Santa Clara Valley Water District
Stream Planning & Operations Committee Meeting

HQ. Bldg. Boardroom, 5700 Almaden Expressway, San Jose, California
Join Zoom Meeting: https://valleywater.zoom.us/j/98460637852

SPECIAL MEETING
AGENDA

Thursday, March 12, 2026
1:00 PM

District Mission: Provide Silicon Valley safe, clean water for a healthy life, environment and economy.

BOARD COMMITTEE MEMBERS:
Shiloh Ballard, Chairperson
Director District 2
Tony Estremera, Vice Chairperson
Director District 6
John Varela, Member
Director District 1

All public records relating to an open session item on this agenda, which are not exempt from disclosure pursuant to the California Public Records Act, that are distributed to a majority of the legislative body, will be available to the public through the legislative body agenda web page at the same time that the public records are distributed or made available to the legislative body. Santa Clara Valley Water District will make reasonable efforts to accommodate persons with disabilities wishing to participate in the legislative body's meeting. Please advise the Clerk of the Board Office of any special needs by calling (408) 630-2277.

COMMITTEE LIAISONS:
John Bourgeois
jbourgeois@valleywater.org
Stephanie Simunic
(COB Liaison)
ssimunic@valleywater.org

Note: The finalized Board Agenda, exception items and supplemental items will be posted prior to the meeting in accordance with the Brown Act.

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To maximize public safety while still maintaining transparency and public access, members of the public have an option to participate by teleconference/video conference or attend in-person. To observe and participate in the meeting by teleconference/video conference, please see the meeting link located at the top of the agenda. If attending in-person, you are required to comply with Ordinance 22-03 - AN ORDINANCE OF THE SANTA CLARA VALLEY WATER DISTRICT SPECIFYING RULES OF DECORUM FOR PARTICIPATION IN BOARD AND COMMITTEE MEETINGS located at https://s3.us-west-2.amazonaws.com/valleywater.org.if-us-west-2/f2-live/s3fs-public/Ord.pdf

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- Members of the Public are encouraged to review our overview on joining Valley Water Board Meetings at: https://www.youtube.com/watch?v=TojJpYCxXm0

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1. CALL TO ORDER:

1.1. Roll Call.

2. TIME OPEN FOR PUBLIC COMMENT ON ANY ITEM NOT ON THE AGENDA.
Notice to the public: Members of the public who wish to address the Board/Committee on matters not listed on the agenda may do so by completing a Speaker Card and submitting it to the Clerk, or by using the "Raise Hand" feature within the Zoom meeting application to request recognition. Speakers will be acknowledged by the Board/Committee Chair in the order requests are received and, when recognized, will be granted speaking access to address the Board/Committee.

Public comments shall be limited to three (3) minutes per speaker, or such other time as determined by the Chair. State law does not permit the Board/Committee to take action on, or engage in extended discussion of, any item not appearing on the posted agenda, except as otherwise authorized under applicable law. If Board/Committee action is requested, the matter may be scheduled for consideration at a future meeting.

All public comments requiring a response will be referred to staff for a written reply. The Board/Committee may take action on any item of business appearing on the posted agenda.

3. ELECTION OF OFFICERS:

3.1. Election of 2026 Stream Planning and Operations Committee (SPOC) Chairperson and Vice Chairperson. 26-0260

Recommendation: Nominate and elect the 2026 SPOC Chairperson and Vice Chairperson.

Manager: Wendy Ho, 408-630-3874

Est. Staff Time: 5 Minutes

4. APPROVAL OF MINUTES:

4.1. Approval of November 18, 2025 Stream Planning Operations Committee (SPOC) Minutes. 26-0259

Recommendation: Approve the minutes.

Manager: Wendy Ho, 408-630-3874

Attachments: Attachment 1: 11182025 SPOC Minutes

Est. Staff Time: 5 Minutes

5. REGULAR AGENDA:

5.1. Receive and Discuss Updates on Fish and Aquatic Habitat Collaborative Effort (FAHCE) Implementation. 26-0242

Recommendation: Receive an update on the implementation of FAHCE.

Manager: John Bourgeois, 408-630-2990

Attachments: Attachment 1: FAHCE Fish Habitat Restoration Prog. Impl. Plan
Attachment 2: PowerPoint

Est. Staff Time: 20 Minutes

5.2. Receive and Accept the 2026 Proposed Stream Planning and Operations Committee (SPOC) Work Plan, Provide Feedback on Upcoming Discussion Items, and discuss a 2026 SPOC Meeting Schedule. 26-0261

Recommendation: Receive and accept the 2026 Proposed SPOC Work Plan, provide feedback on upcoming discussion items, and discuss a 2026 SPOC meeting schedule.

Manager: Wendy Ho, 408-630-3874

Attachments: Attachment 1: 2026 SPOC Work Plan

Est. Staff Time: 5 Minutes

6. CLERK REVIEW AND CLARIFICATION OF COMMITTEE REQUESTS.

This is an opportunity for the Clerk to review and obtain clarification on any formally moved, seconded, and approved requests and recommendations made by the

Committee during the meeting.

7. ADJOURN:

7.1. Adjourn. The Next Regular/Special Meeting is TBD.

Santa Clara Valley Water District

File No.: 26-0260

Agenda Date: 3/12/2026
Item No.: 3.1.

COMMITTEE AGENDA MEMORANDUM
Stream Planning and Operations Committee

Government Code § 84308 Applies: Yes ☐ No ☒
(If "YES" Complete Attachment A - Gov. Code § 84308)

SUBJECT:
Election of 2026 Stream Planning and Operations Committee (SPOC) Chairperson and Vice Chairperson.

RECOMMENDATION:
Nominate and elect the 2026 SPOC Chairperson and Vice Chairperson.

SUMMARY:
SPOC was enacted by the Board during the November 10, 2020 Board Meeting after being an ad hoc committee for the Fish and Aquatic Habitat Collective Effort (FAHCE). The Committee purpose is:

1. Tracking the progress of Valley Water and other parties (Initialing Parties) of the FAHCE Settlement Agreement in completing requirements enabling dismissal of the water rights complaint and commencement of the restoration program;

2. Identifying and recommending actions the Board can take to ensure expeditious completion of the requirements defined in Purpose 1, including engagement with appointed boards and senior officials of the other Initialing Parties; and

3. Identifying and tracking progress of District and non-District activities that may affect the FAHCE Settlement Agreement and implementation.

The Committee consists of three Board members. Officers of the Committee include the Committee Chairperson and Vice Chairperson, who serve as the Committee's primary and secondary facilitators and representatives. The Committee Chairperson and Vice Chairperson are elected by the Committee annually.

The following is a summary of SPOC Chairperson and Vice Chairperson terms for the last five years.

2021 - Director Barbara Keegan, Chairperson
2022 - Director Linda LeZotte, Chairperson
2023 - Director Barbara Keegan, Chairperson

2024 - Director Barbara Keegan, Chairperson. Director Tony Estremera, Vice Chairperson
2025 - Director Shiloh Ballard, Chairperson. Director Tony Estremera, Vice Chairperson

ENVIRONMENTAL JUSTICE IMPACT:
The election of Chairperson and Vice Chairperson is not subject to environmental justice analysis.

ATTACHMENTS:
None.

UNCLASSIFIED MANAGER:
Wendy Ho, 408-630-3874

Santa Clara Valley Water District

File No.: 26-0259

Agenda Date: 3/12/2026
Item No.: 4.1.

COMMITTEE AGENDA MEMORANDUM
Stream Planning and Operations Committee

Government Code § 84308 Applies: Yes ☐ No ☒
(If "YES" Complete Attachment A - Gov. Code § 84308)

SUBJECT:
Approval of November 18, 2025 Stream Planning Operations Committee (SPOC) Minutes.

RECOMMENDATION:
Approve the minutes.

SUMMARY:
A summary of Committee discussions, and details of all actions taken by the Committee, during all open and public Committee meetings, is transcribed and submitted for review and approval.

Upon Committee approval, minutes transcripts are finalized and entered into the District's historical records archives and serve as historical records of the Committee's meetings.

ENVIRONMENTAL JUSTICE IMPACT:
Approval of minutes is not subject to environmental justice analysis.

ATTACHMENTS:
Attachment 1: 11182026 SPOC Minutes

UNCLASSIFIED MANAGER:
Wendy Ho, 408-630-3874

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STREAM PLANNING AND OPERATIONS COMMITTEE

DRAFT MINUTES

SPECIAL MEETING AGENDA
TUESDAY, NOVEMBER 18, 2025
12:00 P.M.

(Paragraph numbers coincide with agenda item numbers)

1. CALL TO ORDER:

A special meeting of the Santa Clara Valley Water District (Valley Water) Stream Planning and Operations Committee (SPOC) was called to order by Chairperson Ballard in the Valley Water Headquarters Building Boardroom at 5700 Almaden Expressway, San Jose, California, and by Zoom teleconference, at 12:03 p.m.

1.1 Roll Call.

Committee members in attendance were District 2 Director Shiloh Ballard, Chairperson presiding, and District 6 Director Tony Estremera, constituting a quorum of the Committee.

Staff members in attendance were: Aaron Baker, Lisa Bankosh, John Bourgeois, Andrew Garcia, Samantha Greene, Wendy Ho, Susana Inda, Bassam Kassab, Yoriko Kishimoto, Candice Kwok-Smith, Julio Maravilla, Ryan McCarter, Nicole Merritt, Wendy Murphy, Eric Olson, Carlos Orellana, Mark Poole, Lisa Porcella, Stephanie Simunic, Greg Williams.

Public in attendance were: Director John Varela (District 1).

2. TIME OPEN FOR PUBLIC COMMENT ON ANY ITEM NOT AN AGENDA.

Chairperson Ballard declared time open for public comment on any item not on the agenda. There was no one who wished to speak.

3. APPROVAL OF MINUTES:

3.1. Approval of June 11, 2025 Stream Planning Operations Committee (SPOC) Minutes.

Recommendation: Approve the minutes.

The Committee considered the attached minutes of the June 11, 2025 Committee meeting.

Public Comments: None.

It was moved by Vice Chairperson Estremera, and seconded by Chairperson Ballard, that the minutes be approved.

4. REGULAR AGENDA:

4.1. Receive a Summary of the June 11, 2025, Tour of the Uvas Creek, Bolsa Road Fish Passage Improvement and Geomorphic Restoration Site.

Recommendation: **Receive a Summary of the June 11, 2025, Tour of the Uvas Creek, Bolsa Road Fish Passage Improvement and Geomorphic Restoration Site.**

Lisa Porcella reviewed the information on this item, per the attached Committee Agenda Memo, and the corresponding presentation contained in Attachment 1 and was available to answer questions.

Public Comments: None.

Conducting annual Committee tours of Valley Water sites was suggested by Committee members and staff.

The Committee received the information and took no formal action.

4.2. Receive Updates on Fish and Aquatic Habitat Collaborative Effort (FAHCE) Implementation.

Recommendation: **Receive updates on FAHCE implementation.**

Lisa Porcella reviewed the information on this item, per the attached Committee Agenda Memo, and the corresponding presentation contained in Attachment 1 and was available to answer questions.

Public Comments: None.

The Committee received the information about the project, thanked staff for their efforts, and took no formal action.

4.3. Receive Update on Anderson Dam Seismic Retrofit Project and Incorporation of Fish and Aquatic Habitat Collaborative Effort (FAHCE) Conservation Measures for Coyote Creek.

Recommendation: **Receive update on Anderson Dam Seismic Retrofit Project and incorporation of FAHCE conservation measures for Coyote Creek.**

Wendy Murphy and Samantha Greene reviewed the information on this item, per the attached Committee Agenda Memo, and the corresponding presentation contained in Attachment 1 and were available to answer questions.

Public Comments: None.

The Committee discussed the following with staff input including: continuing coordination with regulatory agencies to ensure technical consistency and environmental compliance on the project, project land ownership, maintaining the waterfowl and riparian environments, agreement of using alternative six in the Draft Feasible Alternative Report for the Ogier Ponds Conservation Measure, and possibly incorporating public education materials about the project.

The Committee received the information and took no formal action.

4.4. Review Stream Planning and Operations Committee (SPOC) Work Plan, the Outcomes of Board Action of Commission Requests; and the Commission's Next Meeting Agenda.

Recommendation:
A. Review the SPOC Committee's Board-assigned Purpose, and;
B. Review the draft 2025 SPOC Work Plan and incorporate any new tasks.

The Committee received the information, took no formal action, and without discussion noted the SPOC Work Plan and upcoming discussion Items.

Public Comment: None.

5. CLERK REVIEW AND CLARIFICATION OF COMMITTEE REQUESTS

None.

6. ADJOURN:

6.1 Adjourn.

Chairperson Ballard adjourned the meeting at 12:57 p.m.

Date Approved:

Stephanie Simunic
Assistant Deputy Clerk II

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Santa Clara Valley Water District

File No.: 26-0242

Agenda Date: 3/12/2026
Item No.: 5.1.

COMMITTEE AGENDA MEMORANDUM
Stream Planning and Operations Committee

Government Code § 84308 Applies: Yes ☐ No ☒
(If "YES" Complete Attachment A - Gov. Code § 84308)

SUBJECT:
Receive and Discuss Updates on Fish and Aquatic Habitat Collaborative Effort (FAHCE) Implementation.

RECOMMENDATION:
Receive an update on the implementation of FAHCE.

SUMMARY:
This item provides an overview of FAHCE activities since the last regular Stream Planning and Operations Committee (SPOC) meeting on November 18, 2025.

A. Key Activities

Since the November 18, 2025, SPOC meeting, Valley Water, California Trout, Inc., Northern California Council of Fly Fishers International, California Department of Fish and Wildlife (CDFW), and San Francisco Baykeeper (Protestants) have been intensely engaged in mediation concerning Valley Water's FAHCE-related water rights' change petitions for Stevens Creek and Guadalupe River watersheds.

In addition to working on resolving these water rights protests, Valley Water continued to implement rule curves, collect monitoring data, and prepare the Annual Report for 2025/2026.

Water Rights Change Petitions

On January 16, 2026, Valley Water and the Protestants jointly submitted an Agreement with the State Water Resources Control Board (State Board) to resolve the change petition protests. The filing included 1) the Agreement to Resolve Protests with proposed water right conditions, and 2) a revised Fish Habitat Restoration Implementation Plan (FHRP; Attachment 1). On February 11, 2026, the State Board hosted a status conference to review the submitted materials and outline a process for approving the proposed water rights license change petitions and new water right conditions over the next few months.

The revised FHRP includes a commitment to develop new Biological and Environmental Objectives, a process to scientifically evaluate the proposed targets for achievability, changes to the adaptive management process, and the inclusion of other native fish species. These changes will be collaboratively implemented by the Adaptive Management Team (AMT) and will require additional studies and monitoring efforts. The Agreement also includes a commitment to return to the State Board with an updated FHRP in five years.

FAHCE Initialing Parties, Adaptive Management Team and Operations Workgroups

On December 1, 2025 VW held an AMT meeting of the Initialing Parties and Protestants to discuss the following: the status of the State Water Board Petitions, future modifications to the living AMT charter, development of a scope of services for additional creek mapping and modeling work requested by the Protestants, and to review the report recommendations from the 2024 Water Year Annual Report (October 2023 - September 2024).

On February 12, 2026, Valley Water hosted the annual Operations Workgroup meeting, which included CDFW and the National Marine Fisheries Service (NMFS). During the meeting, members discussed the status of winter reservoir operations and the outlook for spring and summer operations. One change to the Stevens Creek Reservoir's attraction pulse flow rule curve was recommended by Valley Water, and the OWG members voted to support it. This change will be implemented this year, pending storage levels, and the AMT will have an opportunity to vote to make it a permanent change in the next Annual Report.

On February 23, 2026, another AMT meeting was held to finalize the Annual Report for Water Year 2024 and make progress on the actions outlined in the revised FRHP.

B. Next Steps

Valley Water will release the Draft Annual Report for the 2025 Water Year for AMT review in mid-March. Other near-term AMT activities include further refinement of the AMT charter and developing a study proposal for Stevens Creek to support the development of new Biological and Environmental Objectives. The AMT will likely meet more regularly over the next few months to advance these activities.

ENVIRONMENTAL JUSTICE IMPACT:
There are no environmental justice impacts from this item.

ATTACHMENTS:
Attachment 1: FAHCE Fish Habitat Restoration Prog. Impl. Plan
Attachment 2: PowerPoint

UNCLASSIFIED MANAGER:
John Bourgeois, 408-630-2990

FISH AND AQUATIC HABITAT COLLABORATIVE EFFORT

Fish Habitat Restoration Program

Implementation Plan

Santa Clara Valley Water District

January 2026

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APPENDIX C Preliminary Adaptive Management Proposal

APPENDIX D Adult Fish Passage Evaluation Using Natural Hydrology

ACRONYMS

AF	Acre-Feet
AMP	Adaptive Management Program
AMT	Adaptive Management Team
ADSRP	Anderson Seismic Retrofit Project
BO	Biological Objective
CDFW	California Department of Fish and Wildlife
DWR	Department of Water Resources
DSOD	Division of Safety of Dams
EO	Environmental Objective
FAHCE	Fish and Aquatic Habitat Collaborative Effort
FEIR	Final EIR
FERC	Federal Energy Regulatory Commission
FHRP	Fisheries Habitat Restoration Program
IP	Initialing Parties
MO	Measurable Objective
NMFS	National Marine Fisheries Service
OWG	Operations Work Group
SWRCB	State Water Resources Control Board
SMART	Specific, Measurable, Achievable, Relevant and Time-bound

I. INTRODUCTION

This document is an Implementation Plan (Implementation Plan) for the Fish and Aquatic Habitat Collaborative Effort's (FAHCE) Fisheries Habitat Restoration Program (FHRP; Program). It is intended to be a concise, action-oriented document. The Implementation Plan builds on the Board of Directors-approved project, known as FAHCE Plus in the Final Environmental Impact Report (FEIR; Valley Water, 2023),[1] which builds on the FAHCE Settlement Agreement (2003). It is also intended to be an attachment to the Terms and Conditions of the Valley Water amended water right permits.

This Implementation Plan specifies flow measures, non-flow measures, adaptive management, and monitoring and reporting requirements that Valley Water will implement. It includes a process for periodic updates. Valley Water recognizes that refinements, additions, and adaptive modifications to the Implementation Plan are expected to occur. Proposed changes to the Implementation Plan will be brought to the Adaptive Management Team (AMT) for discussion.

Valley Water split the environmental review of FAHCE into two efforts. Guadalupe River and Stevens Creek actions were addressed in the FAHCE FEIR, which led to Valley Water's implementation of the FAHCE Plus flow measures in the Guadalupe River and Stevens Creek watersheds in Water Year 2024, followed by the first annual report. Coyote Creek measures were incorporated into the Anderson Seismic Retrofit Project (ADSRP) FEIR[2], but the flow measures cannot yet be implemented due to the current Federal Energy Regulatory Commission (FERC) restrictions on Anderson Dam and the ongoing construction, which is expected to be completed in 2033. For completeness, this Implementation Plan encompasses all three watersheds.

A. Fish in Good Condition

The goal of the Implementation Plan is to document how Valley Water will comply with California Fish and Game Code § 5937 in the operation and maintenance of its dams on the Three Creeks. The statute provides: "[t]he owner of any dam shall allow sufficient water at all times to pass through a fishway, or in the absence of a fishway, allow sufficient water to pass over, around, or through the dam, to keep in good condition any fish that may be planted or exist below the dam." However, the statute does not expressly define what constitutes "good condition." Flows operations are also subject to the rule of reasonableness under Article X, Section 2 of the State Constitution. The approach used in this Implementation Plan is based on a three-tiered approach originally described by Moyle et al. (1998) and Moyle and Marchetti (1999) as follows:

"When multiple fish species are present below a dam, maintaining fish in good condition requires three levels of fish health: individual, population, and community…

(1) At the individual level, a healthy individual should have a robust body conformation; should be relatively free of diseases, parasites, and lesions; should have reasonable growth rates for the region; and should respond in an appropriate manner to stimuli.

[1] The entire FEIR is included by reference in this Implementation Plan; see the FEIR for additional details. https://www.valleywater.org/project-updates/creek-river-projects/fahce-fish-and-aquatic-habitat-collaborative-effort/fahce-final-program-environmental-impact-report. For reference, "FAHCE" describes a proposed Settlement Agreement (2003) that Valley Water and other parties reached, for the purpose of restoring fish to good condition in the Three Creeks.

[2] FAHCE flow and non-flow measures were described in the ADSRP FEIR. https://www.valleywater.org/accordion/final-environmental-impact-report-and-engineers-report

(2) At the population level, good condition means … that the population is viable… [based on two indicators]: “The first was that extensive habitat should be available for all life history stages. The second was that all life history stages and their required habitats should have a broad enough distribution in the creek to sustain the species indefinitely.”

(3) A fish community is in good health if it:

(a) is dominated by co-evolved species,

(b) has a predictable structure as indicated by limited niche overlap among the species and by multiple trophic levels,

(c) is resilient in recovering from extreme events,

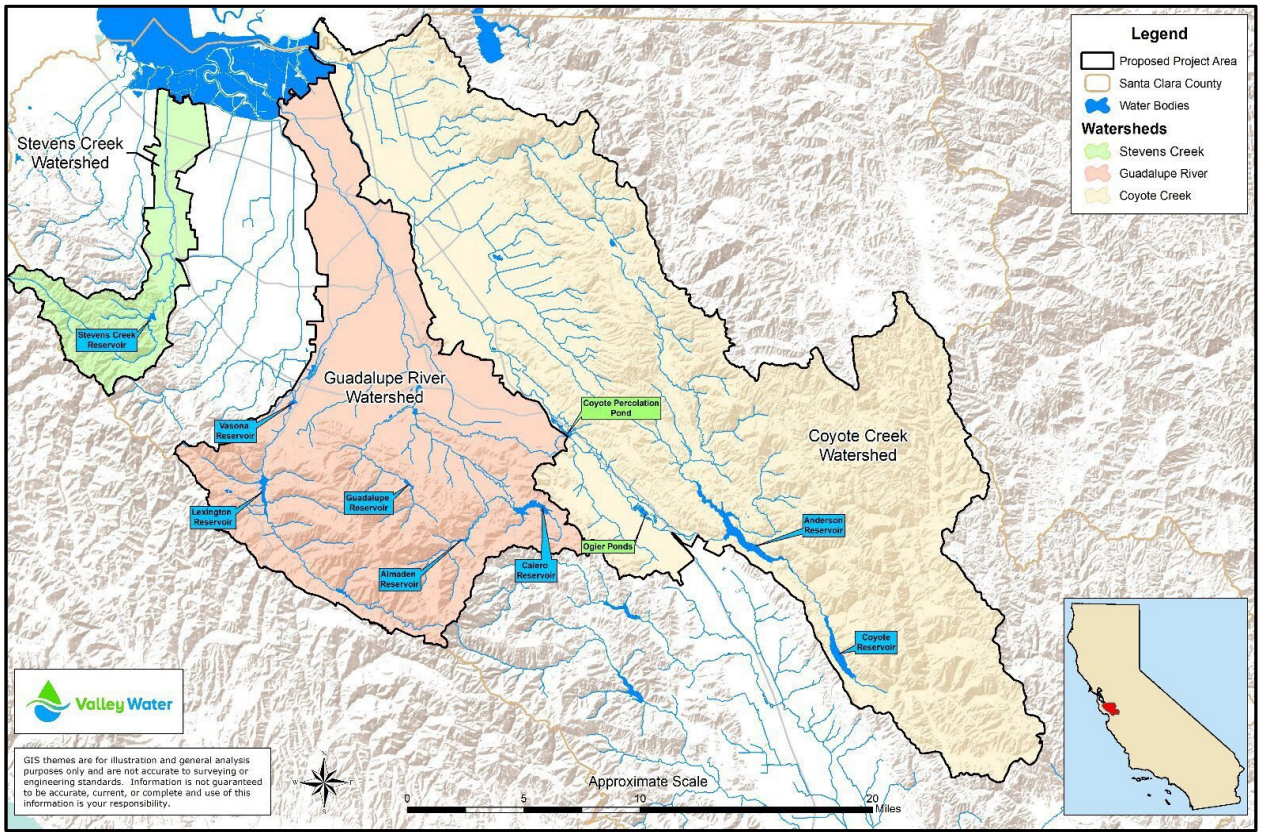
(d) is persistent in species membership through time, and

(e) is geographically distributed.”

