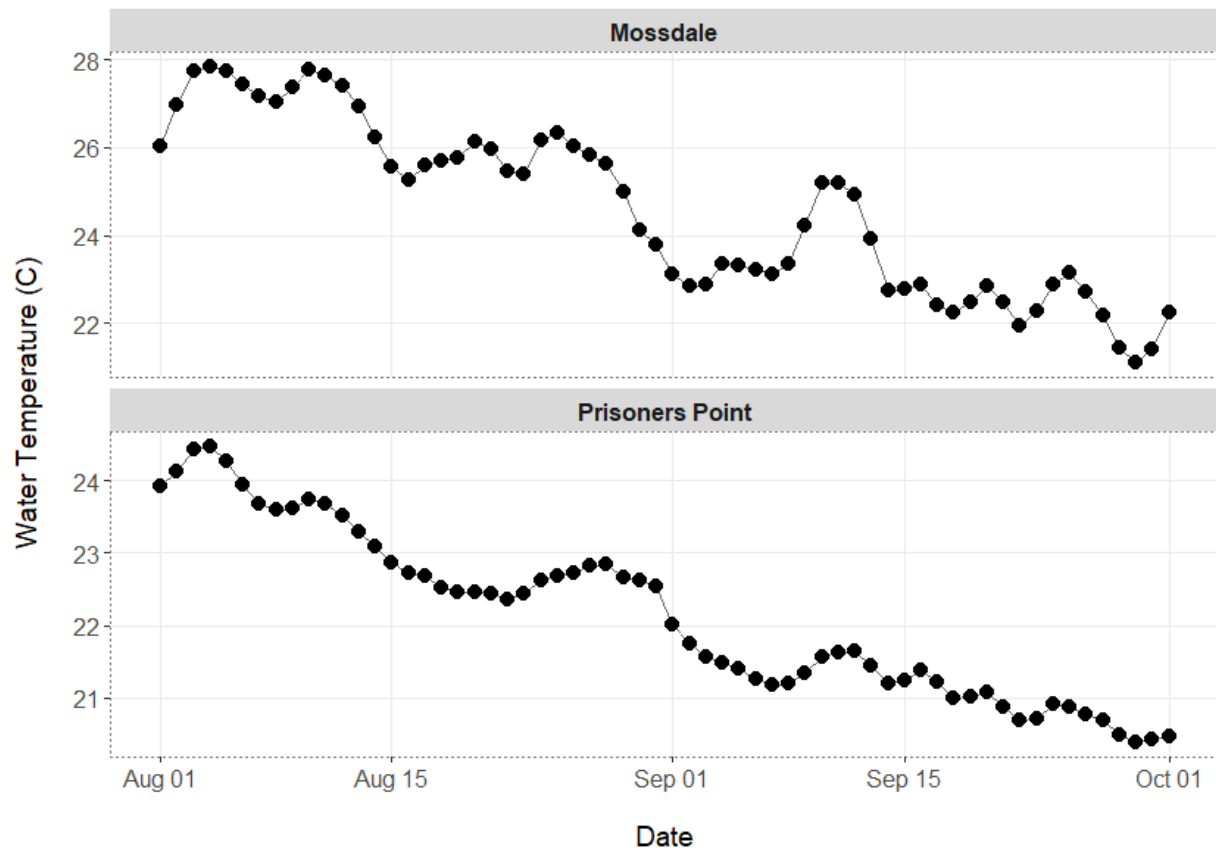


Figure 5. Daily water temperatures (°C) at Mossdale and Prisoners Point in the Sacramento-San Joaquin Delta, August 1- October 1, 2026.

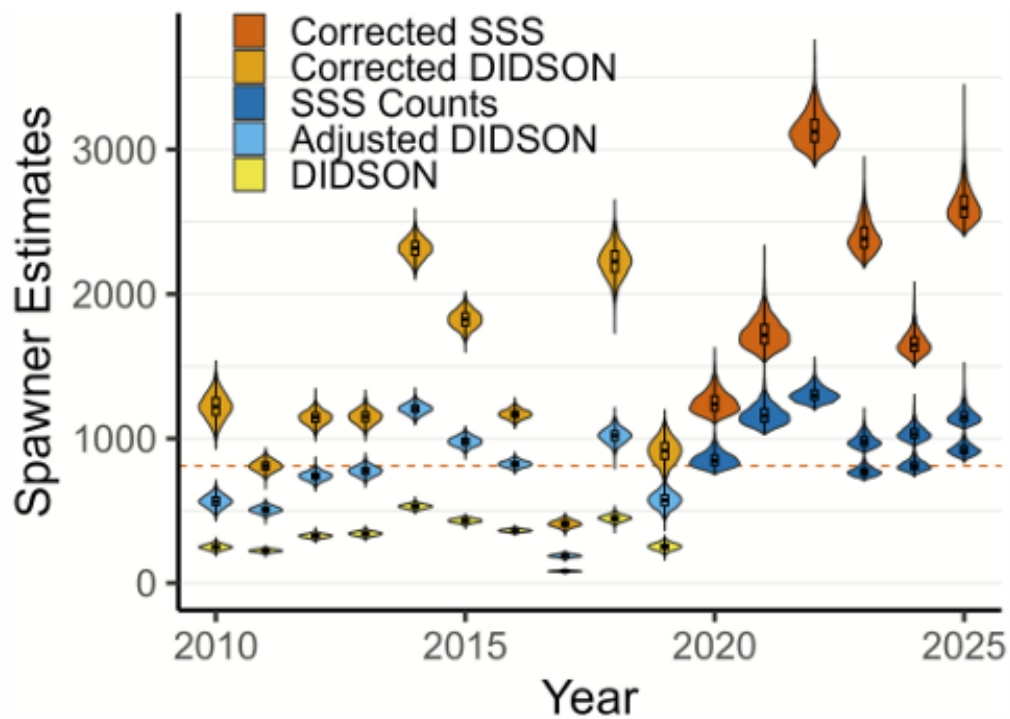


Figure 6. Time series of spawner estimates (Source: Dudley et al. 2026).

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