B. Geographic Scope

The action area of this Implementation Plan includes the Stevens Creek, Guadalupe River, and Coyote Creek watersheds (Figure 1). Valley Water’s water supply operations in the action area include eight reservoirs, a network of conveyance systems, and percolation ponds that provide recharge to local groundwater basins. Reservoir facilities release flows to creeks and rivers and recharge the Santa Clara Plain portion of the Santa Clara Subbasin, where it is relied upon to maintain healthy groundwater levels and also is pumped directly from the creeks to provide municipal and industrial supplies.

Figure 1. Implementation Plan Area and Valley Water's Water Supply Facilities



II. FLOW MEASURES

The FAHCE Plus rule curves provide operational criteria for winter base flows to promote fish spawning and incubation; pulse flows to promote adult immigration and juvenile emigration; summer flows and temperature management for fish rearing; and flow ramping to minimize impacts to aquatic species that could occur with rapid changes in instream flow conditions. The implementation of flow measures will be based on reservoir storage and include rule curves that prescribe pulse flows, summer and winter baseflows, and temperature targets. Stevens Creek, Guadalupe Creek, and Coyote Creek have designated Cold Water Management Zones (CWMZ's), which are specific reaches in which there are temperature targets to support summer rearing.

A. Rules Curves and Pulse Flows

Reservoir releases are based on reservoir storage of local water (not including imported water) at specified times of the year; Valley Water will operate based on the rule curves. Valley Water will analyze the impacts of the rule curves and pulse flows, through monitoring (including flow, water temperature, and water depth), and it will evaluate achievement of the Measurable Objectives (MO), as specified in Chapter IV.

Each of the rule curves prescribes the minimum instream flow, based on reservoir storage and/or cold pool volumes for summer and winter baseflows and for pulse flows during the salmonid migration period. Maximum instream flows are not prescribed since high flow events are determined by local hydrology and runoff patterns, which could exceed reservoir storage capacity, leading to uncontrolled releases via spillways. During the summer, the maximum instream flow rates will also adhere to the FAHCE Plus reservoir rule curves.

Deviations from the rule curves may be made to protect human health and safety. Likewise, repairs and maintenance on Valley Water facilities may require temporary modifications of reservoir releases. The AMT will be notified of updates to these schedules and will be given opportunities to make recommendations. In the event of an emergency, Valley Water will provide notifications to the AMT, including a brief written description of the emergency actions, and provide an opportunity to meet and discuss.

B. Ramping Rates

When Valley Water reduces releases by more than 50 percent of the starting flow, releases will be ramped in accordance with the following:

- If the release is reduced by more than 50 cfs:
    - Reduce releases in steps, targeting a 50% reduction at each step.
    - The number of steps is calculated as $\frac{1}{\log_{\frac{Ending\ Flow}{Starting\ Flow}}(0.5)}$
    - The maximum number of required steps is 7.
- If the release is reduced by 50 cfs or less:
    - Reduce releases in steps, targeting a 50% reduction at each step.

- The number of steps is calculated as $\frac{1}{\log_{\frac{Ending\ Flow}{Starting\ Flow}}(0.5)}$
- The maximum number of required steps is 4.

- Each ramping step must reduce flow by at least 2 cfs.
- Public safety and flood risk reduction take precedence over the ramping interval. Depending on reservoir inflows and their impact on storage relative to incidental flood risk reduction curves, adjustments to the ramping intervals may be made.

C. Reservoir Capacities and Seismic Restrictions

The Valley Water dams within the Implementation Plan area are licensed by the State Water Resources Control Board (SWRCB) and are maintained in accordance with the requirements of the Department of Water Resources (DWR) Division of Safety of Dams (DSOD). While Valley Water developed the FAHCE Plus rule curves assuming full operation of the reservoirs, five of the reservoirs currently have DSOD water storage restrictions due to dam safety concerns.

Table 1 summarizes the current operating status for each of the eight reservoirs in the Implementation Plan area, including original and present-state DSOD restrictions, if applicable. The rule curves described in subsequent sections are based on completing the seismic retrofits and reoperating them to their full storage capacities. However, while a restricted capacity is in effect for a given reservoir, Valley Water will make a minimum release in the amount shown in the rule curves that are achievable under that restricted capacity.

Table 1. Reservoir Capacities in Acre-Feet (AF) and DSOD Operating Restrictions

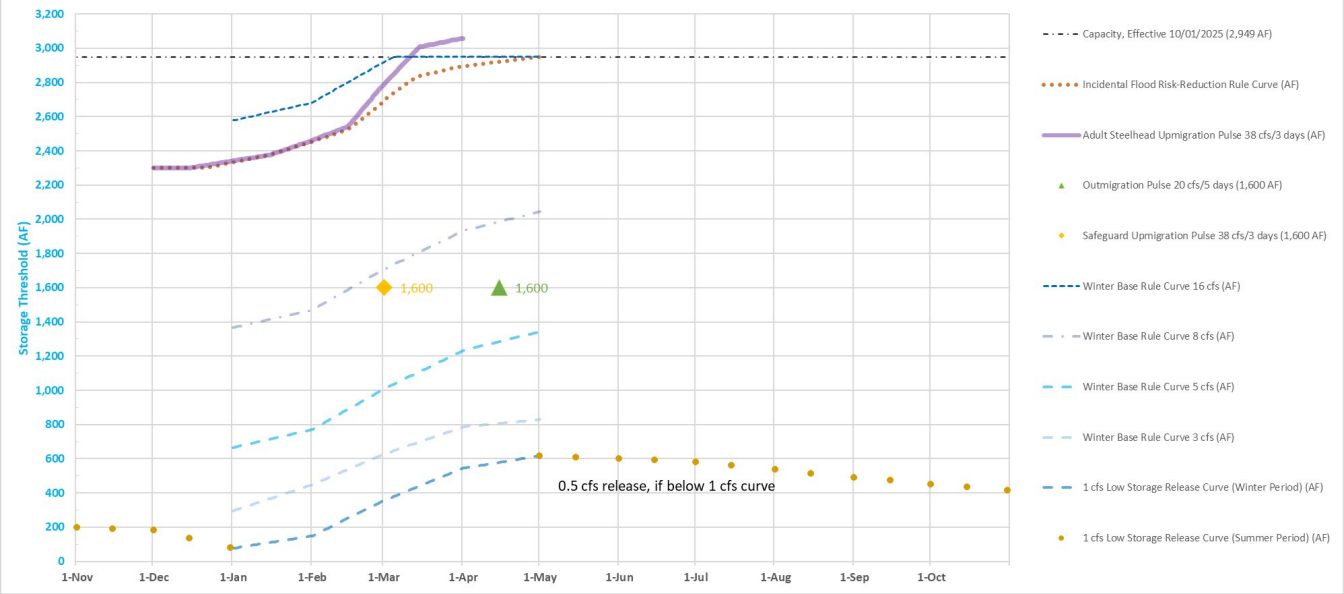
Reservoir	Year Built	Total Capacity (AF)*	Restricted Capacity (AF / % of Original) **	Capacity Details
Stevens Creek Watershed				
Stevens Creek	1935	2,949	N/A	No restrictions
Guadalupe River Watershed				
Almaden	1935	1,555	1,443/ 93%	Almaden Dam Improvement Project is expected to be completed in 2032.
Calero	1935	9,819	4,472 / 46%	Calero Dam Seismic Retrofit Project is expected to be completed in 2036.
Guadalupe	1935	3,320	2,152 / 65%	Guadalupe Dam Seismic Retrofit project is expected to be completed in 2034.
Lexington	1952	18,534	N/A	No restrictions
Vasona	1935	463	N/A	No restrictions
Coyote Creek Watershed				
Anderson	1950	89,278	3,159 /4%	Construction underway; ASDRP is expected to be completed in 2033.
Coyote	1936	22,541	11,843 / 53%	Coyote Dam Seismic Retrofit project is expected to be completed in 2039.

Reservoir	Year Built	Total Capacity (AF)*	Restricted Capacity (AF / % of Original) **	Capacity Details
* Total Capacity: Available water storage capacity at the reservoir without DSOD dam safety operating restrictions as of the most recent reservoir survey. ** Restricted Capacity: Available water storage capacity at the reservoir with DSOD dam safety operating restrictions.				

D. Stevens Creek Rule Curves

Stevens Creek Dam and Reservoir on Stevens Creek has a capacity of 2,949 AF and a minimum fish pool of 400 AF. Stevens Creek Dam will be operated in accordance with the rule curves in Figure 2. Summer cold water releases will be made based on the available cold water pool volume. Reservoir temperature profiles are conducted to determine available cold water releases that could be sustained from May 1 to October 31.

Figure 2. Stevens Creek Reservoir FAHCE-plus Rule Curves



E. Guadalupe River Watershed

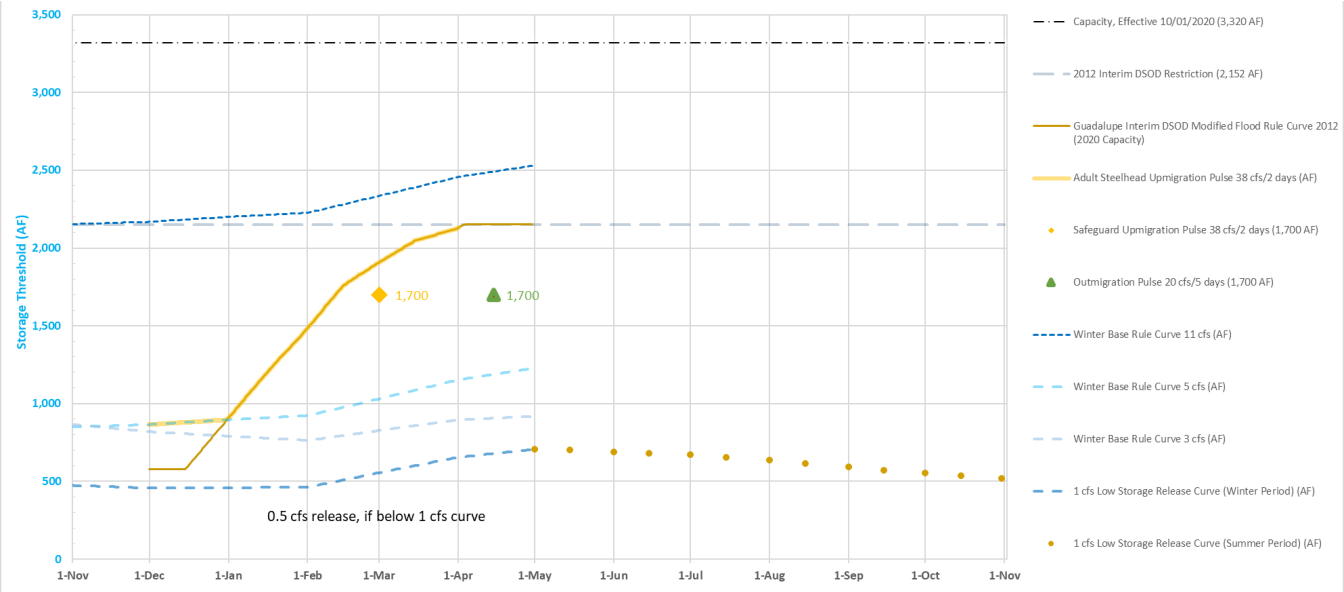
Reservoir rule curves are provided for four reservoirs in the Guadalupe Watershed.

1. Guadalupe Reservoir Rule Curves

Guadalupe Reservoir, on Gaudalupe Creek, has a capacity of 3,320 AF and a minimum fish pool of 500 AF. Summer cold water releases are made based on the available cold water pool volume. Reservoir temperature profiles are conducted to determine available cold-water

releases that could be sustained from May 1 to October 31. Guadalupe Dam will be operated in accordance with the Rule Curves in Figure 3, with a minimum release rate of 0.5 cfs.

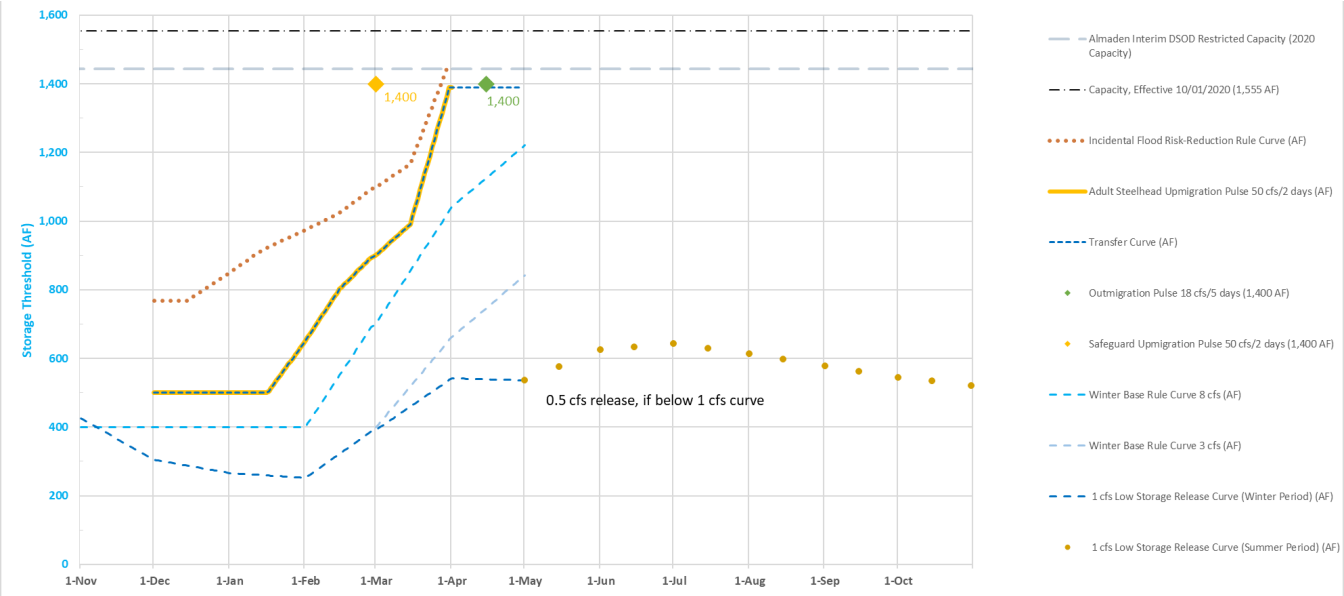
Figure 3. Guadalupe Reservoir FAHCE-plus Reoperation Rule Curves



2. Almaden Reservoir Rule Curves

Almaden Reservoir, located on Alamitos Creek, has a capacity of 1,555 AF and a minimum fish pool of 400 AF. Almaden Dam will be operated in accordance with the rule curves in Figure 4. Please note that revisions to Figure 4 (that are not included below) were proposed to the AMT in the Annual Report for Water Year 2024; Valley Water has not yet received any input on the proposed changes, but anticipates formalizing the modifications to the winter base rule curve to improve low-flow conditions.

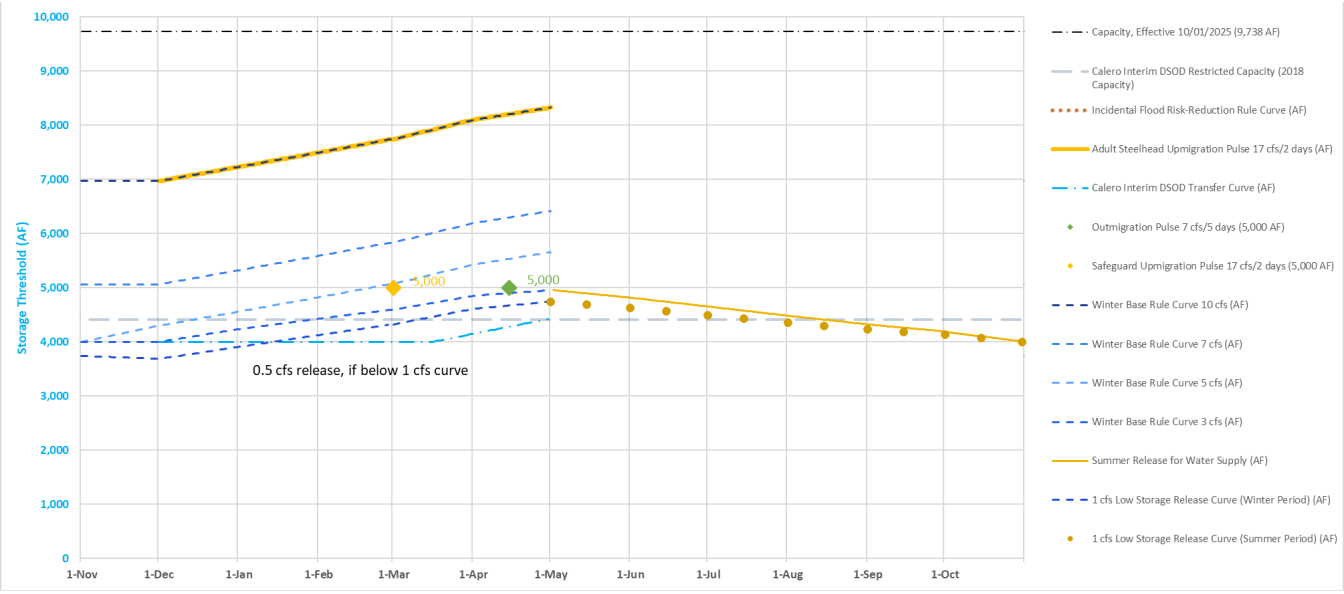
Figure 4. Almaden Reservoir FAHCE-plus Reoperation Rule Curves



3. Calero Reservoir Rule Curves

Calero Reservoir, located on Calero Creek, has a capacity of 9,818 AF and an emergency water supply storage level of 4,000 AF. Calero Reservoir will be operated in accordance with the rule curves in Figure 5. The release rates shown in Figure 5, are minimums; however, when storage is at or below 4000 AF, reservoir releases are subject to approval by the Water Supply Operations Manager (WSOM). The reservoir release rate for a particular date would depend on the local storage volume on that date, not including imported water supplies.

Figure 5. Calero Reservoir FAHCE-plus Reoperation Rule Curves



4. Lexington Reservoir Rule Curves

Lexington Reservoir, on Los Gatos Creek, has a capacity of 18,534 AF and a minimum fish pool of 2,000 AF. Lenihan Dam will be operated in accordance with the rule curves and low-storage rule curves in Figure 6 and Figure 7.

Figure 6. Lexington Reservoir FAHCE-plus Rule Curves

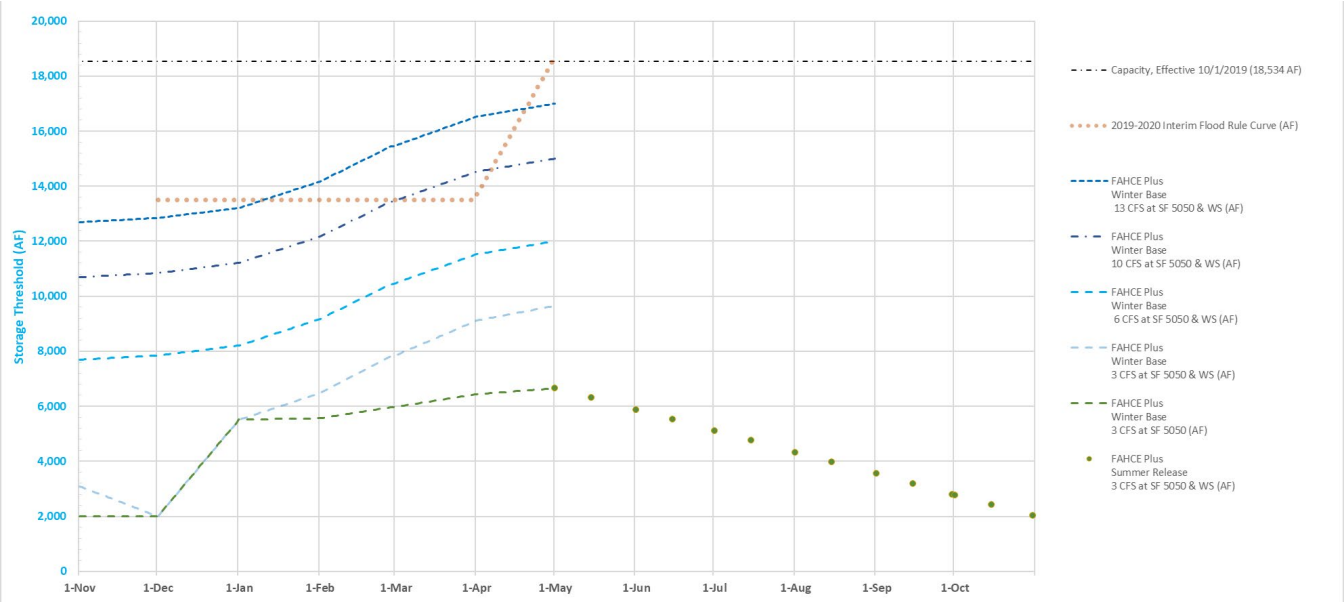
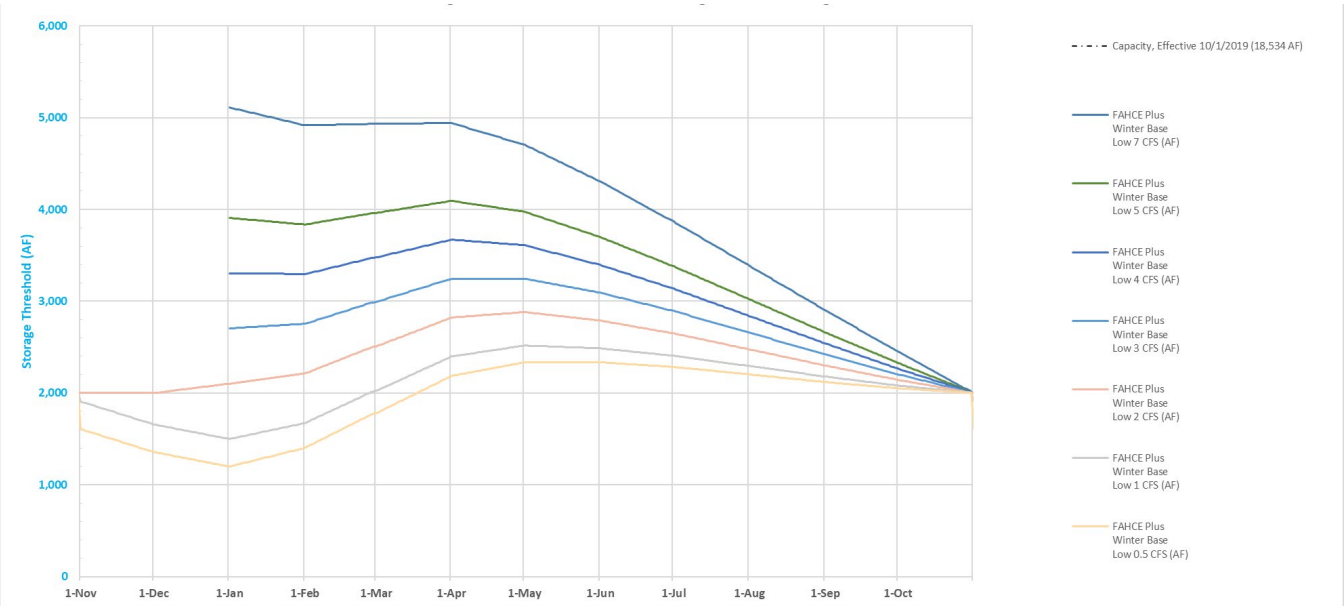


Figure 7. Lexington Reservoir FAHCE-plus Low Storage Rule Curves



F. Coyote Creek Watershed: Anderson and Coyote Rule Curves

Coyote Creek watershed rule curves will to be implemented after construction of the ADSRP and are directed by the National Marine Fisheries Service (NMFS) Endangered Species Act Section 7(a)(2) Biological Opinion and Magnuson–Stevens Fishery Conservation and Management Act Essential Fish Habitat Response for the Santa Clara Valley Water District's Anderson Dam Hydroelectric Project (FERC Project No. 5737-032). Reservoir storage ranges from a minimum combined emergency storage of 20,000 AF to a maximum combined capacity of 111,819 AF (Coyote Reservoir with 22,541 AF and Anderson Reservoir with 89,278 AF). The rule curves address reservoir storage and releases given emergency water supply storage requirements, minimum flows to meet temperature targets in CWMZ downstream, and pulse flows. The CWMZ for Coyote Creek is defined as from the outlet of Anderson Dam to Golf Creek Drive (also known as POI COYO7). Summer cold water releases will be made based on the available cold water pool volume. Reservoir temperature profiles are conducted to determine available cold-water releases that could be sustained from May 1 to October 31.

Coyote and Anderson Dams will be operated in tandem in accordance with the rule curves depicted in Figure 8. Imported water temporarily stored in Anderson Reservoir would not be included in volume calculations. The reservoir release rate for a particular date depends on local reservoir storage volume on that date. For dry years, low-storage rule curves have been calculated, as shown in Figure 9.

Per the FERC Order, reservoir storage at Anderson Reservoir was restricted to the deadpool storage as of October 1, 2020. An amendment to the Order was issued by FERC on April 4, 2024, that permitted Valley Water to maintain Anderson Reservoir storage at 2 feet above deadpool (3,485 AF). Valley Water will continue to follow the FERC Order as the ADSRP advances to completion, until the Order is lifted. Valley Water will strive to maintain a minimum flow rate of 1 cfs from Anderson Reservoir and 10 cfs at the USGS-11170000 stream gauge as described in the ADSRP EIR.

Figure 8. Anderson and Coyote Reservoirs FAHCE plus Modified Reoperation Rule Curves

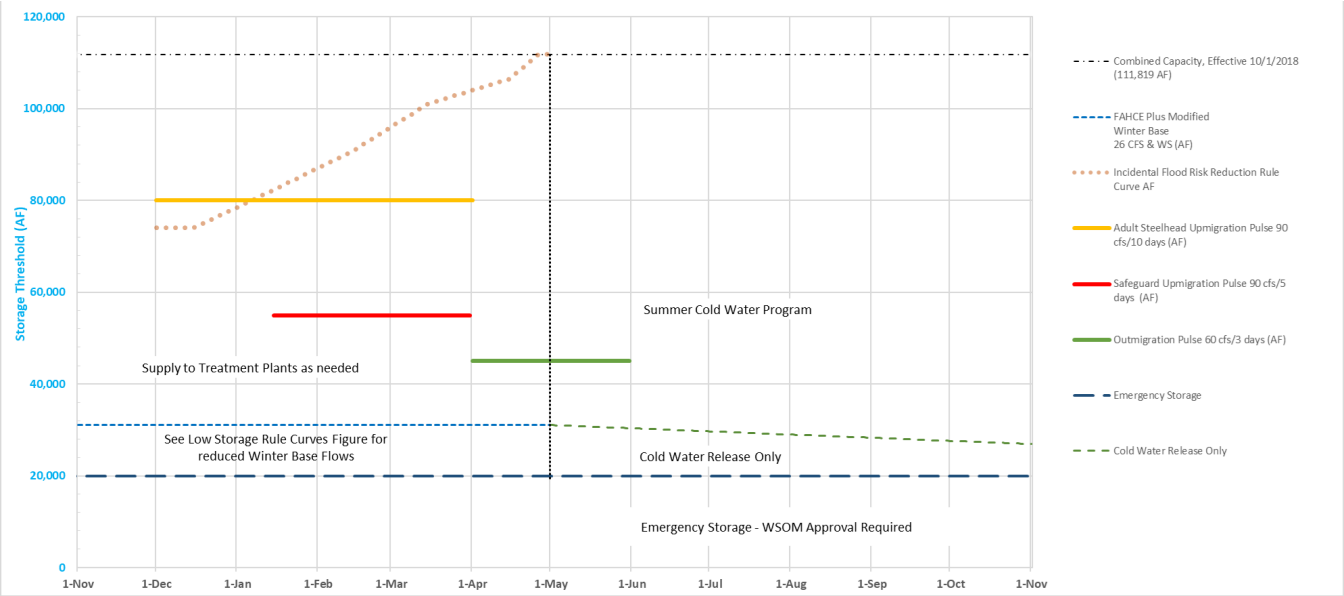
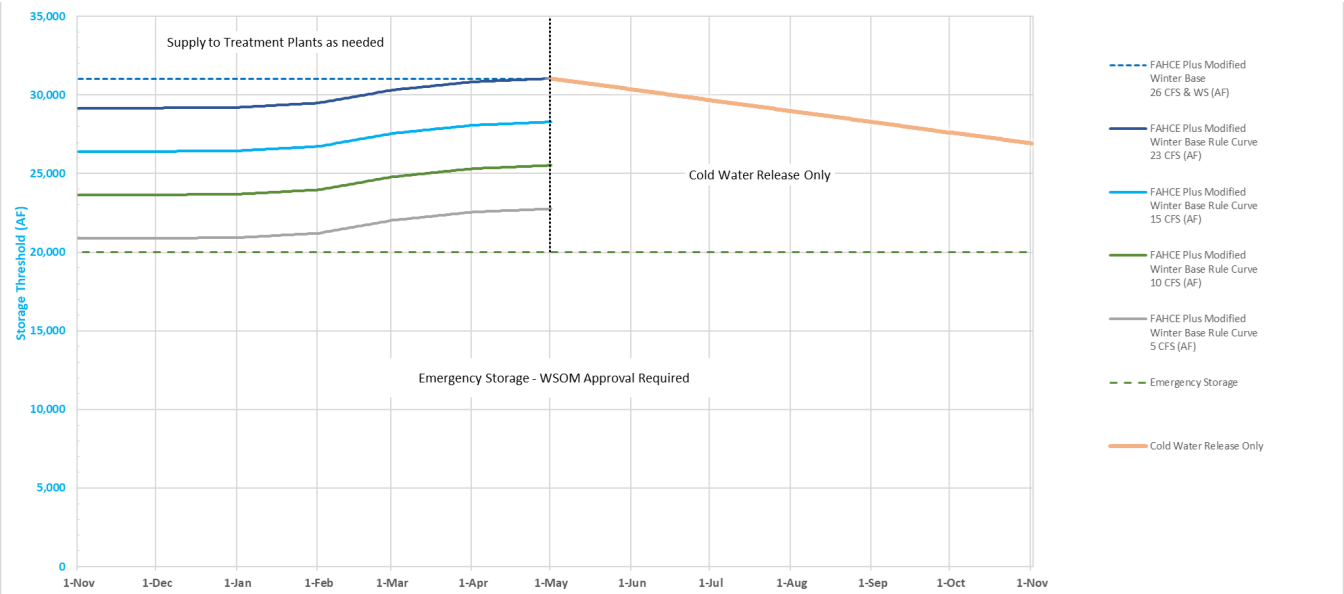


Figure 9. Anderson and Coyote Reservoirs FAHCE Plus Low Storage Rule Curves



G. Schedule for Flow Measure Implementation

Table 2 depicts the anticipated schedule for the dam seismic retrofit projects to be under construction and the targets for the rule curves to be fully implemented. The scheduling of construction of seismic retrofit projects at Guadalupe, Calero, and Almaden Dams, all within the Guadalupe River Watershed, is designed to maintain operations of these reservoirs to meet water supply needs and provide flows that support aquatic species downstream. Additionally, the Santa Clara Valley Habitat Plan (VHP) states that only one reservoir within the same watershed should be dewatered for construction at any time. Therefore, the dam retrofit projects within the Guadalupe River Watershed will be coordinated closely and constructed sequentially. Valley Water will provide updates to this schedule on an annual basis.

Table 2. Schedule for Flow Measure Implementation and Seismic Retrofit Construction

Creek/ Reservoir	Total Capacity (acre feet)	Restricted Capacity		Calendar Year																
		acre feet	%	2020–2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039
Coyote/ Coyote	22,541	11,843	52.5																	
Coyote/ Anderson	89,278	3,159	3.5																	
Guadalupe/ Guadalupe	3,320	2,134	64	Pilot Flow																
Calero/ Calero	9,819	4,414	45																	
Alamitos/ Almaden	1,555	1,443	93																	
Los Gatos/ Lexington	18,534	N/A	—																	
Stevens/ Stevens Creek	2,949	N/A	—	Pilot Flow																

Flow Measure Implementation

Seismic Retrofit in Progress

III. NON-FLOW MEASURES

Valley Water will implement the non-flow measures stated in Table 3, in order to enhance the quality and quantity of suitable spawning and rearing habitat within the watersheds. Such implementation will build upon Valley Water's past completion of non-flow measures proposed in the FAHCE Settlement (2003), as listed in Appendix A. Valley Water will analyze the impacts of the non-flow measures, and it will evaluate achievement of the Measurable Objectives, as specified in Chapter IV.

A. Schedule

Table 3 shows Valley Water's schedule for implementing non-flow measures. This schedule will be reviewed annually by the AMT and will be revised pursuant to Chapter IV. Factors that could affect such revisions include DSOD requirements, progress on the seismic retrofit projects, unforeseen engineering, design, and cost escalation, environmental review and permitting, land ownership and access. For each measure which involves construction, Valley Water will establish an operation and maintenance plan.

Table 3. Schedule for Non-flow Measures

Watershed	Settlement Agreement Section No.	Non-flow Measures To Be Initiated and Completed	Calendar Year									
			2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Coyote Creek	6.2.4.3.1	Spawning Habitat Enhancement – Coyote Creek Watershed										
	6.2.4.3.2	Rearing Habitat Enhancement – Coyote Creek Watershed										
	6.2.4.4.2	Geomorphic Functions Study for Coyote Creek Watershed										
		Implement Geomorphic Pilot Project, if feasible, in Coyote Creek Watershed										
	6.4.2.1.1(D)	Plan for Reducing Smolts Entrainment and Predation at Coyote Percolation Facility										
		Operate for Reducing Smolts Entrainment and Predation at Coyote Percolation Facility										
	6.4.2.1.2(B)	Planning and Design Ogier Road Quarry Pond Complex (Barrier FB34; County-owned)										
		Ogier Road Quarry Pond Complex (Barrier FB34; County-owned)										
	6.4.2.1.3(A)	Coyote Creek Facilities Plan – Laguna Seca Groundwater Remediation										
	6.4.2.1.3(B)	Coyote Creek Facilities Plan – Metcalf Ponds Stream Corridor Restoration Plan										
	6.4.2.1.4	Cherry Flat Reservoir Operations Agreement with City of San José										
	6.4.2.1.5	Trap and Truck Feasibility Study at Anderson Reservoir										
Guadalupe River	6.2.4.3.1	Spawning Habitat Enhancement – Guadalupe River Watershed										
	6.2.4.3.2	Rearing Habitat Enhancement – Guadalupe River Watershed										
	6.2.4.4.1	Geomorphic Functions Study for Guadalupe River Watershed										
	6.2.4.4.2	Implement Geomorphic Pilot Project, if feasible, in Guadalupe River Watershed										
	6.6.2.1.2.2	Pheasant Creek Culvert (Barrier AAB1; private owner)										
		Old Dam (Barrier DB7); private owner										
	6.6.2.1.3.2	Alamitos Creek Drop Structure – (Bertram Drop Structure; Barrier CB5); private owner										

Watershed	Settlement Agreement Section No.	Non-flow Measures To Be Initiated and Completed	Calendar Year									
			2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
	6.6.2.1.3.3(A)	Alamitos Creek Facilities Plan – Almaden Reservoir Dam – Evaluate Alternatives to Provide Unimpeded Passage at the Dam										
Stevens Creek	6.2.4.3.1	Spawning Habitat Enhancement – Stevens Creek Watershed										
	6.2.4.3.2	Rearing Habitat Enhancement – Stevens Creek Watershed										
	6.5.2.2(A)	Fremont Fish Ladder Remediation (Barrier HL3)										
		Moffett Fish Ladder Remediation (Barrier HL1)										
	6.5.2.3	Portable Multi-port Outlet in Stevens Creek Watershed										
	6.5.2.5	Trap-and-Truck Feasibility Study at Stevens Creek Reservoir										
Three Creeks	6.2.4.4.3	Bank Stabilization Guidelines										
	6.2.4.5	Advanced Recycled and Other Urban Water Plan										
	Adaptive Management Program	Monitoring/Reporting (including non-flow measures already implemented)										
		Trend Data Collection										
		Trend Data Analysis Reporting (included in the respective annual report)										
		Identify and Seek Partnerships/Grant Funding for Planning Studies Needing Partners										
		Proactively Seek/Advocate for/Support Funding of Non-District Owned Nonflow Measures										
		Reprioritize the Remaining Phase 1 Measures as Needed										

	Planning/Design		Operations and Maintenance
	Construction		Continual (includes all categories)
	CEQA/Permitting		

B. Process for Implementing Non-Flow Measures

The process for implementing non-flow measures will typically involve the following:

- Feasibility study and baseline data collection – Collect site-specific data at the proposed project location and a reference site (if available) to establish performance criteria that align with the MOs of this Implementation Plan. As a part of the feasibility study, Valley Water will develop conceptual designs and feasible alternatives, and refine MOs based on site-specific information (Table 4). For any measure listed in Table 3 as study only, Valley Water will confer with the AMT upon the competition of the study, to determine what (if any) measure will be implemented.

- Project design and environmental review/permitting – Valley Water will develop designs for the preferred alternative(s), complete required environmental review, and obtain necessary permits. This phase will also include the development of site-specific monitoring plans reflective of performance criteria and MOs identified in previous step. Draft documents describing the proposed project designs and environmental review will be provided to the AMT for review and comment.

- Construction – Valley Water will select contractors, coordinate and schedule proposed construction work, complete the construction work, and carry out construction inspections.

- Monitoring and adaptive management – Valley Water will implement site-specific compliance and monitoring, evaluate achievements of MOs, and take action utilizing the AMT process if MOs are not met, as specified in Chapter IV.

- Operations and maintenance – Valley Water will implement a plan for long-term operations and maintenance of each such measure, to ensure that MOs are met on a sustained basis.

IV. ADAPTIVE MANAGEMENT PROGRAM

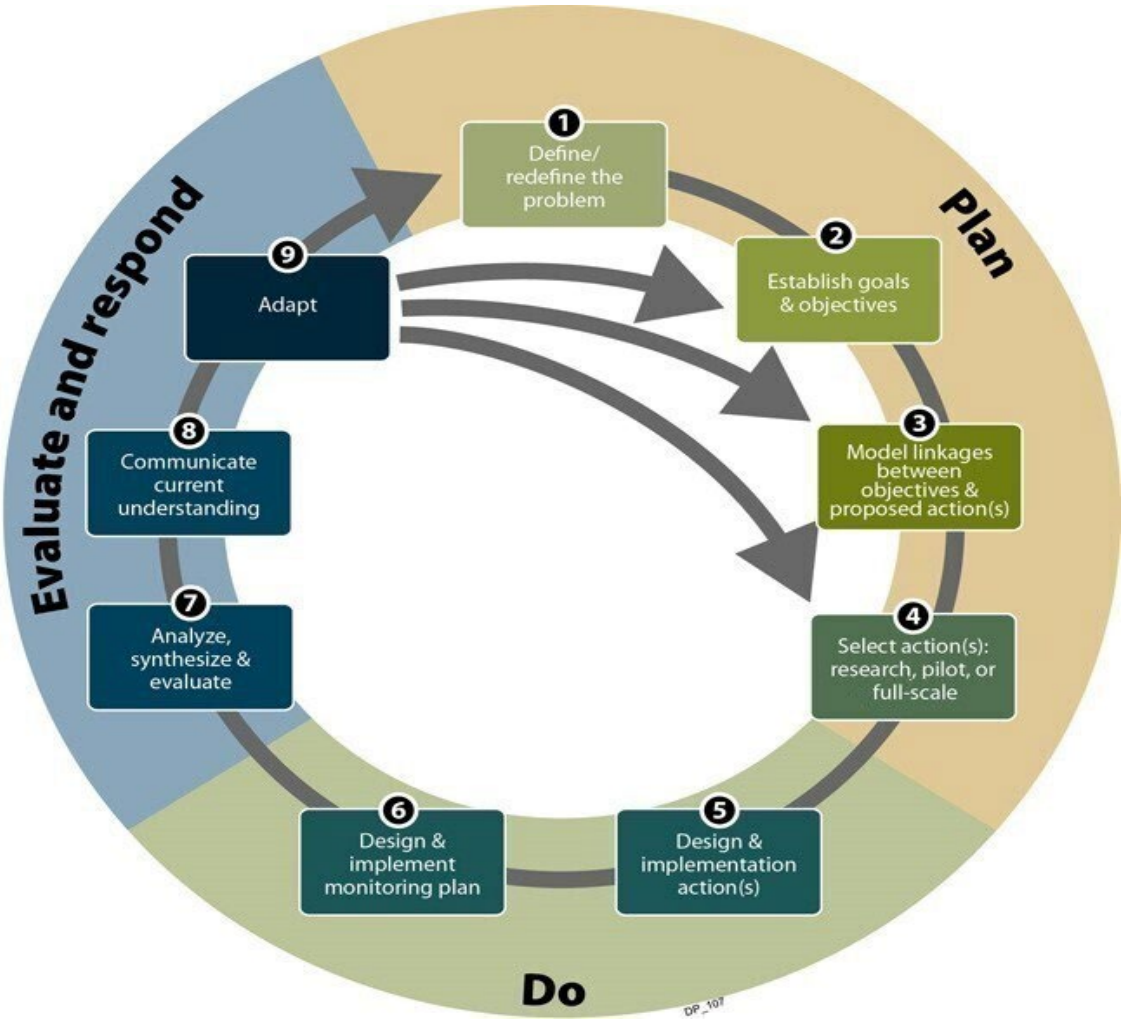
The Adaptive Management Program (AMP) is a critical element of the Implementation Plan. Valley Water will be responsible for implementing and conducting the AMP for the flow and non-flow measures specified above in collaboration with the Adaptive Management Team (AMT). In consultation with the AMT, Valley Water will monitor habitat quantity and quality, evaluate fisheries response and trends, and strive to continually improve the effectiveness of this Implementation Plan.

Adaptive management is defined in California Water Code § 85052 as "a framework and flexible decision-making process for ongoing knowledge acquisition, monitoring, and evaluation leading to continuous improvements in management planning and implementation of a project to achieve specified objectives…." Valley Water intends to follow the three-phase structured and iterative process shown in Figure 10. This process allows for taking actions under uncertain conditions based on the best available science, closely monitoring and evaluating outcomes, and re-evaluating and adjusting decisions as more information becomes available.

The AMP uses a structured, tiered approach to improve resource management through continuous learning. It operates in three main phases (Plan, Do, and Evaluate & Respond) organized into a nine-step cycle. In the Plan phase, stakeholders define clear objectives (such as key lifecycle or habitat needs), identify alternative actions, and predict outcomes using scientific models. This phase integrates key inputs such as life history data, habitat needs, and available habitat.

In this Plan, MOs are categorized as Compliance, Monitoring, Biological and Environmental Objectives. Valley Water will immediately implement the existing Compliance and Monitoring Objectives (Table 4). The AMT will develop Biological and Environmental Objectives pursuant to Chapter IV.H. Biological and Environmental Objectives will inform changes to the Compliance and Monitoring Objectives.

Figure 10. Adaptive Management Program



A. Iterative Process

Per Figure 10, the Implementation Plan uses an iterative, three-phase, nine-step adaptive management cycle adapted from the Delta Stewardship Council (2019). The phases—Plan, Do, and Evaluate and Respond—are shaded, and the nine steps are shown as boxes within the framework. A circular arrow illustrates the general sequence of steps, while additional arrows indicate potential adaptations, such as revising actions based on lessons learned. This adaptive management process is undertaken to determine a watershed's potential to support target species through relationships between flow, channel bathymetry and the range of species capabilities available in the literature.

The Plan is designed to be a long-term, evolving, and iterative process, as shown in Figure 11. This process will adjust based on monitoring results, advances in best available science, and changes in environmental conditions.

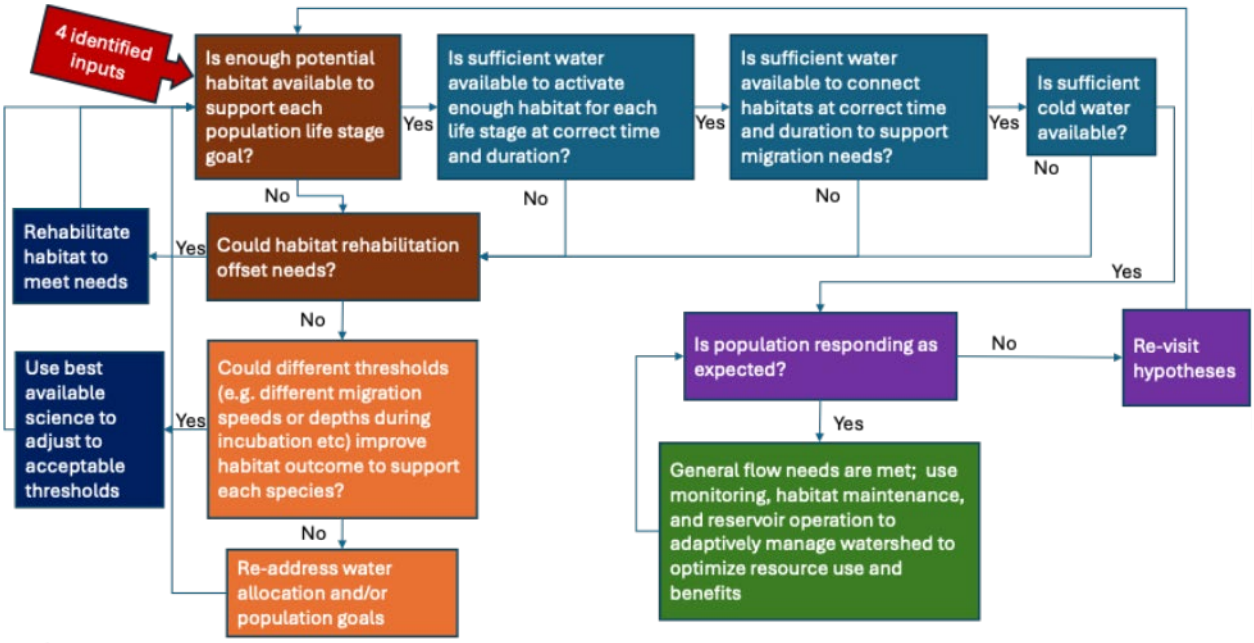


Figure 11. Iterative Process

The “Do” phase implements selected actions as experiments under uncertain conditions. Monitoring begins immediately to test whether these actions achieve the desired environmental changes (e.g., improved water depths for migration or habitat availability for spawning or rearing). This is the first tier of evaluation. If environmental conditions improve as hypothesized, the process moves to the second tier: testing the biological response (e.g., fish response and habitat use).

Biological monitoring often requires longer timeframes and includes surveys to determine if and how the fish are responding to the environmental or habitat improvements. Using Environmental Objective STV-4V as an example, the adaptive management process tests whether water depth during attraction pulse flow is sufficient to improve and assure passage conditions in Stevens Creek during upstream migration for adult steelhead. If physical conditions are met, then biological monitoring examines whether fish respond to the measured environmental conditions. Finally, in the “Evaluate & Respond” phase, results are compared to objectives and predictions. If either environmental or biological responses fail, then the AMT revisits assumptions, modifies actions, or addresses limiting factors such as migration barriers or food availability. This feedback loop ensures that management decisions evolve with new data, advances in science, and changing environmental conditions. Monitoring results will be discussed regularly at AMT meetings, and are included in an annual report provided to the AMT. Outcomes will be Specific, Measurable, Achievable, Relevant and Time-bound (SMART).

B. Existing Compliance and Monitoring Objectives and Actions

The AMP includes MOs (Table 4) that will be used to assess program performance. During implementation, and in consultation with the AMT, Valley Water will periodically review and revise the MOs, as well as the decision-making structure to adapt flow and non-flow measures to achieve the goals of the Implementation Plan. MOs would only be redefined after other

possible actions have been exhausted and/or they are deemed no longer specific, measurable or achievable based on new science or data (as determined by consensus of the AMT). The existing MOs shown in Table 4 correspond to habitat qualities that will be affected by Valley Water actions and that are within Valley Water's control. In this table, compliance objectives are shown in blue, and monitoring objectives are shown in green. Additional details regarding existing studies used to assess the Program are included in the FAHCE FEIR, Appendix A, Chapter 6[3].

Valley Water recognizes the uncertainties and challenges affecting fish and their habitats in the Implementation Plan area. These uncertainties and challenges include factors beyond Valley Water's control and the inherently imprecise nature of biological responses to restoration or enhancement measures. Many in-basin and out-of-basin variables outside of Valley Water's control affect steelhead, Chinook Salmon and other migratory species population abundance, such as simplified habitat conditions, stream crossings, urban runoff, illegal harvest, hatchery practices, predation, climatic conditions, and ocean conditions. In particular, ocean productivity can have a substantial influence on year-to-year fluctuations in salmonid population abundance, irrespective of freshwater conditions. Therefore, MOs will not include qualities outside the control of Valley Water operations. The MOs are designed to be SMART.

[3] https://fta.valleywater.org/dl/MuNRttWHV7

Table 4. Existing Compliance and Monitoring Objectives and Actions

Stevens Creek					
Number	**Relevant Natural Resource Goals**	**SMART MOs**	**Monitoring Methods**	**Monitoring Period and Frequency**	**Triggers for Adaptive Management Actions**
STV-01-C	Maintain flows in Stevens Creek that support steelhead habitat during the winter and spring base flow period, in accordance with the FAHCE Plus rule curves.	Target winter base flow releases based on reservoir storage[1]: • 3 cfs, 5 cfs, 8 cfs and 16 cfs in compliance with winter base rule curves set to storage within Stevens Creek Reservoir between Jan. 1 to Apr. 30, except for deviations during flood risk reductions releases, annually. • Minimum low storage release of 1 cfs and 0.5 cfs targeted when storage is below the lowest winter base flow curve.	Monitor reservoir storage level within Stevens Creek Reservoir (ALERT 4009) and 3-day rolling average of streamflow at Gauge No. 5044 for compliance of storage and flow magnitude Jan. 1 to Apr. 30, annually.	Immediately after implementation, annual monitoring during winter base flow period (Jan. 1 to Apr. 30) will occur for the duration of the Program.	From Jan. 1 to Apr. 30, winter base flow curve storage met at ALERT 4009, and target release level not maintained at Gauge 5044[2].
STV-02-C	Improve attraction flow in Stevens Creek during up- and downstream steelhead migration, in accordance with the FAHCE Plus rule curves.	Pulse release for attraction flow targeting 38 cfs for a duration of 3 days is triggered when storage in Stevens Creek Reservoir is at or above the attraction curve from Dec. 1 to Apr. 1, annually. Pulse releases are to occur up to 9 times (no more than twice per month Dec. - Mar. and once in Apr.) during this time period if the storage threshold is met. Flood releases and spill events in excess of 38 cfs for 3 consecutive days from Dec. through Apr. will also be considered a pulse flow event.	Monitor reservoir storage level within Stevens Creek Reservoir (ALERT 4009) and streamflow at Gauge No. 5044 for compliance of storage, flow magnitude, and duration Dec. 1– Apr. 1, annually.	Immediately after implementation, annual monitoring during attraction flow release period (Dec. 1 – Apr. 1) will occur for the duration of the Program.	Attraction flow curve storage met and no pulse released; pulse magnitude of 38 cfs and a duration of 3 days not met at Gauge No. 5044[2].
		Safeguard pulse release for attraction flow targeting 38 cfs for a duration of 3 days is triggered when storage in Stevens Creek Reservoir is at or above the safeguard threshold of 1,600 AF on Mar. 1, annually, if no other pulse flow of 38 cfs or greater for 3 days or more has been released between Dec. 1 and Mar. 1.	Monitor reservoir storage level within Stevens Creek Reservoir (ALERT 4009) and streamflow at Gauge No. 5044 for compliance of storage, flow magnitude, and duration.	Immediately after implementation, annual monitoring during safeguard release period will occur for the duration of the Program.	Safeguard storage of 1,600 AF met and no pulse released prior to Mar. 1 but safeguard pulse was not released; flow magnitude of 38 cfs and a duration of 3 days not met at Gauge No. 5044[2].

Stevens Creek					
Number	**Relevant Natural Resource Goals**	**SMART MOs**	**Monitoring Methods**	**Monitoring Period and Frequency**	**Triggers for Adaptive Management Actions**
STV-03-C	Improve outmigration flow in Stevens Creek during late season downstream juvenile steelhead migration, in accordance with the FAHCE Plus rule curves.	Pulse releases for outmigration targeting 20 cfs for a duration of 5 days is triggered when storage in Stevens Creek Reservoir is at or above the outmigration threshold of 1,600 AF on Apr. 15, annually.	Monitor reservoir storage level within Stevens Creek Reservoir (ALERT 4009) and streamflow at Gauge No. 5044 for compliance of storage, flow magnitude, and duration.	Immediately after implementation, annual monitoring during outmigration release period will occur for the duration of the Program.	Outmigration storage of 1,600 AF met on Apr. 15 but outmigration pulse was not released; flow magnitude of 20 cfs and a duration of 5 days not met at Gauge No. 5044[2].
STV-04-V	Water depth during attraction pulse flow sufficient to improve and assure passage conditions in Stevens Creek during upstream migration for adult steelhead.	Pulse flow release for attraction flow provides water depth ≥0.7 feet over 25% of entire channel cross-section and 10% continuous during pulse release of 38 cfs for steelhead when storage in Stevens Creek Reservoir is at or above the attraction curve or safeguard threshold (1,600 AF), from Dec. to Apr.	Water depth measurements across critical riffle transects taken at a minimum of 20 equally spaced intervals during one pulse flow release. Water depth measurements will occur at critical riffles at all POIs during the pulse flow release when flows are 38 cfs or above at Gauge No. 5044, when safe to do so.	During at least one pulse event between years 1-3, 4-6, and 7-10, when an attraction flow is released and after any modification to attraction flow magnitude for the duration of the Program.	Attraction flow curve or safeguard storage met and the pulse was released, but water depth is <0.7 feet for greater than 75% of the transect or less than 10% is continuous during a pulse release of 38 cfs (Gauge No. 5044) in Dec. to Apr.
STV-05-V	Water depth during outmigration pulse flow sufficient to improve and assure passage conditions in Stevens Creek during downstream migration for juvenile steelhead.	Pulse flow release for outmigration provides water depth of ≥0.4 feet over 25% of entire channel cross-section and 10% continuous during pulse release of 20 cfs for juvenile steelhead when storage in Stevens Creek Reservoir is at or above the outmigration threshold (1,600 AF), during the outmigration period.	Water depth measurements across critical riffle transects taken at a minimum of 20 equally spaced intervals during one pulse flow release. Water depth measurements will occur at critical riffles at all POIs during the pulse flow release when flows are 20 cfs at Gauge No. 5044 when safe to do so.	During at least one pulse event between years 1-3, 4-6, and 7-10, when an attraction flow is released and after any modification to attraction flow magnitude for the duration of the Program.	Outmigration storage threshold met and the pulse was released, but water depth is <0.4 feet for greater than 75% of the transect or less than 10% is continuous during a pulse release of 20 cfs (Gauge No. 5044) during the outmigration period.

Stevens Creek					
Number	**Relevant Natural Resource Goals**	**SMART MOs**	**Monitoring Methods**	**Monitoring Period and Frequency**	**Triggers for Adaptive Management Actions**
STV-06-C	Provide summer flow releases with suitable temperature in the Stevens Creek CWMZ, to the extent possible based on cold pool volume, for juvenile steelhead rearing and natural ecosystem function, when cold water pool management occurs.	Summer releases are made from Stevens Creek Reservoir from May 1 – Oct. 31, annually. In years when a calculated cold water pool volume allows for a release of at least 1 cfs, releases will be made to support the temperature target of daily average temperature not to exceed 19°C or daily maximum of 22°C between Stevens Creek Dam and HWY 280 (CWMZ), at magnitude and extent that available cold water storage allows.	A temperature profile will be collected in Stevens Creek Reservoir between Apr. 15 and Apr. 30 to determine the available volume of water ≤16°C. Temperatures will be taken incrementally at the deepest part of the reservoir near the dam, and the depth at which the cold water hypolimnion begins will be referenced against the known elevation-capacity of the reservoir to obtain the total cold water volume. Additional temperature profiles will be collected on a monthly basis from May through Oct., and releases will be adjusted to correspond to any changes in measured cold water volume. Streamflow will be monitored at Gauge No. 5044[2] for compliance with prescribed summer releases.	Immediately after implementation, on a monthly basis from Apr. to Oct., annually, for the duration of the Program.	Summer releases made from Stevens Creek Reservoir from May 1 – Oct. 31: • Cold pool calculations do not result in an accurate assessment of cold pool volumes. • Reservoir outflow at Gauge No. 5044[2] does not match with what was determined by the cold water pool calculations.
STV-07-V	Provide summer flow releases with suitable temperature in the Stevens Creek CWMZ, to the extent possible based on cold pool volume, for juvenile steelhead rearing and natural ecosystem function, when cold water pool management occurs.	Achieve an average daily temperature target of ≤ 19°C or daily maximum of 22°C from May 1 through Oct. 31 in years with a cold water program using a validation point at temperature logger station STEV5.	Continuous monitoring of stream temperature starting at the outlet and through the CWMZ using temperature loggers programmed to record temperature at a 1-hour sampling rate.	Within 1 year of implementation or first year with a cold water program. Monitoring occurs from May through Oct. for the first 10 years of the Program.	Temperatures at STEV5 exceed a daily average of 19°C or daily maximum of 22°C and daily average temperatures exceed 16°C below the Stevens Creek Reservoir outlet between May 1 and Oct. 31 in years with a cold water program.

Stevens Creek					
Number	**Relevant Natural Resource Goals**	**SMART MOs**	**Monitoring Methods**	**Monitoring Period and Frequency**	**Triggers for Adaptive Management Actions**
STV-08-C	Avoid stranding salmonids and other fish in Stevens Creek by flow ramping at rates that reduce the potential to strand or otherwise isolate fish from the wetted portion of the channel.	For flow decreases greater than 50% of the starting flow: • If release is reduced by >50 cfs, flow is reduced with a target of 50% per step[3] over the number of steps determined by the calculation 1/(LOG(End Flow/Start Flow)0.5) (maximum of seven steps) in 72 hours or less[4]. • If release is reduced by ≤50 cfs, flow is reduced with a target of 50% per step[3] over the number of steps determined by the calculation 1/(LOG(End Flow/Start Flow)0.5) (maximum of seven steps) in 36 hours or less[4]. The minimum reduction in flow during each ramping step will be 2 cfs.	Monitor streamflow at Gauge No. 5044 at 15-minute intervals during flow recessions.	Immediately after implementation, annually for the duration of the Program during flow recessions.	• If release is reduced by >50 cfs and ending flow is greater than 50% of the starting flow, flow is reduced 1) greater than an average of 50% per step[3], 2) for more than seven equally spaced steps, and/or 3) for a period greater than 72 hours[4]. • If release is reduced by ≤50 cfs and ending flow is greater than 50% of the starting flow, flow is reduced 1) greater than average of 50% per step[3], 2) for more than four equally spaced steps, and/or 3) for a period greater than 36 hours[4].

[1] To transition to a higher winter base flow, adequate storage must be available to maintain that release rate for at least five days.

[2] The FAHCE Program provides a target release rate that is implemented using provisional gauge discharge data at the compliance gauge. Releases from the reservoir may slightly deviate from the target release due to valve imprecision or updates to the stage discharge rating.

[3] The target reduction is 50 percent, but the actual flow reduction depends on the number of steps and thus, in some scenarios the percent change may be greater or less than 50 percent.

[4] Depending on reservoir inflows and their impact on storage relative to incidental flood risk reduction curves, some steps may extend beyond 12 hours to reduce the probability of spill events. The goal is 12-hour steps between outlet valve adjustments but public safety and flood risk reduction take precedent over ramping interval duration.

Guadalupe Creek					
Number	**Relevant Natural Resource Goals**	**SMART MOs**	**Monitoring Methods**	**Monitoring Period and Frequency**	**Triggers for Adaptive Management Actions**
GCK-01-C	Maintain flows in Guadalupe Creek that support salmonid habitat during the winter and spring base flow period, in accordance with the FAHCE Plus rule curves.	Target winter base flow releases based on reservoir storage[1] at: • 3 cfs, 5 cfs, and 11 cfs in compliance with winter base rule curves set to storage within Guadalupe Reservoir between Nov. 1 to Apr. 30, except for deviations during flood risk reductions releases, annually. • Minimum low storage release of 1 cfs and 0.5 cfs targeted when storage is below the lowest winter base flow curve.	Monitor reservoir storage level within Guadalupe Reservoir (ALERT 4006) and 3-day rolling average of streamflow at Gauge No. 5017 for compliance of storage and flow magnitude Nov. 1 to Apr. 30, annually.	Immediately after implementation, annual monitoring during winter base flow period (Nov. 1 to Apr. 30) will occur for the duration of the Program.	From Nov. 1 to Apr. 30, winter base flow curve storage met at ALERT 4006, and target release level not maintained at Gauge No. 5017[2].
GCK-02-C	Improve attraction flow during up- and downstream salmonid migration in Guadalupe Creek, in accordance with the FAHCE Plus rule curves.	Pulse release for attraction flow targeting 38 cfs for a duration of 3 days is triggered when storage in Guadalupe Reservoir is at or above the attraction curve from Dec. 1 to Apr. 1, annually. Pulse releases are to occur up to 9 times (no more than twice per month Dec. - Mar. and once in Apr.) during this time period if the storage threshold is met. Flood releases and spill events in excess of 38 cfs for 2 consecutive days from Dec. through Apr. will also be considered a pulse flow event.	Monitor reservoir storage level within Guadalupe Reservoir (ALERT 4006) and streamflow at Gauge No. 5017 for compliance of storage, flow magnitude, and duration Dec. 1- Apr. 1, annually.	Immediately after implementation, annual monitoring during attraction flow release period (Dec. 1 – Apr. 1) will occur for the duration of the Program.	Attraction flow curve storage met but no pulse released; flow magnitude of 38 cfs and a duration of 2 days not met at Gauge No. 5017[2].
		Safeguard pulse release for attraction flow targeting 38 cfs for a duration of 2 days is triggered when storage in Guadalupe Reservoir is at or above the safeguard threshold of 1,700 AF on Mar. 1, annually, if no other pulse flow of 38 cfs or greater for two days or more has been released.	Monitor reservoir storage level within Guadalupe Reservoir (ALERT 4006) and streamflow at Gauge No. 5017 for compliance of storage, flow magnitude, and duration.	Immediately after implementation, annual monitoring during safeguard release period will occur for the duration of the Program.	Safeguard storage of 1,700 AF met and no pulse released prior to Mar. 1 but safeguard pulse was not released; flow magnitude of 38 cfs and a duration of 2 days not met at Gauge No. 5017[2].

Guadalupe Creek					
Number	**Relevant Natural Resource Goals**	**SMART MOs**	**Monitoring Methods**	**Monitoring Period and Frequency**	**Triggers for Adaptive Management Actions**
GCK-03-C	Improve outmigration flow in Guadalupe Creek during late season downstream juvenile salmonid migration, in accordance with the FAHCE Plus rule curves.	Pulse releases for outmigration targeting 20 cfs for a duration of 5 days is triggered when storage in Guadalupe Reservoir is at or above the outmigration threshold of 1,700 AF on Apr. 15, annually.	Monitor reservoir storage level within Guadalupe Reservoir (ALERT 4006) and streamflow at Gauge No. 5017 for compliance of storage, flow magnitude, and duration.	Immediately after implementation, annual monitoring during outmigration release period will occur for the duration of the Program.	Outmigration storage of 1,700 AF met on April 15 but outmigration pulse was not released; flow magnitude of 20 cfs and a duration of 5 days not met at Gauge No. 5017[2].
GCK-04-V	Water depth during attraction pulse flow sufficient to improve and assure passage conditions in Guadalupe Creek during upstream migration for adult salmonids.	Pulse flow release for attraction flow provides water depth ≥0.7 feet over 25% of entire channel cross-section and 10% continuous during pulse release of 38 cfs for steelhead when storage in Guadalupe Reservoir is at or above the attraction curve or safeguard storage threshold (1,700 AF), from Dec. through Apr.	Water depth measurements across critical riffle transects taken at a minimum of 20 equally spaced intervals during one pulse flow release. Water depth measurements will occur at critical riffles at all POIs during the pulse flow release when flows are 38 cfs or above at Gauge No. 5017, when safe to do so.	During at least one pulse event between years 1-3, 4-6, and 7-10, when an attraction flow is released and after any modification to attraction flow magnitude for the duration of the Program.	Attraction flow curve or safeguard storage met and the pulse was released, but water depth is <0.7 feet for greater than 75% of the transect or less than 10% is continuous during a pulse release of 38 cfs (Gauge No. 5017) in Dec. to Apr.

Guadalupe Creek					
Number	**Relevant Natural Resource Goals**	**SMART MOs**	**Monitoring Methods**	**Monitoring Period and Frequency**	**Triggers for Adaptive Management Actions**
GCK-05-V	Water depth during outmigration pulse flow sufficient to improve and assure passage conditions in Guadalupe Creek during downstream migration for juvenile steelhead.	Pulse flow release for outmigration provides water depth of ≥0.4 feet over 25% of entire channel cross-section and 10% continuous during pulse release of 20 cfs for juvenile steelhead when storage in Guadalupe Reservoir is at or above the outmigration threshold, during the outmigration period.	Water depth measurements across critical riffle transects taken at a minimum of 20 equally spaced intervals during one pulse flow release. Water depth measurements will occur at critical riffles at all POIs during the pulse flow release when flows are 20 cfs at Gauge No. 5017 when safe to do so.	During at least one pulse event between years 1-3, 4-6, and 7-10, when an attraction flow is released and after any modification to attraction flow magnitude for the duration of the Program.	Outmigration storage threshold met and the pulse was released, but water depth is <0.4 feet for greater than 75% of the transect or less than 10% is continuous during a pulse release of 20 cfs (Gauge No. 5017) during the outmigration period.

Guadalupe Creek					
Number	**Relevant Natural Resource Goals**	**SMART MOs**	**Monitoring Methods**	**Monitoring Period and Frequency**	**Triggers for Adaptive Management Actions**
GCK-06-C	Provide summer flow releases with suitable temperature in the Guadalupe Creek CWMZ, to the extent possible based on cold pool volume, for juvenile steelhead rearing and natural ecosystem function, when cold water pool management occurs.	Summer releases are made from Guadalupe Reservoir from May 1 – Oct. 31, annually. In years when a calculated cold water pool volume allows for a release of at least 1 cfs, releases will be made to support the temperature target of daily average temperature not to exceed 18°C within the CWMZ between Guadalupe Dam and Camden Avenue, at magnitude and extent that available cold water storage allows.	A temperature profile will be collected in Guadalupe Reservoir between Apr. 15 and Apr. 30 to determine the available volume of water ≤16°C. Temperatures will be taken incrementally at the deepest part of the reservoir near the dam, and the depth at which the cold water hypolimnion begins will be referenced against the known elevation-capacity of the reservoir to obtain the total cold water volume. Additional temperature profiles will be collected on a monthly basis from May through Oct., and releases will be adjusted to correspond to any changes in measured cold water volume. Streamflow will be monitored at Gauge No. 5017[2] for compliance with prescribed summer releases.	Immediately after implementation, annually from Apr. to Oct. for the duration of the Program.	Summer releases made from Guadalupe Reservoir from May 1 – Oct. 31 are: • Cold pool calculations do not result in an accurate of cold pool volumes. • Reservoir outflow at Gauge No. 5017[2] does not match with what was determined by the cold water pool calculations.
GCK-07-V	Provide summer flow releases with suitable temperature in the Guadalupe Creek CWMZ, to the extent possible based on cold pool volume, for juvenile steelhead rearing and natural ecosystem function, when cold water pool management occurs.	Achieve an average daily temperature target of ≤ 18°C May 1 through Oct. 31 in years with a cold water program using a validation point at temperature logger station GCRK5.	Continuous monitoring of stream temperature starting at the outlet and through the CWMZ using temperature loggers programmed to record temperature at a 1-hour sampling rate.	Within 1 year of implementation or first year with a cold water program. Monitoring occurs from May through Oct. for the first 10 years of the Program.	Temperatures at GCRK5 exceed a daily average of 18°C and daily average temperatures exceed 16°C below Guadalupe Reservoir outlet between May 1 and Oct. 31 in years with a cold water program.

Guadalupe Creek					
Number	**Relevant Natural Resource Goals**	**SMART MOs**	**Monitoring Methods**	**Monitoring Period and Frequency**	**Triggers for Adaptive Management Actions**
GCK-08-C	Avoid stranding salmonids and other fish in Guadalupe Creek by flow ramping at rates that reduce the potential to strand or otherwise isolate fish from the wetted portion of the channel.	For flow decreases greater than 50% of the starting flow: • If release is reduced by >50 cfs, flow is reduced with a target of 50% per step over the number of steps determined by the calculation 1/(LOG(End Flow/Start Flow)0.5) (maximum of seven steps) in 72 hours or less[4]. • If release is reduced by ≤50 cfs, flow is reduced with a target of 50% per step over the number of steps determined by the calculation 1/(LOG(End Flow/Start Flow)0.5) (maximum of seven steps) in 36 hours or less[4]. The minimum reduction in flow during each ramping step will be 2 cfs.	Monitor streamflow at Gauge No. 5017 at 15-minute intervals during flow recessions.	Immediately after implementation, annually for the duration of the Program during flow recessions.	• If release is reduced by >50 cfs and ending flow is greater than 50% of the starting flow, flow is reduced 1) greater than an average of 50% per step[3], 2) for more than seven equally spaced steps, and/or 3) for a period greater than 72 hours[4]. • If release is reduced by ≤50 cfs and ending flow is greater than 50% of the starting flow, flow is reduced 1) greater than average of 50% per step[3], 2) for more than four equally spaced steps, and/or 3) for a period greater than 36 hours[4].

[1] To transition to a higher winter base flow, adequate storage must be available to maintain that release rate for at least five days.

[2] The FAHCE Program provides a target release rate that is implemented using provisional gauge discharge data at the compliance gauge. Releases from the reservoir may slightly deviate from the target release due to valve imprecision or updates to the stage discharge rating.

[3] The target reduction is 50 percent but the actual flow reduction depends on the number of steps and thus, in some scenarios the percent change may be greater or less than 50 percent.

[4] Depending on reservoir inflows and their impact on storage relative to incidental flood risk reduction curves, some steps may extend beyond 12 hours to reduce the probability of spill events. The goal is 12-hour steps between outlet valve adjustments but public safety and flood risk reduction take precedent over ramping interval duration.

Alamitos Creek					
Number	**Relevant Natural Resource Goals**	**SMART MOs**	**Monitoring Methods**	**Monitoring Period and Frequency**	**Triggers for Adaptive Management Actions**
ALM-01-C	Maintain flows in Alamitos Creek that support salmonid habitat during the winter and spring base flow period, in accordance with the FAHCE Plus rule curves.	Maintain winter base flow releases based on reservoir storage[1] at: • 3 cfs and 8 cfs in compliance with winter base flow rule curves set to storage within Almaden Reservoir between Nov. 1 to Apr. 30, except for deviations during flood risk reductions releases, annually. • Minimum low storage release of 1 cfs and 0.5 cfs targeted when storage is below the lowest winter base flow curve.	Monitor reservoir storage level within Almaden Reservoir (ALERT 4001) and 3-day rolling average of streamflow at Gauge No. 5016 for compliance of storage and flow magnitude Nov. 1 to Apr. 30, annually.	Immediately after implementation, annual monitoring during winter base flow period (Nov. 1 to Apr. 30) will occur for the duration of the Program.	From Nov. 1 to Apr. 30, winter base flow curve storage met at ALERT 4001, and target release level not maintained at Gauge No. 5016[2].
ALM-02-C	Improve attraction flow in Alamitos Creek during up- and downstream salmonid migration, in accordance with the FAHCE Plus rule curves.	Pulse releases for attraction flow targeting 50 cfs for a duration of 2 days is triggered when storage in Almaden Reservoir is at or above the attraction curve from Dec. 1 to Apr. 1, annually. Pulse releases are to occur up to 9 times (no more than twice per month Dec. - Mar. and once in Apr.) during this time period if the storage threshold is met. Flood releases and spill events in excess of 50 cfs for 2 consecutive days between Dec. to Apr. will also be considered a pulse flow event.	Monitor reservoir storage level within Almaden Reservoir (ALERT 4001) and streamflow at Gauge No. 5016 for compliance of storage, flow magnitude, and duration Dec. 1-Apr. 1, annually.	Immediately after implementation, annual monitoring during attraction flow release period (Dec. 1 – Apr. 1) will occur for the duration of the Program.	Attraction flow curve storage met and no pulse released; flow magnitude of 50 cfs and a duration of 2 days not met at Gauge No. 5016[2].
		Safeguard pulse release for attraction flow targeting 50 cfs for a duration of 2 days is triggered when storage in Almaden Reservoir is at or above the safeguard threshold of 1,400 AF on Mar. 1, annually, if no other pulse flow of 50 cfs or greater for two days or more has been released.	Monitor reservoir storage level within Guadalupe Reservoir (ALERT 4001) and streamflow at Gauge No. 5016 for compliance of storage, flow magnitude, and duration.	Immediately after implementation, annual monitoring during safeguard release period will occur for the duration of the Program.	Safeguard storage of 1,400 AF met and no pulse released prior to Mar. 1 but safeguard pulse was not released; flow magnitude of 38 cfs and a duration of 2 days not met at Gauge No. 5016[2].

Alamitos Creek					
Number	**Relevant Natural Resource Goals**	**SMART MOs**	**Monitoring Methods**	**Monitoring Period and Frequency**	**Triggers for Adaptive Management Actions**
ALM-03-C	Improve outmigration flow in Alamitos Creek during late season downstream juvenile salmonid migration, in accordance with the FAHCE Plus rule curves.	Pulse releases for outmigration targeting 18 cfs for a duration of 5 days is triggered when storage in Almaden Reservoir is at or above the outmigration threshold of 1,400 AF on Apr. 15, annually.	Monitor reservoir storage level within Almaden Reservoir (ALERT 4001) and streamflow at Gauge No. 5016 for compliance of storage, flow magnitude, and duration.	Immediately after implementation, annual monitoring during outmigration release period will occur for the duration of the Program.	Outmigration storage of 1,400 AF met on April 15 but outmigration pulse was not released; flow magnitude of 18 cfs and a duration of 5 days not met at Gauge No. 5016[2].
ALM-04-V	Water depth during attraction pulse flow sufficient to improve and assure passage conditions in Alamitos Creek during upstream migration for adult salmonids.	Pulse flow release for attraction flow provides water depth ≥0.7 feet over 25% of entire channel cross-section and 10% continuous during pulse release of 50 cfs for steelhead when storage in Almaden Reservoir is at or above the attraction curve or safeguard storage threshold (1,400 AF), from Dec. to Apr.	Water depth measurements across critical riffle transects taken at a minimum of 20 equally spaced intervals during one pulse flow release. Water depth measurements will occur at critical riffles at all POIs during the pulse flow release when flows are 38 cfs or above at Gauge No. 5016, when safe to do so.	During at least one pulse event between years 1-3, 4-6, and 7-10, when an attraction flow is released and after any modification to attraction flow magnitude for the duration of the Program.	Attraction flow curve or safeguard storage met and the pulse was released, but water depth is <0.7 feet for greater than 75% of the transect or less than 10% is continuous during a pulse release of 50 cfs (Gauge No. 5016) in Dec. to Apr.
ALM-05-V	Water depth during outmigration pulse flow sufficient to improve and assure passage conditions in Alamitos Creek during downstream migration for juvenile salmonids.	Pulse flow release for outmigration provides water depth of ≥0.4 feet over 25% of entire channel cross-section and 10% continuous during pulse release of 18 cfs for juvenile steelhead when storage in Almaden Reservoir is at or above the outmigration threshold (1,400 AF), during the outmigration period.	Water depth measurements across critical riffle transects taken at a minimum of 20 equally spaced intervals during one pulse flow release. Water depth measurements will occur at critical riffles at all POIs during the pulse flow release when flows are 18 cfs at Gauge No. 5016 when safe to do so.	During at least one pulse event between years 1-3, 4-6, and 7-10, when an attraction flow is released and after any modification to attraction flow magnitude for the duration of the Program.	Outmigration storage threshold met and the pulse was released, but water depth is <0.4 feet for greater than 75% of the transect or less than 10% is continuous during a pulse release of 18 cfs (Gauge No. 5016[2]) during the outmigration period.

ALM-06-C	Avoid stranding salmonids and other fish in Alamitos Creek by flow ramping at rates that reduce the potential to strand or otherwise isolate fish from the wetted portion of the channel.	For flow decreases greater than 50% of the starting flow: • If release is reduced by >50 cfs, flow is reduced with a target of 50% per step[3] over the number of steps determined by the calculation 1/(LOG(End Flow/Start Flow)0.5) (maximum of seven steps) in 72 hours or less[4]. • If release is reduced by ≤50 cfs, flow is reduced with a target of 50% per step[3] over the number of steps determined by the calculation 1/(LOG(End Flow/Start Flow)0.5) (maximum of seven steps) in 36 hours or less[4]. The minimum reduction in flow during each ramping step will be 2 cfs.	Monitor streamflow at Gauge No. 5016 at 15-minute intervals during flow recessions.	Immediately after implementation, annually for the duration of the Program during flow recessions.	• If release is reduced by >50 cfs and ending flow is greater than 50% of the starting flow, flow is reduced 1) greater than an average of 50% per step[3], 2) for more than seven equally spaced steps, and/or 3) for a period greater than 72 hours[4]. • If release is reduced by ≤50 cfs and ending flow is greater than 50% of the starting flow, flow is reduced 1) greater than average of 50% per step[3], 2) for more than four equally spaced steps, and/or 3) for a period greater than 36 hours[4].

[1] To transition to a higher winter base flow, adequate storage must be available to maintain that release rate for at least five days.

[2] The FAHCE Program provides a target release rate that is implemented using provisional gauge discharge data at the compliance gauge. Releases from the reservoir may slightly deviate from the target release due to valve imprecision or updates to the stage discharge rating.

[3] The target reduction is 50 percent but the actual flow reduction depends on the number of steps and thus, in some scenarios the percent change may be greater or less than 50 percent.

[4] Depending on reservoir inflows and their impact on storage relative to incidental flood risk reduction curves, some steps may extend beyond 12 hours to reduce the probability of spill events. The goal is 12-hour steps between outlet valve adjustments but public safety and flood risk reduction take precedent over ramping interval duration.

Calero Creek					
Number	**Relevant Natural Resource Goals**	**SMART MOs**	**Monitoring Methods**	**Monitoring Period and Frequency**	**Triggers for Adaptive Management Actions**
CAL-01-C	Maintain flows in Calero Creek that support salmonid habitat during the winter and spring base flow period, in accordance with the FAHCE Plus rule curves.	Target winter base flow releases based on reservoir storage[1] at: • 3 cfs, 5 cfs, and ≥ 10 cfs in compliance with winter base flow rule curves set to storage within Calero Reservoir between Nov. 1 to Apr. 30, except for deviations during flood risk reductions releases, annually. • Minimum low storage release of 1 cfs and 0.5 cfs targeted when storage is below the lowest winter base flow curve.	Monitor reservoir storage level within Calero Reservoir (ALERT 4003) and 3-day rolling average of streamflow at Gauge No. 5013 for compliance of storage and flow magnitude Nov. 1 to Apr. 30, annually.	Immediately after implementation, annual monitoring during winter base flow period (Nov. 1 to Apr. 30) will occur for the duration of the Program.	From Nov. 1 to Apr. 30, winter base flow curve storage met at ALERT 4003, and target release level not maintained at Gauge No. 5013[2].

Calero Creek					
Number	**Relevant Natural Resource Goals**	**SMART MOs**	**Monitoring Methods**	**Monitoring Period and Frequency**	**Triggers for Adaptive Management Actions**
CAL-02-C	Improve attraction flow in Calero Creek during up- and downstream salmonid migration, in accordance with the FAHCE Plus rule curves.	Pulse release for attraction flow targeting 17 cfs for a duration of 2 days is triggered when storage in Calero Reservoir is at or above the attraction curve from Dec. 1 to Apr.1, annually. Pulse releases are to occur up to 9 times (no more than twice per month Dec. -Mar. and once in Apr.) during this time period if the storage threshold is met. Flood releases and spill events in excess of 17 cfs for 2 consecutive days between Dec. to Apr. will also be considered a pulse flow event.	Monitor reservoir storage level within Calero Reservoir (ALERT 4003) and streamflow at Gauge No. 5013 for compliance of storage, flow magnitude, and duration Dec. 1- Apr. 1, annually.	Immediately after implementation, annual monitoring during attraction flow release period (Dec. 1 – Apr. 1) will occur for the duration of the Program.	Attraction flow curve storage met and no pulse released; pulse magnitude targeting 17 cfs and a duration of 2 days not met at Gauge No. 5013[2].
		Safeguard pulse release for attraction flow targeting 17 cfs for a duration of 2 days is triggered when storage in Calero Reservoir is at or above the Safeguard threshold of 5,000 AF on Mar. 1, annually, if no other pulse flow of 17 cfs or greater for two days or more has been released.	Monitor reservoir storage level within Calero Reservoir (ALERT 4003) and streamflow at Gauge No. 5013 for compliance of storage, flow magnitude, and duration.	Immediately after implementation, annual monitoring during safeguard release period will occur for the duration of the Program.	Safeguard storage of 5,000 AF met and no pulse released prior to Mar. 1 but safeguard pulse was not released; flow magnitude of 17 cfs and a duration of 2 days not met at Gauge No. 5013[2].
CAL-03-C	Improve outmigration flow in Calero Creek during late season downstream juvenile salmonid migration, in accordance with the FAHCE Plus rule curves.	Pulse releases for outmigration targeting 7 cfs for a duration of 5 days is triggered when storage in Calero Reservoir is at or above the outmigration threshold of 5,000 AF on Apr. 15, annually.	Monitor reservoir storage level within Calero Reservoir (ALERT 4003) and streamflow at Gauge No. 5013 for compliance of storage, flow magnitude, and duration.	Immediately after implementation, annual monitoring during outmigration release period will occur for the duration of the Program.	Outmigration storage of 5,000 AF met on April 15 but outmigration pulse was not released; flow magnitude of 7 cfs and a duration of 5 days not met at Gauge No. 5013[2].

Calero Creek					
Number	**Relevant Natural Resource Goals**	**SMART MOs**	**Monitoring Methods**	**Monitoring Period and Frequency**	**Triggers for Adaptive Management Actions**
CAL-04-V	Water depth during attraction pulse flow in Calero Creek sufficient to improve and assure passage conditions during upstream migration for adult salmonids.	Pulse flow release for attraction flow provides water depth ≥0.7 feet over 25% of entire channel cross-section and 10% continuous during pulse release of 17 cfs for steelhead when storage in Calero Reservoir is at or above the attraction curve or safeguard threshold 5,000 AF), from Dec. to Apr.	Water depth measurements across critical riffle transects taken at a minimum of 20 equally spaced intervals during one pulse flow release. Water depth measurements will occur at critical riffles at all POIs during the pulse flow release when flows are 17 cfs or above at Gauge No. 5013, when safe to do so.	During at least one pulse event between years 1-3, 4-6, and 7-10, when an attraction flow is released and after any modification to attraction flow magnitude for the duration of the Program.	Attraction flow curve or safeguard storage met and the pulse was released, but water depth is <0.7 feet for greater than 75% of the transect or less than 10% is continuous during a pulse release of 17 cfs (Gauge No. 5013[2]) in Dec. to Apr.
CAL-05-V	Water depth during outmigration pulse flow sufficient to improve and assure passage conditions in Calero Creek during downstream migration for juvenile salmonids.	Pulse flow release for outmigration provides water depth of ≥0.4 feet over 25% of entire channel cross-section and 10% continuous during pulse release of 7 cfs for juvenile steelhead when storage in Calero Reservoir is at or above the outmigration threshold (5,000 AF), during the outmigration period.	Water depth measurements across critical riffle transects taken at a minimum of 20 equally spaced intervals during one pulse flow release. Water depth measurements will occur at critical riffles at all POIs during the pulse flow release when flows are 7 cfs at Gauge No. 5013 when safe to do so.	During at least one pulse event between years 1-3, 4-6, and 7-10, when an attraction flow is released and after any modification to attraction flow magnitude for the duration of the Program.	Outmigration storage threshold met and the pulse was released, but water depth is <0.4 feet for greater than 75% of the transect or less than 10% is continuous during a pulse release of 7 cfs (Gauge No. 5013) during the outmigration period.

Calero Creek					
Number	**Relevant Natural Resource Goals**	**SMART MOs**	**Monitoring Methods**	**Monitoring Period and Frequency**	**Triggers for Adaptive Management Actions**
CAL-06-C	Avoid stranding salmonids and other fish in Calero Creek by flow ramping at rates that reduce the potential to strand or otherwise isolate fish from the wetted portion of the channel.	For flow decreases greater than 50% of the starting flow: • If release is reduced by >50 cfs, flow is reduced with a target of 50% per step[3] over the number of steps determined by the calculation 1/(LOG(End Flow/Start Flow)0.5) (maximum of seven steps) in 72 hours or less[4]. • If release is reduced by ≤50 cfs, flow is reduced with a target of 50% per step[3] over the number of steps determined by the calculation 1/(LOG(End Flow/Start Flow)0.5) (maximum of seven steps) in 36 hours or less[4]. The minimum reduction in flow during each ramping step will be 2 cfs.	Monitor streamflow at Gauge No. 5013 at 15-minute intervals during flow recessions.	Immediately after implementation, annually for the duration of the Program during flow recessions.	• If release is reduced by >50 cfs and ending flow is greater than 50% of the starting flow, flow is reduced 1) greater than an average of 50% per step[3], 2) for more than seven equally spaced steps, and/or 3) for a period greater than 72 hours[4]. • If release is reduced by ≤50 cfs and ending flow is greater than 50% of the starting flow, flow is reduced 1) greater than average of 50% per step[3], 2) for more than four equally spaced steps, and/or 3) for a period greater than 36 hours[4].

[1] To transition to a higher winter base flow, adequate storage must be available to maintain that release rate for at least five days.

[2] The FAHCE Program provides a target release rate that is implemented using provisional gauge discharge data at the compliance gauge. Releases from the reservoir may slightly deviate from the target release due to valve imprecision or updates to the stage discharge rating.

[3] The target reduction is 50 percent but the actual flow reduction depends on the number of steps and thus, in some scenarios the percent change may be greater or less than 50 percent.

[4] Depending on reservoir inflows and their impact on storage relative to incidental flood risk reduction curves, some steps may extend beyond 12 hours to reduce the probability of spill events. The goal is 12-hour steps between outlet valve adjustments but public safety and flood risk reduction take precedent over ramping interval duration.

Los Gatos Creek							
Number	**Relevant Natural Resource Goals**	**SMART MOs**	**Monitoring Methods**	**Monitoring Period and Frequency**	**Triggers for Adaptive Management Actions**	**Monitored in WY 2024?**	**MO Met?**
LOG-01-C	Maintain flows in Los Gatos Creek that support salmonid habitat during the winter and spring base flow period, in accordance with the FAHCE Plus rule curves.	Target winter base flow releases based on reservoir storage[1] at: • 3 cfs, 6 cfs, 10 cfs, and 13 cfs in compliance with winter base flow rule curves set to storage within Lexington Reservoir between Nov. 1 to Apr. 30, with the exception of deviations during flood risk reductions releases, annually. • If below the low storage curve, a minimum release will be made to keep as much of the creek wet as possible. Releases of 0.5 cfs, 1 cfs, 2 cfs, 3 cfs, 4 cfs, 5 cfs, or 7 cfs will be made based on graduated curves.	Monitor reservoir storage level within Lexington Reservoir (ALERT 4007) and 3-day rolling average of streamflow at Gauge No. 5050 (winter base flows) or outlet meters AR51240 and AR51242 (low storage releases) for compliance of storage and flow magnitude Nov. 1 to Apr. 30, annually.	Immediately after implementation, annual monitoring during winter base flow period (Nov. 1 to Apr. 30) will occur for the duration of the Program.	From Nov. 1 to Apr. 30, winter base flow curve or low storage curve met at ALERT 4007, and target release level not maintained at Gauge No. 5050 (winter base flow curves) or AR51240/AR51242 (low storage curves)[2].	Yes	Yes

Los Gatos Creek							
Number	**Relevant Natural Resource Goals**	**SMART MOs**	**Monitoring Methods**	**Monitoring Period and Frequency**	**Triggers for Adaptive Management Actions**	**Monitored in WY 2024?**	**MO Met?**
LOG-02-C	Avoid stranding salmonids and other fish in Los Gatos Creek by flow ramping at rates that reduce the potential to strand or otherwise isolate fish from the wetted portion of the channel.	For flow decreases greater than 50% of the starting flow: • If release is reduced by >50 cfs, flow is reduced with a target of 50% per step[3] over the number of steps determined by the calculation 1/(LOG(End Flow/Start Flow)0.5) (maximum of seven steps) in 72 hours or less[4]. • If release is reduced by ≤50 cfs, flow is reduced with a target of 50% per step[3] over the number of steps determined by the calculation 1/(LOG(End Flow/Start Flow)0.5) (maximum of seven steps) in 36 hours or less[4]. The minimum reduction in flow during each ramping step will be 2 cfs.	Monitor streamflow at Gauge No. 5059 at 15-minute intervals during flow recessions.	Immediately after implementation, annually for the duration of the Program during flow recessions.	• If release is reduced by >50 cfs and ending flow is greater than 50% of the starting flow, flow is reduced 1) greater than an average of 50% per step[3], 2) for more than seven equally spaced steps, and/or 3) for a period greater than 72 hours[4]. • If release is reduced by ≤50 cfs and ending flow is greater than 50% of the starting flow, flow is reduced 1) greater than average of 50% per step[3], 2) for more than four equally spaced steps, and/or 3) for a period greater than 36 hours[4].	Yes	No

[1] To transition to a higher winter base flow, adequate storage must be available to maintain that release rate for at least five days.

[2] The FAHCE Program provides a target release rate that is implemented using provisional gauge discharge data at the compliance gauge. Releases from the reservoir may slightly deviate from the target release due to valve imprecision or updates to the stage discharge rating.

[3] The target reduction is 50 percent but the actual flow reduction depends on the number of steps and thus, in some scenarios the percent change may be greater or less than 50 percent.

[4] Depending on reservoir inflows and their impact on storage relative to incidental flood risk reduction curves, some steps may extend beyond 12 hours to reduce the probability of spill events. The goal is 12-hour steps between outlet valve adjustments but public safety and flood risk reduction take precedent over ramping interval duration.

C. Other FAHCE Objectives

Valley Water will work with the AMT to develop additional SMART Biological Objectives (BOs) and Environmental Objectives (EO). BOs and EOs are for the purpose of adaptive management only, not compliance with the SWRCB's water right process, unless specifically noted or agreed to as part of the Initial Five-year Update.

The following section outlines potential strategies for developing BOs and EOs, however, the materials presented below are preliminary and it is unknown whether they are achievable in the Implementation Plan area through implementation of the flow and non-flow measures. Leading up to the Initial Five-Year Update, Valley Water will continue to work with the AMT to revise the BOs and EOs with the goal of creating objectives geared towards providing for fish in good condition as defined above. Additional information regarding the development of other objectives is included in Appendix B, Appendix C, and Appendix D, while Appendix E provides a preliminary timeline for developing BOs and EOs.

1. Fish Assemblage

FAHCE is intended to maintain a healthy assemblage of native fish in good condition within the Implementation Plan area. Table 5 describes this potential assemblage, recognizing that not all of these native fish inhabit every one of the Three Creeks watersheds. In addition, Valley Water has varying capacities to affect the habitat for fish species. The best available science about these species' life histories, habitat needs, and responses to flow and non-flow actions varies considerably by species. Table 5 presents an initial species assemblage that will be considered by the AMT.

Table 5. Assemblage of Native Fish in the Implementation Plan Area

Species	General Life Cycle Description	Habitat by Life State
Pacific Lamprey	Anadromous, spawning in fresh water, larvae rear in streams, adults migrate to the ocean to feed parasitically, then return to fresh water to spawn and die.	**Eggs & Larvae:** Freshwater streams, burrowed in sediment. **Juvenile:** Migrate to the ocean to feed on fish. **Adult:** Migrate back to freshwater streams to spawn.
Prickly Sculpin	Mostly fresh water, sometimes brackish. Spend days hiding under rocks and logs, feeding on invertebrates at night.	**Juveniles:** Shallower, slower water than adults. Stream margins with submerged vegetation, cobble, gravel. **Adults:** Rocky bottoms of ponds and streams. Lower reaches of bays and estuaries
Sacramento Hitch	Omnivorous, feeding on zooplankton and insects near the surface of streams or in open water. Primarily fresh water, tolerant of some brackish conditions. Spawning occurs in rivers.	**Juvenile:** Shallow, vegetated areas near the shore of lakes. **Adult:** Slow, warm water of lakes and quiet stretches of rivers. Also found in cool, clear, low-gradient streams.
Sacramento Sucker	Bottom dwellers, feeding on a mix of algae, detritus, and invertebrates. Thrive in various freshwater conditions, including streams, lakes, and mild estuaries. Move from pools to riffles to spawn.	**Young larvae:** Hiding in gravel substrate of streams or lake tributaries. **Juvenile:** Forage along the bottom of stream banks. **Adult:** Deeper water during the day, feeding during twilight hours. Occupy pools, runs, or riffles with cover from predators.
Southern Coastal Roach	Highly adapted to intermittent streams and can persist in fragmented or seasonal habitats. Feed on small invertebrates, algae, and detritus. Spawn in spring to early summer. Lay adhesive eggs in shallow, slow-moving or still waters over gravel, rocks, or submerged vegetation.	**Larvae/Juveniles:** Warm, shallow backwaters or pool edges with cover (vegetation, woody debris). **Adults:** Small streams, perennial pools, and low-gradient creeks with warm water. They tolerate seasonal drying by seeking residual pools or deeper refugia.
Riffle Sculpin	Headwater rivers and streams with cold water and adequate flow with rock or gravel substrate; adults occupy fairly shallow, fast flowing water with adequate velocity refugia; spawns under rocks in swift riffles or inside cavities in submerged woody debris; all life stages are benthic and do not disperse far from their natal nest.	**Larvae/Juveniles:** Shallow, fast-flowing riffles and runs with coarse substrate and interstitial spaces for cover. **Adults:** Same riffle and run habitats, often in cold, well-oxygenated headwater streams with rocky bottoms and minimal sedimentation.
Chinook Salmon	Anadromous, spawning in freshwater rivers, rearing as juveniles in fresh water before migrating to the ocean to mature, and returning to fresh water to spawn and die.	**Eggs & Fry:** Redd (nest) in gravel of freshwater streams. **Parr:** Freshwater streams, feeding on insects. **Smolt:** Migrate downstream to the sea, adapting to saltwater. **Adult:** Ocean, feeding and growing. Return to natal streams to spawn.
Steelhead/Rainbow Trout	Exhibit diverse life history patterns, including an anadromous form (steelhead) and fresh water residents (rainbow trout). Anadromous steelhead spawn in fresh water, rear as juveniles in fresh water, migrate to the ocean, and return to fresh water to spawn.	**Eggs & Juvenile:** Freshwater streams, similar habitat to other salmonids. **Adult (steelhead):** Ocean. Return to fresh water to spawn. **Adult (rainbow trout):** Fresh water.
Longfin Smelt	Multi-stage life cycle with habitat needs that vary by stage. Adults migrate into and spawn in fresh or slightly brackish water typically from October to April. Spawning sites are usually in tidal reaches of rivers or streams, with sandy gravel bottoms. Newly hatched larvae are buoyant and disperse with currents. Larval recruitment is positively tied to freshwater inflow to the estuarine environment. Larvae live in a wide range of salinities but tend to aggregate in low salinity environments (0-6ppt).	**Eggs:** Adhesive **Larvae:** Buoyant, drift downstream and aggregate in brackish water. **Juvenile:** Brackish waters. **Sub-Adults:** Saltwater. **Adults**: Bays and saltwater habitats.

	After 100-150 days post-hatch, developing juveniles migrate rapidly to higher salinity environments (10ppt to marine).	

2. Biological Objectives

In conjunction with the AMT, Valley Water will develop BOs that incorporate the abundance, life history, productivity, and spatial extent of fish species, as appropriate for each species and consistent with best available science and fish in good condition.[4] Table 6 describes an estimate of adult spawners of Chinook Salmon and steelhead needed to support an independent and self-sustaining population, varying by extinction risk[5]. As of this Implementation Plan's effective date[6], the BO is a population of each species at "Low Risk" of extinction. However, it should be noted that the watershed may not be large enough to support the amount of habitat hypothetically needed to achieve the "Low Risk" target.

Given gaps in scientific knowledge, limitations in hydrology, watershed size, and other factors, Valley Water will revise this BO and potentially identify new BOs more suitable for the Implementation Plan area and salmonid productivity in the Initial Five-Year Update.

Table 6. Abundance of Steelhead and Chinook Salmon Spawners to Support different levels of risk of extinction

High Risk	Moderate Risk	Low Risk
<84	84-833	>833
Note: These are numbers based on genetic models and achievability in local watersheds due to size and hydrology requires further study.		

Valley Water will evaluate the feasibility of additional monitoring metrics such as adult escapement, redd construction, fry emergence, and juvenile production. Prioritization of monitoring efforts, budget considerations, value of information analyses, and associated trade-offs will be discussed with the AMT. Though the species in Table 5 have varying life histories, the Implementation Plan is intended to ensure that actions taken for one species are not to the detriment of another. Valley Water will update and incorporate specific metrics into the Initial Five-year Update.

D. Environmental Objectives

Valley Water will develop EOs to describe the conditions (quantities and qualities) of aquatic habitat necessary to achieve the BOs. EOs should reflect the following information as relevant to the BOs:

[4] The BOs are derived from the following: Moyle et al., "Fish Health and Diversity: Justifying Flows for a California Stream," *Fisheries* 3(7):6-15 (1998); Moyle and Marchetti "Applications of Indices of Biotic Integrity to California Streams and Watersheds" in T.P. Simon et al., *Assessing the sustainability and biological integrity of water resources using fish assemblages* (CRC Press 1999); McElhany et al., "Viable Salmonid Populations and the Recovery of Evolutionarily Significant Units," *NOAA Technical Memorandum NMFS-NWFCS-42* (2000); Lindley, et al., "Framework for Assessing Viability of Threatened and Endangered Chinook Salmon and Steelhead in the Sacramento-San Joaquin Basin," *San Francisco Estuary and Watershed Science Vol. 5, Issue 1, Article 4* (2007); and Cain et al. "Conservation Planning Foundation for Restoring Chinook Salmon and *O. mykiss* in Stanislaus River," (2019)

[5] These metrics are derived from Spence et al. (2008) as applied by Merz (2021), as explained in Appendix D 10/22 version].

[6] Effective Date is assumed to be the date by which the SWRCB water right amendments are completed.

(1) basic life history information, including identification of different life stages and their habitat associations to the extent habitat suitability criteria are available in the literature for each species and life stage;

(2) availability of suitable habitat (e.g., temperature, depth, velocity, DO), both present and potential;

(3) spawning habitat needs, including suitable spawning substrate;

(4) rearing habitat needs; and

(5) migration needs, both immigration and emigration for the migratory species.

Table 7 and Table 8 describe the hypothetical habitat needs for Chinook Salmon and steelhead intended to achieve populations at "Low Risk" of extinction (see Table 6 above) based on the habitat quantities needed to fulfill each life history as defined in the scientific literature. These values do not take into consideration the watershed size and may not be achievable in the FAHCE watersheds, due to total wetted area shown in Table 9. Due to this the EOs stated below are hypotheses subject to testing through the AMP and will be modified in the Initial Five-year Update to ensure that objectives are SMART.

The habitats for Chinook Salmon and steelhead are not identical, and both are described in Tables 7 and 8 below.

Table 7.Hypothetical Acres of Spawning and Incubation Habitat per Watershed for Low Extinction Risk

Month	Steelhead	Chinook*
15-31 Oct	-	0.03
Nov	-	0.35
Dec	0.1	0.63
Jan	0.1	0.70
Feb	0.1	0.70
Mar	0.2	0.70
Apr	0.2	-
May	0.2	-

Note 1: Chinook habitat targets only apply to the Guadalupe and Coyote Watersheds.
Note 2: These numbers are based on habitat needs for a low risk of extinction based on genetic models, and their achievability in local watersheds due to size and hydrology requires further study.

Table 8. Hypothetical Acres of Rearing Habitat per Watershed for Low Extinction Risk

Month	Steelhead	Chinook*
Jan	170	18
Feb	170	17
Mar	150	12
Apr	100	10

Month	Steelhead	Chinook*
May	80	2
Jun	80	-
Jul	110	-
Aug	120	-
Sep	150	-
Oct	150	-
Nov	160	-
Dec	170	-

Note 1: Chinook habitat targets only apply to the Guadalupe and Coyote Watersheds.
Note 2: These numbers are based on habitat needs for a low risk of extinction based on genetic models and their achievability in local watersheds due to size and hydrology requires further study.

Where the monitoring record shows that an EO is unlikely to be achieved, the AMT will reassess the EO, as well as the corresponding BO based upon a refined understanding of habitat conditions in the Implementation Plan area. For example, an initial geographic analysis of the length of each channel and average field-measured channel widths indicates that the total available area below Valley Water's reservoirs is inadequate to meet the 170 acres of steelhead rearing habitat, which is the area hypothetically needed for each watershed to achieve a "Low Risk" population size. Table 9 provides the estimated acres of total stream area and acreages downstream of the FAHCE dams, without consideration whether areas remain wetted or seasonally go dry, nor do they consider if the habitat is suitable to support the different life stages for the species. Table 9 represents a coarse calculation of available creek channel area per watershed. Given the values in Table 9, the hypothetical targets for steelhead rearing in Table 8 may not be achievable. Therefore, further analysis and hypothesis testing is needed and will elucidate achievable EOs in these watersheds through the AMP.

Table 9. Evaluation of Current Total Stream Area Downstream of Valley Water Dams Based on Creek Length and Measured Stream Widths.

	Length (ft)[1]	Width[2]	Sq ft	Acres
Stevens Creek- non-tidal	55,352	13.2	729,229	16.74
Guadalupe Watershed				
Alamitos Creek	40,287	20.07	808,629	18.56
Calero Creek	21,938	11.09	243,372	5.59
Guadalupe Creek - Total	31,202	12.59	392,755	9.02
Los Gatos Creek - Camden to Guad R.	30,434	19.64	597,846	13.72
Guadalupe River – non-tidal	68,417	27.37	1,872,788	42.99
Guadalupe Watershed Total	192,278	-	3,915,390	89.88
Coyote Watershed				
Coyote Creek – Total	164,584	27.91	4,593,539	105.45
Upper Penitencia Creek	37,911	11.17	423,466	9.72
Coyote Watershed Total	202,495	-	5,017,005	115.17

	Length (ft)[1]	Width[2]	Sq ft	Acres

Note 1: Length calculations are based on the entire length of the stream channel downstream of Valley Water dams that are accessible to anadromous fish. These values do not represent the area that is consistently we or that is considered suitable habitat for different life stages.

Note 2: Width estimates are based on the average of wetted widths measurements collected in the field in each of the watersheds.

The values provided in Table 10 include multiple assumptions to calculate the number of passage days estimated for each system. Passage days were evaluated based on a specific population size migrating into the system, based on the low extinction risk hypothetical values in Table 6, distributed over a bell curve providing a total number of fish predicted to pass in each individual month (Merz 2021). Swim speeds based on known literature were used to estimate the time needed for fish to travel from San Francisco Bay through the creek systems. These values are based on a conservative calculation of a "slow steelhead" and do not take into consideration that the migratory path to Alamitos, Guadalupe, and Calero Creek also includes the passage days through Guadalupe River. Table 10 values are likely an overestimate of the passage days to navigate each of those creeks independently; however, the values provide a hypothetical look at the migratory duration for each month for each system without consideration of reservoir size or storage during the migration season. These passage days could conflict with other goals of the Implementation Plan, specifically temperature management actions, and will need to be refined by the AMT.

Table 10. Estimated Number of Continuous Passage Days for Immigrating Adult Steelhead and Chinook Salmon to Reach Upper Spawning Habitat in Each Watershed calculated based on theoretical population targets, swim speed, and distance from San Francisco Bay and the base of each dam.

Watershed	POI	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Coyote Creek	COYO10	1.8	3.6	7.2	9.7	19.4	9.7	4.9
Guadalupe River	GUAD7	0.8	1.6	3.2	4.4	8.8	4.4	2.2
Guadalupe River	LOSG2	0.8	1.6	3.2	4.4	8.8	4.4	2.2
Guadalupe River	GCRK4	1.1	2.2	4.4	6.0	12.0	6.0	3.0
Guadalupe River	ALAM4	1.2	2.4	4.8	6.4	12.8	6.4	3.2
Guadalupe River	CALE2	1.2	2.3	4.6	6.3	12.6	6.3	3.2
Stevens Creek	STEV6	-	-	2.0	2.8	5.6	2.8	1.4

Note 1: Upper Penitencia Creek is not included in the passage table as Valley Water has no operational control over passage conditions in that system. Any passage events that occur in Upper Penitencia Creek are from precipitation events or releases from Cherry Flat Reservoir which is operated by the City of San Jose.

Note 2: These are numbers based on multiple assumptions including genetic models which require further study to understand achievability in local watersheds due to size, hydrology, and local population dynamics.

Table 11 is a summary of passage days per month that the natural hydrology would provide based on inflow into the Implementation Plan area reservoirs. It presents stream gauge data

from above the FAHCE reservoirs, collected from 2016 to 2025. Table 11 describes Valley Water's existing understanding of the relationship between flows that provide the necessary depths for steelhead passage in each creek and the estimated number of days where those flows occurred naturally upstream of FAHCE reservoirs from 2016 to 2025. Appendix D provides more detail on this analysis.

This has been provided for additional context, is an indication of historical patterns, and is a useful comparison to the values in Table 10. In many cases, Table 10 values exceed the number of passage days that naturally occur, hence exceeding what the watersheds naturally produce for downstream flows. Similar to Table 10, this evaluation is subject to change as more data becomes available and are not targets or proposed flow durations. These data are intended to inform the AMT as they develop BOs and EOs.

Table 11. Number of upstream passage days per month for immigrating adult steelhead based on historic hydrology upstream of each reservoir and critical riffle flow and depth criteria for steelhead

Watershed	Creek	Passage Flow (CFS)	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Guadalupe	Guadalupe Creek	38	0.2	0.0	2.2	4.7	2.6	4.3	0.0
	Alamitos Creek	50	0.1	0.0	1.5	5	5.9	6.7	0.6
	Calero Creek	17	0.0	0.0	0.4	2.9	1.5	1.8	0.0
	Los Gatos Creek *	28	0.0	0.2	0.4	1.2	8.6	12.4	6.4
Stevens Creek	Stevens Creek	38	0.0	0.0	1.2	5.3	7.4	8.7	1.5
Coyote**	Coyote Creek	90	0.1	0.0	2.8	8.2	9.4	10.7	2.9

* Values for Los Gatos Creek are only based upon two years of available data and are not an accurate representation of conditions over a variety of water year types.

** Upper Penitencia Creek is not included in the passage table as Valley Water has no operational control over passage conditions in that system. Any passage events that occur in Upper Penitencia Creek are from precipitation events or releases from Cherry Flat Reservoir which is operated by the City of San Jose.

E. Adaptive Management Team

Valley Water will convene an AMT to assist with the adaptive management of this Implementation Plan. The AMT will assess each phase for performance in maximizing, to the extent feasible, the quality and availability of habitat for Chinook Salmon, steelhead, and other native fishes.

Valley Water will administer and staff an AMT to implement flow and non-flow measures in an adaptive manner to effectively mitigate any adverse impacts on assemblage populations and their habitat, resulting from SCVWD's water supply facilities and operations.

1. Composition

The following entities are Members of the AMT:

- Santa Clara Valley Water District

- United States Fish and Wildlife Service
- National Marine Fisheries Service
- California Department of Fish and Wildlife
- Trout Unlimited
- Pacific Coast Federation of Fishermen's Associations
- California Trout, Inc.
- Northern California Council of Federation of Fly Fishers.

Each entity will designate a primary representative and an alternate (Representatives). Each Representative will have technical and scientific expertise relevant to the Implementation Plan, such as aquatic habitat enhancement and fishery management, hydrology, water quality, geomorphology, or related disciplines. Each Representative will participate consistently in AMT meetings, minimizing use of alternatives. At each AMT meeting, each Representative is expected to be prepared and empowered to act on behalf of the entity they represent for prompt and effective decision-making.

Other interested entities may be invited to join the AMT as Members with the consent of Valley Water in consultation with the AMT Members. A written application is required, and the interested entity will need to demonstrate:

- commitment to implement the goals of the Settlement Agreement;
- willingness to dedicate the time and other resources necessary for effective and full participation in the AMP; and
- ability to add technical expertise, experience, and value to the existing membership.

2. Responsibilities Related to Science

The fundamental responsibility of the AMT is to make science-based recommendations about adaptive management of the flow and non-flow measures, as well as the MOs, BOs, and EOs. The AMT will review the annual reports for consistency with this Implementation Plan, recommend refinements to the MOs, BOs, and EOs, and identify potential adaptive actions.

The AMT will review draft study plans (study objectives, methods and experimental design, results, monitoring, etc.), environmental documents, permit applications, non-flow habitat enhancement plans, baseline studies, validation monitoring, reports, and other measures required by this AMP. As needed, the AMT may provide input to refine existing analytic tools or identify new analytical tools.

3. Responsibilities Related to Operations

Valley Water will convene an OWG (from within the AMT) to discuss and provide updates on FAHCE-Plus operations. The OWG will include Valley Water, NMFS, and CDFW.

The key responsibilities of the OWG are: (1) to hold an annual coordination meeting, (2) to provide real-time and critical operational updates on an as-needed basis, and (3) to schedule additional coordination as needed during dry or low storage years. The annual meeting will be

scheduled to occur no later than February 15th of each year, with a focus on potential modifications to operations based on current conditions in the watershed and projections of 90% historical flow exceedance for the remainder of the water year. More frequent coordination will occur as needed in low storage and/or dry and very dry years. Valley Water's operations team will provide updates to the OWG via email as changes occur associated with multi-purpose and smolt pulse releases, winter base flow changes, and operations that deviate from FAHCE-Plus rule curves. The OWG will acknowledge trade-offs among steelhead and other native species' life history needs and strive for consensus-based decisions.

In response to real-time hydrological conditions, the OWG will provide timely input for adaptive management of flow actions, and recommendations by the OWG will be temporarily implemented. Valley Water will attempt to give OWG members a 24-hour advance notice of the need for a decision; however, certain emergency conditions may not allow for this. Planned repairs and maintenance that may require temporary modifications of reservoir releases or storage will be reviewed by the AMT. Long-term recommendations regarding operations or necessary adjustments will be handled by the AMT.

4. Meetings

The AMT will hold its annual meeting in May of each year. Valley Water anticipates that there will be regular interaction with the AMT throughout the year as issues arise and topic-specific technical meetings will occur more frequently in earlier years of the Implementation Plan. Any ad hoc meetings will also follow the same consensus-based approach as the AMT meetings.

By May 31, 2026, the AMT will collaboratively draft and finalize a charter to guide its work, which will include procedures for efficient conduct of AMT's meetings. Related to meetings, the charter will address: communication procedures, facilitation, and other meeting logistics (scheduling, representation, agendas, minutes, action items, file storage, and voting).

Valley Water will designate a Representative to serve as the AMT Chair. After Year One, the AMT may, by consensus, decide to rotate that responsibility. The Chair, with assistance from a third-party, neutral facilitator (as determined by the AMT), will be responsible for:

- providing adequate staff resources to support AMT meeting logistics, including facilitation; preparing agendas; compiling and drafting meeting notes to document key points of discussion, agreements and disagreements, and action items; and distributing meeting notes for AMT's review and input prior to finalization;
- finalizing annual reports after incorporating comments;
- coordinating and seeking approval for items needing Valley Water Board decisions; and
- maintaining communication, including distributing annual reports, meeting notes, and documentation on dispute resolution among the AMT.

F. Decision-Making Framework

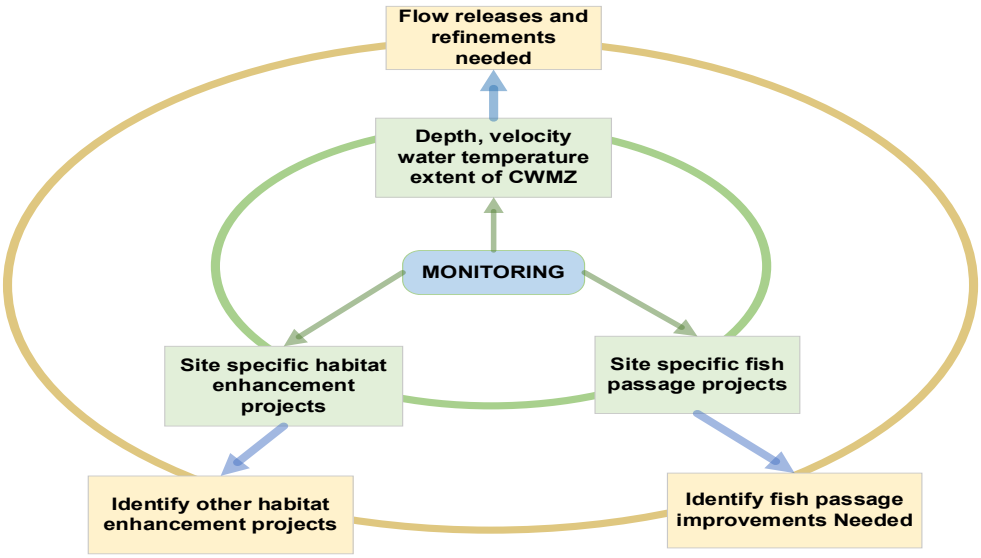
Valley Water will implement this AMP through a decision-making framework that ties information development and the use of that information to inform decisions (Figure 11). This section discusses key drivers for adaptive actions, and the consensus-building or dispute resolution processes for responding to these key drivers.

Due to the degree of uncertainty and natural variability associated with ecosystems, and their responses to restoration measures, Valley Water will implement the flow and non-flow measures, assess the MOs in Table 4, minimize adverse impacts on other resources (such as water supply, groundwater levels, public health and safety, recreation, wildlife, etc.), and refine the other objectives described above. identifying, selecting, and implementing adaptive management actions will play an important role in addressing MOs that are not met, the evaluation of non-flow measures, and/or resource trade-offs that require consideration and prioritization (i.e. inter-species tradeoffs, water supply/groundwater recharge needs, budget limitations, etc.).

Data and analysis from compliance, validation, and long-term trend monitoring will help determine refinements of the Implementation Plan. In the event that objectives are not met, the need for adaptive management will be highlighted in the annual report, along with recommended management actions for the AMT to consider. In addition, the AMT will also take the following into consideration:

- inter-annual and seasonal variability in hydrology;
- limiting factors that impact salmonid populations within the watersheds;
- water supply commitments and financial constraints;
- progress in achieving multi-species biological benefits;
- cost-effectiveness of monitoring methods, special studies, and non-flow measures to achieve multi-species biological benefits; and
- modifications to flow or non-flow measures

Figure 12. Key Drivers for Adaptive Management



1. Consensus Decision Rule

The AMT will follow a consensus decision rule, which is defined as unanimous agreement by all voting Members. Given the timeframe of the process, the breadth and complexity of the FAHCE

objectives, consensus may not be feasible at all times and is not mandated by this Implementation Plan. If consensus is not reached on a given topic, Valley Water will make its decisions or take its desired action, as Valley Water is the water rights holder. The AMT will attempt to document the range of recommendations supported by different Members in meeting summaries, draft reports, and final reports.

The consensus decision rule is based on principles of "consensus with accountability." Consensus with accountability requires all AMT Members to try to reach consensus, while always supporting and expressing the interests of their appointing entities. In the event a Member must reject a proposal that includes a defensible explanation of how it serves the program's goal to achieve fish in good condition, that Member must provide a counter proposal that legitimately attempts to achieve their interest and the interests of the other Members. The AMT will not seek to identify numeric "winners and losers" on key topics. Rather, the AMT will seek mutually acceptable conclusions. In seeking consensus on any interim or final recommendations, Members will voice their opinions with specific proposals along the way, rather than waiting until a final recommendation has been developed. The basic decision-making process will be as follows:

- **Quorum**: No decisions will be made unless a quorum of AMT is present. A quorum is defined as 50% of AMT Members plus one additional Member.

- **Straw Polls**: Members may use straw polls to assess the degree of preliminary support for an idea before it is submitted to the AMT for a formal action / decision as described below. Straw polls will be conducted by asking each Member for tentative approval and initial support/concern without taking a formal "vote." Members may indicate only tentative approval for a preliminary proposal without fully committing to its support and are not required to provide an alternative in the event they are unable to provide tentative approval.

- **Draft and Final Decisions**: The AMT will use the following four positions to indicate Members degree of support for any proposal being considered and to determine if consensus has been achieved:

    - **Do Not Support**: I do not agree with the proposal. I feel the need to block its adoption and propose an alternative.
    - **Conditionally Support**: I am not enthusiastic about the proposal, but I can accept it with the following conditions/caveats/understandings.
    - **Support**: I support the proposal.
    - **Abstention**: I will not contribute to the decision. A Member may abstain from a decision for many reasons, such as a topic/decision has statutory implications that an agency representative cannot be on record conflicting with, a Member cannot get a consensus of his/her appointing agency or organization, or a Member does not have the technical expertise to make an informed decision. Any abstention will be documented, and if a quorum is present, abstention does not prohibit reaching consensus.

The AMT will have reached consensus if a quorum is present and all participating Members provide "Support," "Conditionally Support," or "Abstention" on a given decision. If any Member is at a "Do Not Support" level, that Member will provide a counter proposal that legitimately

attempts to achieve their interest and the interests of opposing Members. If the AMT reaches consensus on a decision, Valley Water will adopt the decision, document it in the Annual report and, if appropriate, in this Implementation Plan, and then implement the decision.

If consensus is not reached in a timely manner (typically, within 30 days), Valley Water will decide and take its course of action, if any. The AMT shall endeavor to document the differing alternatives and perspectives in a meeting summary, draft reports, and final reports. Members abstaining from particular proposals are encouraged to explain their reasons for abstention, which will also be documented.

Valley Water does not delegate any authority to AMT for the purposes of compliance with water rights or other regulatory requirements. However, AMT members will have meaningful opportunities to inform and influence implementation decisions.

a) Inactive Members

To ensure accountability and active engagement, any Representative of an AMT Member who does not attend or designate an alternate to attend two consecutive yearly AMT meetings will be considered inactive. Inactive Members will not be counted toward quorum or consensus. An Inactive Member may resume participation by contacting the AMT Chair and/or Facilitator to reaffirm their commitment to the responsibilities outlined in Section IV. D (above) and receive updates on recent discussions prior to the next AMT meeting or decision-making process. Reinstating an Inactive Member to active status will be at the discretion of the AMT Chair.

b) Revisiting Past Decisions

The AMT Members will value the time and resources required to reach consensus. As such, the AMT will not revisit previously agreed-upon recommendations or alternatives unless new information is learned that, in a Member's judgment, would likely affect the AMT's previous work. AMT Members will undertake to avoid inertia (by using old information to revisit past decisions) while also pro-actively advancing the adaptive management of this Implementation Plan.

Any AMT Member seeking to revisit a previously agreed-upon recommendation or alternative based on new information must:

- Clearly identify the prior recommendation or decision in question;
- Submit the proposed new information in writing for AMT review, along with:
    - A description of the source and nature of the new information;
    - An explanation of why the information was previously unavailable;
    - A justification of its relevance and credibility;
    - A rationale for how it is reasonably likely to materially affect the prior decision; and
    - Confirmation that it is being submitted in a timely manner;
- Demonstrate alignment with the SMART criteria (Specific, Measurable, Achievable, Responsive, Time-bound), where applicable; and

- Provide any supporting documentation or analysis necessary for review and discussion.

The AMT will review the submission to determine whether the criteria for "new information" have been met and whether re-evaluation of the prior decision is warranted and a high priority, given the value of the information, the time required to revisit the issue, and financial constraints.

2. Dispute Resolution Process

Where the informal process set out above fails to resolve a dispute, Members agrees to use the procedures specified below to resolve that dispute.

Dispute Initiation Notice. The Member claiming a dispute will provide timely notice within 30 days of its actual knowledge of the event that gives rise to the dispute to the other Members, describing the matter(s) in dispute and any proposed relief or resolution (Dispute Initiation Notice). Each Member that wishes to participate in dispute resolution will provide written Notice to the other Members within 7 days of receiving the notice (collectively, Disputing Parties).

Good Faith. The Members will devote such time, resources, and attention to dispute resolution as necessary and reasonable to attempt to resolve the dispute at the earliest time possible. Each Member will cooperate in good faith promptly to schedule, attend, and participate in dispute resolution. Each Member will promptly implement all final agreements reached, consistent with its applicable statutory and regulatory responsibilities.

Dispute Resolution Notice. The Member initially claiming a dispute will provide Notice to all Members of the result of the dispute resolution procedures.

State Water Board. If the Disputing Members do not resolve a dispute in a manner satisfactory to them within 60 days of the Dispute Initiation Notice, any such Member may petition the Administrative Hearing Office to resolve the dispute within the State Water Board's jurisdiction.

Timing. The time periods above may be shortened or extended upon mutual written agreement of the Disputing Members.

This dispute resolution process is the sole and exclusive means, or process, for resolving any dispute concerning any alleged violation of this Implementation Plan.

G. Annual Report

Valley Water will prepare a draft annual report by March of each year, which will be available to the AMT for at least a 45-days period, in advance of the annual meeting. The AMT will hold its annual meeting in May of each year. Ahead of the annual meeting, the AMT Representative will have reviewed the draft annual report and be prepared to:

- discuss and provide input on the recommendations in the draft annual report;
- Status of the fish assemblage including review progress towards/attainment of Eos and BOs and status of identified/ranked stressors
- discuss any adaptive management issues identified in the report that need the AMT's input;

- identify Representatives to participate in smaller group discussions or dispute resolutions processes; and
- provide a statement of the level of support (per consensus decision rules) for the recommendations in the annual report, and/or conclusions of other reports, such as the 10-year synthesis report; and
- if needed, provide documentation of any unresolved conflicts following the dispute resolution process

The annual report will discuss the status of the Implementation Plan and whether the MOs were met, provide monitoring results, updates on habitat restoration projects, provide an update on schedules (Tables 2 and 3), discuss Implementation Plan expenditures, and provide a status of remaining funds. Results of fisheries, hydrologic, and habitat monitoring will be compiled and evaluated in each annual report; however, a more in-depth synthesis will be conducted in the Initial and Periodic Updates specified below.

The annual report will also include a proposed plan for the topics that require AMT discussion in the following year, including adaptive management actions to be continued, recommended changes to the Implementation Plan, and recommended updates to the AMT charter.

The annual report will also include an accounting of annual expenditures, including cumulative expenditures by Valley Water. The Settlement Agreement (Appendices C and D) includes guidelines and protocols for calculating annual cost accounting for program expenditures. The accounting will include consideration of costs associated with:

- capital habitat improvement projects (such as habitat enhancement, passage barrier remediation, etc.);
- lost water supply for groundwater recharge and use;
- research and environmental monitoring (including equipment and tools); etc.
- staff and consulting costs
- facilitation cost

The report will include any applicable information about grants, other funds applied, or partnerships that were secured to implement non-flow measures.

H. Initial Five-Year Update

Valley Water, in conjunction with the AMT, will prepare an Initial Five-Year Update to this Implementation Plan. The Initial Five-Year Update will be submitted to the SWRCB five years after the Effective Date. The purposes of this update are to:

1) Evaluate and determine whether the implementation of the flow and non-flow measures stated above will maintain fish in good condition
2) Propose corrective measures as needed to restore and maintain fish in good condition, subject to the SWRCB's review.

1. Elements of the Initial Five-Year Update

This Initial FHRP Update shall take the following steps, on the schedule stated herein. In each step, Valley Water will develop a proposal for review by the AMT. If any member of the AMT

disputes the proposal, Valley Water and the other members of the AMT will follow the dispute resolution process stated above.

Step 1: Set SMART BOs The BOs will be proposed for the species in Table 5. Such objectives will be set based on the best available science. Not all metrics will be equally specific or available for all species. Valley Water will develop a proposal, no later than October 1, 2026, for salmonids and April 1, 2027, for the remainder of the assemblage.

Step 2: Set SMART EOs The EOs will be proposed to provide quantitative and qualitative habitat targets to support the BOs identified in Step 1. Such objectives will be set based on the best available science. Not all metrics will be equally specific or available for all species. Valley Water will develop a proposal under Step 2 by January 1, 2027, for salmonids and July 1, 2027, for the remainder of the Table 5 species.

Step 3: Monitoring Program to Evaluate BOs and EOs. Valley Water will update its Monitoring Program as needed to ensure that it is obtaining the information needed to evaluate the BOs and EOs for each life stage for the species in the assemblage (Table 5). Valley Water will develop a proposal under Step 3 no later than October 1, 2026.

For all non-disputed aspects of the Monitoring Program, Valley Water will immediately begin collecting the relevant information. For any aspects that are disputed, Valley Water will begin collecting the relevant information immediately after the dispute is resolved.

Step 4: Existing Environmental Conditions. Valley Water shall complete its update of evaluation of existing environmental conditions in the Implementation Plan area. This update shall use bathymetric data and hydrological analysis, relying on the best current scientific methods, to identify the current availability of suitable habitat area and instream flow-habitat relationships relevant to the EOs. Valley Water will develop a proposal under Step 4 by April 1, 2026, with completion of evaluation of existing conditions by October 1, 2028.

Step 5: Comparison of Existing Environmental Conditions and Objectives. Valley Water will compare the existing Environmental Conditions (Step 2) with the EOs (Step 4) to determine whether they are being achieved. Potential shortfalls (“Stressors”) include: availability of existing and potential physical habitat, inter-annual and seasonal variation in hydrologic conditions, flow quantity and timing, temperature, dissolved oxygen, unsuitable substrate, infrastructure or other channel modifications, passage barriers and similar impediments, poaching, pollutants, and other conditions that affect habitat availability and suitability for the Fish Assemblage stated in Table 5. Valley Water will develop a proposal under Step 5 by October 1, 2027, with completion of comparison by April 1, 2029.

Step 6: Identification and Ranking of Stressors. Valley Water will analyze and rank the relative contributions of Stressors as impediments to achieving the Biological Objectives, for the purpose of adaptive management of actions, including flow and non-flow measures. Prioritization shall identify in a plan the actions needed to relieve the stressors and will prioritize them based on which will have the largest and fastest impact on achieving the BOs.

Valley Water will complete Step 6 in two stages. Stressors will be identified by October 1, 2029. Prioritization of stressors will be completed by January 1, 2030.

Step 7: Implementation of Flow and non-Flow Measures. By April 1, 2030, Valley Water will propose a schedule for implementation of actions, including flow and non-flow measures

identified in Step 6. In that schedule, Valley Water will undertake to implement all actions by October 1, 2030. Valley Water will seek and secure State Water Board's review and any required approval. Valley Water will implement the flow and non-flow actions immediately following such review and approval.

2. Adaptive Management Team – Initial Five-year Update

For the purpose of the Initial Five-year Update, San Francisco Baykeeper will be a member of the AMT and will participate in the consensus decision rules and will be bound by the dispute resolution process specified above.

I. Periodic Updates

After completion of the Initial Five-year Update, Valley Water will include updates, as needed, in the annual reports. The updates will include any changes to flow and non-flow measures to better achieve desired results as described in the MOs, subject to further approval of the SWRCB, if such adjustments could exceed the range already approved in the water right change petitions.

V. REFERENCES

Cain et al. 2019. *Conservation Planning Foundation for Restoring Chinook Salmon and O.mykiss in Stanislaus River*. Conservation Planning Foundation.

FAHCE 2003. FAHCE Settlement Agreement (Fish and Aquatic Habitat Collaborative Effort). *Settlement Agreement regarding Water Rights of the Santa Clara Valley Water District on Coyote, Guadalupe, and Stevens Creeks.*

Lindley, et al. 2007. *Framework for Assessing Viability of Threatened and Endangered Chinook Salmon and Steelhead in the Sacramento-San Joaquin Basin.* San Francisco Estuary and Watershed Science Vol. 5, Issue 1, Article 4.

McElhany et al. 2000. *Viable Salmonid Populations and the Recovery of Evolutionarily Significant Units*. NOAA Technical Memorandum NMFS-NWFCS-42.

Moyle and Marchetti 1999. "Applications of Indices of Biotic Integrity to California Streams and Watersheds" in Simon et al., *Assessing the sustainability and biological integrity of water resources using fish assemblages*. CRC Press.

Spence, B.; Bjorkstedt, E.; Garza, J.C.; Hankin, D.; Smith, J.; Fuller, D.; Jones, W.; Macedo, R.; Williams, T.H.; Mora, E. 2008. *A Framework for Assessing the Viability of Threatened and Endangered Salmon and Steelhead in North-Central California Coast Recovery Domain.* NOAA Fisheries. 154 p.

Valley Water 2023. *Fish and Aquatic Habitat Collaborative Effort [FAHCE] Final Environmental Impact Report.* (SCH No. 2015022008.) Santa Clara County, CA.

Valley Water 2024. *Anderson Dam Seismic Retrofit Project Final Impact Report* (SCH #2013082052). Santa Clara County, CA.

APPENDICES

APPENDIX A List of Completed FAHCE Non-flow Measures (1998 through 2023)

APPENDIX B Study Plan for Adaptive Learning and Hypothesis Testing (Draft Request for Proposals)

APPENDIX C Preliminary Adaptive Management Proposal

APPENDIX D Adult Fish Passage Evaluation Using Natural Hydrology

APPENDIX A

List of Completed FAHCE Non-flow Measures (1998 through 2023)

Appendix A - List of Completed FAHCE Nonflow Measures from 1998 through 2023

(From Section 9.4 of FAHCE Annual Report Water Year 2024 dated September 2025)

Coyote Watershed shown in Yellow, Guadalupe Watershed shown in Orange, Stevens Creek shown in Green, and Countywide shown in Blue

No.	SA Provision No.	Category of Project	Project Description	Year Completed
1	6.2.4.2	Fish Barrier Removal	Coyote Creek – Coyote Percolation Pond fish ladder installation	1999
2	6.2.4.2	Fish Barrier Removal	Guadalupe Creek – Masson diversion dam fish ladder and screen installation	2000
3	6.2.4.2	Fish Barrier Removal	Guadalupe River – Old Julian Street bridge fish barrier removal	2003
4	6.2.4.2	Fish Barrier Removal	Guadalupe Creek – Stream Gauge SF 43 weir improvement	2004
5	6.2.4.2	Fish Barrier Removal	Guadalupe River – Highway 880 weir retrofit for fish passage	2014
6	6.2.4.2	Fish Barrier Removal	Guadalupe Creek – Concrete U-frame channel fish ladder installation	2008
7	6.2.4.3	Spawning and Rearing Habitat Plan	Countywide large woody debris and gravel augmentation study - Phase 1	2018
8	6.2.4.3.1 and 6.2.4.3.2	Spawning and Rearing Habitat Improvement	Stevens Creek – Clear Creek Court large woody debris and gravel augmentation	2015
9	6.2.4.3.1 and 6.2.4.3.2	Spawning and Rearing Habitat Improvement	Stevens Creek – McClellan Ranch large woody debris and gravel augmentation	2018
10	6.2.4.3.1 and 6.2.4.3.2	Fish Barrier Removal Study and Planning	Stevens Creek fish passage prioritization study and Moffett fishway planning	2020
11	6.2.4.3.1 and 6.2.4.3.2	Spawning and Rearing Habitat Improvement	Guadalupe River- Blossom Hill Road large woody debris and gravel augmentation	2015

No.	SA Provision No.	Category of Project	Project Description	Year Completed
12	6.2.4.3.1 and 6.2.4.3.2	Spawning and Rearing Habitat Improvement	Alamitos Creek – Mazzone Drive large woody debris and gravel augmentation	2018
13	6.2.4.3.1 and 6.2.4.3.2	Spawning and Rearing Habitat Improvement	Los Gatos Creek – Highway 17 large woody debris and gravel augmentation	2019
14	6.2.4.3.2	Rearing Habitat Improvement	Upper Penitencia Creek – Large woody debris installation at Capital Avenue	2009
15	6.2.4.4.2	Geomorphic Restoration	Stevens Creek – Blackberry Farms 1/3 mile geomorphic restoration	2009
16	6.2.4.4.2	Geomorphic Restoration	Guadalupe Creek geomorphic restoration – 1.6 miles	2001
17	6.2.4.4.2	Geomorphic Restoration	Alamitos Creek geomorphic restoration – ½ mile	2007
18	6.2.4.5	Advanced Recycled Water Plan	Countywide Recycled Water Master Plan	2023
19	6.4.2.1.2(A)	Priority Fish Barrier Owned by Valley Water	Upper Penitencia Creek – Overfelt recharge pond diversion (Maybury Avenue) weir retrofit and fish screen installation	1998
20	6.4.2.1.2(A)	Priority Fish Barrier Owned by Valley Water	Upper Penitencia Creek – Penitencia recharge pond diversion (Noble Avenue) fish ladder and screen installation	1999
21	6.4.2.1.2(B)	Priority Fish Barrier Owned by Others	Upper Penitencia Creek- Unscreened Water Diversion- Screen Installed	2003
22	6.4.2.1.2(B)	Priority Fish Barrier Owned by Others	Coyote Creek – Singleton Road fish barrier removal (Barrier Code -FB24)	2021
23	6.4.2.1.5	Trap and Truck Study Coyote Creek	Coyote Creek (Reservoir) trap and truck feasibility study – engineering study and ecological feasibility study	2023
24	6.5.2.2(A)	Priority Fish Barrier Owned by Valley Water	Stevens Creek – Evelyn fish ladder barrier removal (Barrier Code HL2)	2016
25	6.5.2.2(A)	Priority Fish Barrier Owned by Valley Water	Stevens Creek – Stream Gage 35 Fish Barrier Removal (Barrier Code HB10)	2002

No.	SA Provision No.	Category of Project	Project Description	Year Completed
26	6.5.2.2(B)	Priority Fish Barrier Owned by Others	Stevens Creek – Blackberry Farms road crossing fish barrier removal (Barrier Code HB25)	2009
27	6.5.2.2(B)	Priority Fish Barrier Owned by Others	Stevens Creek – Blackberry Farms irrigation diversion fish barrier removal (Barrier Code HB27)	2009
28	6.5.2.4	Oxygenation System Stevens Creek	Stevens Creek – Hypolimnetic oxygenation system installation	2013
29	6.6.2.1.1(A)	Priority Fish Barrier Owned by Valley Water	Guadalupe River – Alamitos drop structure fish ladder installation (Barrier Code AB20)	1999
30	6.6.2.1.1(A)	Priority Fish Barrier Owned by Valley Water	Guadalupe River – St. John Street gauge weir barrier removal (Barrier Code AB7)	2004
31	6.6.2.1.1(B)	Priority Fish Barrier Owned by Valley Water	San Jose Water Company Low Flow Crossing Fish Barrier Removal (Barrier Code AB14)	1998
32	6.6.2.1.1(B)	Priority Fish Barrier Owned by Valley Water	Hillsdale Avenue Bridge Fish Barrier Removal (Barrier Code AB13)	2000
33	6.6.2.1.3.3(B)	Planning Study, Design, and EIR	Almaden Lake Project (D4.1)	2021

APPENDIX B

Study Plan for Adaptive Learning and Hypothesis Testing
(Draft Request for Proposals)

Appendix B.

Request for Proposals (RFP)

Fishery Habitat Characterization and Identification of Restoration Opportunities: Stevens Creek

October 2025

Valley Water is requesting technical assistance in developing a 2D hydrologic and habitat mapping simulation model for use validating flow-habitat relationships. The first phase of developing the 2D habitat model is to survey habitat at a fine-grained spatial scale and analyze existing field conditions in reaches of Stevens Creek as a pilot study and proof of concept.

I. Scope of Work

This RFP seeks a qualified contractor for the following Scope of Work:

A.) Characterize existing habitat conditions including water depths, velocities, habitat suitability, and estimate weighted usable area within eight reaches in Stevens Creek (five 100-m reaches in Stevens Creeks cold water management zone (CWMZ) (Figure 1) and three 100-m reaches in Stevens Creek downstream of the CWMZ (Highway 280). The survey reaches will be identified by Valley Water staff and AMT as part of study implementation.

Mapping may be based on various methods including, but not limited to, GIS mapping from green LiDAR elevation data and hydraulic simulation of river flows using HEC-RAS, River2D, or similar simulation tools applied by the contractor. In the event green LiDAR is selected as the preferred method of data collection, the proposal should include LiDAR data collection from Stevens Creek Dam to San Francisco Bay. For purposes of this proposal the scope of work includes only hydraulic and habitat analyses within the designated pilot reaches on Stevens Creek in this initial pilot study. The contractor should include consideration of using a commercial vendor with green LiDAR capability and experience as a sub-contractor to complete the initial data collection in both watersheds as an element of the

proposal. Other potential sources of LiDAR, GIS, and remote sensing data sources, such as GeoData@UC Berkeley, may also contain relevant data layers for habitat mapping in the watersheds.

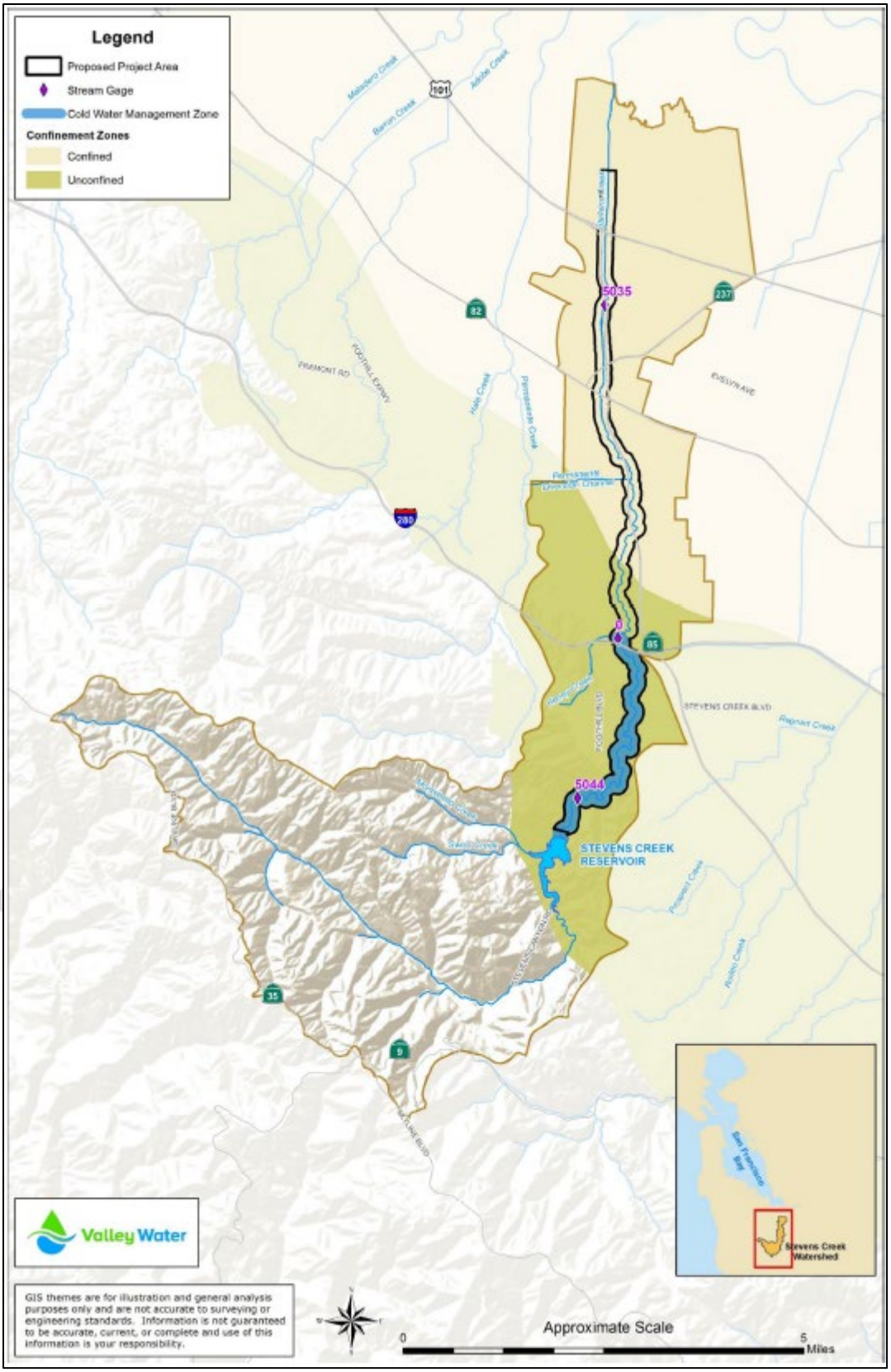


Figure 1: Stevens Creek watershed

Alternative habitat mapping methods may include, but are not limited to, in-channel habitat mapping, detailed depth and velocity measurements, or other methods recommended by the contractor (e.g., Chinook salmon Habitat Quantification Tool developed by SFEI et al, (2019) and the Finite Element Surface Water Modelling System Two-Dimensional Flow in a Horizontal Plane model described by Pasternack et al. (2003), and others).

- The actual data set to be collected will be the raw bathymetry of the creek, the ground cover surrounding the creek reach, and the water level at the specific flow rate on the day of collection. This data will be in raw format that can be imported into GIS for development of a Digital Elevation Model (DEM).
- The DEM should reflect the channel bathymetry and water level at the flow rate on the date the data was collected. This may be overlaid on aerial photography to also help identify the surrounding habitat features.
- Ground truthing, ground control and physical data collection will be required for all survey methods used in developing, calibrating, and validating the accuracy and reliability of a 2D hydraulic habitat simulation model. Valley Water will perform an independent audit of the survey results and DEM to ensure compliance accuracy requirements. This analysis is intended to quantify available habitat at the flow rate on the day of the data collection and provide a ground truth element to ensure comfort with the data set before developing a model for other flow rates. If the comparisons between field measured and DEM produced elevations/gradients match and are within a given accuracy range we can be confident in the model's ability to provide accurate data regarding further and more complex spatial analyses.
- After fully analyzing and ground truthing the data from the DEM, this data will need to be utilized to develop a model of varying water surface elevations based on flow rate. Application of HEC-RAS, River 2D, or other hydraulic river simulation models is typically used in this kind of modeling effort. Valley Water staff and AMT will identify the specific instream flow

rates (cfs released from each dam) and lifestages to be analyzed at each of the selected flow rates. For the Stevens Creek pilot study, a minimum of nine instream flow rates will be modelled by the contractor for each of the designated study reaches (e.g., 1, 3, 5, 8, 12, 16, 20, 38 and 50 cfs release from Stevens Creek Reservoir).

- The 2D hydraulic model should have grid sizes that are commensurate with point density and of sufficient resolution to resolve features that will influence local hydraulics at a scale relevant to fish. It is anticipated that grid sizes may need to be 0.5 – 1.0 m in the low flow channel, and in some cases smaller.
- Transect velocity and depth measurements have been made by Valley Water at various flow levels that will be provided to the contractor for use in hydraulic simulation model calibration and validation as part of the analysis. Calibration should aim to calibrate water surface elevations within 0.06 m or less.
- Habitat suitability curves for resident and anadromous *O. mykiss*;; and up to five lifestages (adult immigration, spawning, fry rearing, juvenile/smolt rearing, and smolt emigration) for inclusion in these analyses will be provided to the contractor by Valley water staff and the AMT.

B.) The contractor will identify areas currently providing suitable aquatic habitat based on analysis of the river topography, water depths and velocities, habitat suitability, and 2D hydrologic model results.

- Analysis will include predicted change in habitat quality and availability as a function of instream flow for adult and juvenile migration, spawning and egg incubation, and juvenile rearing. The instream flow analysis will also need to take into consideration variation in hydrologic conditions in the watersheds each year, reservoir storage, and coldwater pool storage and depletion during the late spring, summer, and early fall (May 1 to October 31) under different water year types.

C.) The contractor will identify three suitable locations within Stevens Creek for potential aquatic habitat improvements based on analysis of the river

topography, water depths and velocities, habitat suitability, 2D hydrologic model results, input from the AMT regarding potential habitat improvement projects, access, property boundaries, and river flow ranges.

- Non-flow habitat improvements could include, but would not be limited to, consideration of spawning gravel augmentation, addition of habitat complexity including boulders, large woody debris, and creation of pool and riffle habitat, side channel habitat, floodplain habitat, fish passage enhancements or other features. Habitat improvement actions should include consideration of existing aquatic habitat conditions, topography, grade, access for heavy equipment, and private property bounds. Valley Water staff will assist the contractor in assessing local conditions that would affect the feasibility and cost of implementing alternative habitat improvements.
- The 2D model analyses would be used to assess the change in suitable habitat area for each species and lifestage predicted based on the characteristics of the potential habitat improvement as reflected in a change from baseline and "after" improvement simulation modeling.
- Additional modeling and analysis of habitat improvements may be requested by the FAHCE AMT as optional tasks. Valley Water staff and the AMT will specify the flow range to be used in the analysis.

II. Technical Documentation and Deliverables

Product deliverables from the contractor include the following:

- Electronic files containing the derived DEM, results of the GIS mapping color coded to reflect layers with water velocity, water depth, and habitat suitability by lifestage for each selected species and lifestage as a function of river flows prescribed by the AMT.

- Tabular summaries, by river mile comparing suitable habitat area and weighted usable area as a function of river flow under baseline conditions and in response to habitat improvement alternatives

- Documentation on the hydraulic simulation model framework, inputs, calibration, validation, and model operations, in addition to an electronic copy of the model

- Documentation on the three habitat improvement projects included in the analysis including the type of habitat improvement, materials, areal extent, change in weighted usable area and change in suitability from baseline conditions for each *O. mykiss* lifestage based on water depth and velocity. Habitat improvement project locations will be described as separate layers on the GIS map

- A comprehensive technical report supporting independent use of the maps and model.
- A survey report documenting the method, equipment, and accuracy of the survey equipment and results. This report shall comply with the standards set forth in ASPRS (American Society for Photogrammetry and Remote Sensing) Positional Accuracy Standards for Digital Geospatial Data, Edition 2 Version 2 (2024). This report shall also include reference to the datums used (NAD83, NAVD88, etc.) and from which control it was determined, statement from the licensed land surveyor in responsible charge, and the results of any mathematical analysis performed on the survey data.

- Contractor will provide Valley Water staff and AMT a short monthly progress report describing accomplishments, problems, schedule delays, and information requests.

- Up to four meetings annually to provide status review to Valley Water and the AMT.

A high-resolution DEM, developed using a combination of airborne LiDAR, green LiDAR or other necessary aerial imagery and field-based topographic surveys, and shall meet the following minimum accuracy and resolution requirements:

- Horizontal Accuracy: ≤ 0.025 m

- Vertical Accuracy: ≤ 0.06 m for bare-earth and submerged topography

- Point Density: ≥ 10 points/m^2 overall; higher densities (≥ 16–20 pts/m^2) are encouraged in hydraulically complex areas with LiDAR

The green LiDAR system shall have a minimum:

- Horizontal accuracy of ≤ 0.05–0.10 m

- Vertical accuracy of ≤ 0.10–0.20 m
- Point density of ≥ 2 pts/m^2, with preference for ≥ 8 pts/m^2 in small streams to resolve microtopographic habitat features with green LiDAR

Field surveys (e.g., GPS or total station) shall meet or exceed the same horizontal and vertical accuracy specifications and shall be collected at point densities in zones where small-scale topographic variability influences local hydraulics and habitat suitability.

III. Schedule of Deliverables

The schedule for conducting the GIS and hydraulic model analyses includes:

- Collection, and documentation of electronic files of the green LiDAR data or alternative habitat mapping and quantification methods, GIS base maps of the creek sub-sampled reaches of interest, complete substrate assessment and quantification within each of the sub-sampled reaches, and water depth and velocity measurements over a range of flows at selected transect locations used to calibrate and validate the 2D model within 12 months of contract award.
- AMT will provide contractor with electronic files of habitat suitability (ranging from 0 to 1) for water depth, water velocity, substrate, and cover for each selected species and lifestage within three months of contract award.
- Contractor will provide a review draft of the GIS maps showing water depths, velocities, and habitat suitability, by species and lifestage for prescribed flows within nine months of contract award.
- Contractor will provide a review draft of the hydraulic simulation model results and validation within nine months of contract award.
- Contractor will provide a review draft of the three potential habitat improvement projects identified and analyzed within nine months of contract award.
- Valley Water staff and AMT will provide review comments and suggestions on all draft material within one month of receiving each draft product.
- Contractor will provide final copies of GIS maps, model results and analyses, documentation, and electronic files within 18 months of contract award.

IV. PROPOSAL REQUIREMENTS

The structure and content of proposals submitted for funding consideration as part of this program do not need to adhere to a specific structure but should at a minimum address the following elements:

- Proposal title
- Principal investigator and firm experience and qualifications in conducting similar GIS and hydraulic simulation model analyses for fishery habitat
- Proposed approach and analytical tools for conducting the analysis
- Identification of any sub-contractors required to complete the study
- Schedule confirmation
- Proposed level of effort and budget

Proposals should be single spaced and not exceed 20 pages, although additional appendices may be provided with staff resumes, examples of previous related research, or other relevant material in support of the primary proposal.

V. Evaluation Criteria

Science Proposal Review Guidelines

Proposals submitted in response this this request will be evaluated based on several criteria. Guidance on the evaluation framework that will be used to review proposals and select a contractor for funding and implementation are briefly outlined below. Each **bolded** element should be addressed succinctly. The *italicized* questions correspond to the qualitative criteria that form the basis for project evaluation. They should guide the preparation of the narrative for each of the requested elements and guide the reviewer's responses.

Principal Investigator (PI) Qualifications:

- *Is the proposer well qualified, with a track record of quality work and likelihood of achieving budget and schedule?*
- *Do the proposers have available the infrastructure and other aspects of support necessary to accomplish the project?*

Purpose/Objective/Approach:

- *Is the purpose of the project clearly understood?*
- *Are the proposal's goals, objectives, and approach to the analysis clearly stated and internally consistent?*
    - *Is all the information needed to understand the basis for the proposed project included and documented?*
    - *Is the approach well designed and appropriate for meeting the objectives of the project?*
    - *Are the project questions and design unbiased and objective?*

Estimated Cost:

- *Is it clear how much each task of the proposed work will cost, including each task, salaries, equipment, etc.?*
- *Is the budget reasonable and adequate for the work proposed?*
- *Is it clear who will be performing management tasks and administration of the project, and are resources set aside to do so?*

Feasibility:

- *Is the approach well documented and technically feasible?*
- *Does the proposal have a high likelihood of success within budget?*
- *Is the scale of the project consistent with the objectives and within the grasp of the investigators?*
- *Has the PI exhibited the ability to turn in deliverables in a timely manner?*

Proposals will be reviewed by the AMT and a panel of scientists and managers familiar with the FAHCE fishery management program. In-person proposal presentations may be conducted. Each proposal will be independently reviewed by the AMT and panel members based on technical merit, qualifications, approach, level of effort and cost.

VI. Proposal Submittal

Five copies of the proposal should be submitted to:

Santa Clara Valley Water District
5750 Almaden Expressway

San Jose, CA 95118

Attention: John Bourgeois
Deputy Officer

Division of Watershed Stewardship and Planning

For questions regarding this RFP contact **Lisa Porcella** via email at:
lporcella@valleywater.org.

Proposals will be accepted until 5:00 pm on _____. Proposal review and a decision regarding funding are expected to be completed within 60 days of the close of the proposal submittal closing date. All contracts will require approval by the Santa Clara Valley Water District Board of Directors.

APPENDIX C

Preliminary Adaptive Management Proposal

Fish and Aquatic Habitat Collaborative Effort
Preliminary Adaptive Management Proposal

The Fish and Aquatic Habitat Collaborative Effort (FAHCE) intended for the Santa Clara Valley Water District (SCVWD or Valley Water), in collaboration with agencies and other stakeholders, to develop and implement a program of flow and non-flow measures for restoring salmon and steelhead on the Three Creeks to good condition, in compliance with applicable laws. However, while the Fish and Habitat Restoration Plan (FHRP) approved by Valley Water's Board may improve fish habitat on the Three Creeks, it was not designed to restore fish to good condition. *See* NGO Comments re FAHCE FEIR (Aug. 7, 2024). Valley Water has acknowledged that the record it developed for FAHCE does not support a finding that the FHRP will restore fish to good condition. Valley Water has further stated that it has not evaluated what would constitute fish in good condition below its facilities on the Three Creeks.

This proposal seeks modifications to the adaptive management program incorporated into the FHRP. Under this proposal, the adaptive management program would be premised on the goal of providing access to suitable habitat in sufficient quantities to be able to support salmon and steelhead populations in "good condition" on the Three Creeks.

This proposal recognizes there are external factors outside of Valley Water's control that affect the overall recovery of Chinook salmon and steelhead populations. Accordingly, Valley Water is not exclusively responsible for the recovery of these populations. However, Valley Water is responsible to mitigate the impacts of its facilities and operations on these fisheries during their freshwater lifecycle and this proposal recommends an adaptive management framework consistent with that responsibility.

1 Adaptive management is a required component of the Fish and Aquatic Habitat Collaborative Effort (FAHCE).

1.1 Purpose of the FAHCE Agreement: "This Agreement is a settlement among the Parties to comprehensively address and resolve issues in the Complaint and any related issues arising under state and federal laws that concern the impacts of SCVWD's facilities and operation on the beneficial uses of the Three Creeks, with the exception of mercury contamination issues …."

1.1.1 "The owner of any dam shall allow sufficient water at all times to pass through a fishway, or in the absence of a fishway, allow sufficient water to pass over, around, or through the dam, to keep in good condition any fish that may be planted or exist below the dam." Fish and Game Code 5937.

1.1.2 "The instream flows necessary to keep fish in good condition include those which will maintain a self-sustaining population of desirably sized adult fish … which are in good physical condition … The fish populations should contain good numbers of different age classes; and habitats for these age classes should not be limiting …. The Ecological health of a stream will determine if the fish … are to be kept in good condition." Unpublished testimony of Darrell Wong, SWRCB hearing (1993).

1.1.3 Under the public trust doctrine, the State has a duty to manage the state's public resources such as water, and no party can acquire a vested right to appropriate water in a manner harmful to the interests protected by the public trust. *Nat'l Audubon Soc'y v. Superior Ct.*, 33 Cal. 3d 419, 426, 658 P.2d 709, 712 (1983).

1.2 Overall Management Objectives for the FAHCE Program: "Implementation of the Agreement will restore and maintain healthy steelhead trout and salmon populations as appropriate to *each* of the Three Creeks, by providing (A) suitable spawning and rearing habitat within each watershed, and (B) adequate passage for adult steelhead trout and salmon to reach suitable spawning and rearing habitat and for out-migration of juveniles." (emphasis in original)

1.2.1 According to Moyle, a fish community is in good health if it:

(a) is dominated by co-evolved species,
(b) has a predictable structure as indicated by limited niche overlap among the species and by multiple trophic levels,
(c) is resilient in recovering from extreme events,
(d) is persistent in species membership through time, and
(e) is replicated geographically.

1.3 Purpose of the FAHCE Program's Adaptive Management Program (AMP): "The purpose of the Adaptive Management Program is to maximize biological and physical benefits material to the Overall Management Objectives through the choice and implementation of the most cost-effective flow and non-flow measures."

2 Adaptive management is a scientific process based on well-established principles.

2.1 Adaptive management is a flexible decision-making process that can be adjusted when uncertainties related to management action outcomes and other events become better understood (Williams et al. 2009). Careful monitoring of these outcomes advances scientific understanding and helps adjust policies/operations as part of an iterative learning process. Adaptive management also recognizes the contribution of natural variability to ecological resilience and productivity. It is not a 'trial and error' process, but rather emphasizes learning while doing.

2.2 For adaptive management to be an effective decision-making approach for resource management it must include the following basic principles/steps (Williams et al. 2009).

(a) Make initial management decisions;
(b) Engage stakeholders;
(c) State explicit management objectives;
(d) Identify uncertainties about potential management impacts that affect decisionmaking;

(e) Develop models to represent resource relationships and management impacts;
(f) Design monitoring to inform decisionmaking;
(g) Measure and report progress in achieving management objectives; and
(h) Adjust management actions in response to what has been learned

3 Proposed Revisions to Adaptive Management Program

3.1 Applying principles above to adaptive management of flow and non-flow measures to achieve FAHCE's Overall Management Objectives to restore and maintain fish in good condition, the FAHCE AMP should include following steps.

(a) Set fish population goals based on "fish in good condition" (e.g., minimum viable population sizes for steelhead and Chinook salmon);
(b) Set measurable, scientifically defensible, habitat-based objectives to achieve targets;
(c) Develop/refine a quantitative lifecycle model;
(d) Determine quantifiable physical habitat needs within the lifecycle framework;
(e) Determine timing and duration of habitat activation and access within the lifecycle framework;
(f) Determine relationship between water and physical habitat needs;
(g) Develop relationship between water flow and channel bathymetry to estimate available habitat in relationship to watershed population objectives;
(h) Incorporate into an iterative, adaptive management process, which considers uncertainty and a changing environment;
(i) Develop and implementing a monitoring process that informs the AMP;
(j) Implement the AMP; and
(k) Establish scientifically defensible timeline for regular evaluation of the process.

Additional explanation is provided for each step below.

3.1.1 Set fish population goals based on "fish in good condition"

The target or goal should be consistent with Section 5937's "fish in good condition." *See, e.g.,* Minimum Viable Population Report (2018); *see also* Merz Expert Report (Oct. 2021), pp. 7-11.

3.1.2 Set measurable, scientifically defensible, objectives

Whereas goals need to be broad and visionary, objectives must be measurable in order to ensure evaluation of progress effectiveness and support accountability (Tear et al. 2005). Understanding relationships between fish populations, resource availability (i.e., funds and habitat), management actions, and harvest expectations is critical for effective fisheries management. A key premise of successful fisheries management within highly modified watersheds is that management actions, including flow and non-flow habitat improvements, are designed to function under contemporary hydrographs and flow schedules and under these modified conditions, create or enhance habitat types, features, and processes that limit target species. Instream flows necessary to keep fisheries in good condition include those which maintain habitat quantity and quality to support self-sustaining populations. Such populations should contain good numbers of different age classes; and habitats for these age classes should not be limiting. The ecological health of a stream will determine if the fish are to be kept in good condition (State Water Resources Control Board 1993).

3.1.3 Develop/refine a quantitative lifecycle model

Pre-impact knowledge of Three Creeks fisheries populations is sparse, articulating the need to develop an iterative process informed by a monitoring program that triggers adaptive management actions under present conditions. Investigation of what hinders a salmonid population from meeting goals should include examination of habitats important for multiple life stages (see below). Integrating habitat impacts across life stages with life cycle models (LCMs) can reveal habitat impairments inhibiting recovery and help quantify and guide management efforts, including habitat restoration and maintenance (Jorgensen et al. 2021). An LCM analysis can reveal basin-wide potential benefits by action types, and this habitat-based approach can be used to develop restoration strategies and guide population rebuilding. LCMs can set the stage to ground-truth findings with robust empirically based estimates of life stage-specific survivals and abundances, which feeds into the overall iterative, adaptive management process.

The AMT could refine the already-developed LCM which should have the flexibility of evaluating how specific management or habitat improvement actions will impact specific steelhead and Chinook life stages within the Three Creeks and how those impacts will propagate through the LCMs. *See, e.g.,* Minimum Viable Population Report (2018), pp. 4-6; Merz Expert Report (Oct. 2021), pp. 15-17. This approach will provide a holistic interpretation of the potential management actions, including impacts habitat enhancement/restoration (both flow and non-flow) have on the Three Creeks salmonid populations as well as impacts outside of direct FAHCE control (e.g., climate change, harvest etc.). Because watershed-specific salmonid information is limited for the Three Creeks, the model is populated with the most relevant lifestage-specific information available, along with references. Under the adaptive management process, the model can be updated as more watershed-specific information becomes available through the monitoring programs identified through the process (**Table 1**).

The AMT would use the best available data from the Three-Creeks watershed(s), published records and/or peer-reviewed literature of appropriate salmonid populations to define equations that quantify sources of mortality and the probability of successfully transitioning from one life stage to the next for each species and watershed. Data should be regularly updated, especially with watershed-specific information, to continually improve model outcomes.

3.1.4 Determine quantifiable physical habitat needs within the lifecycle framework

A capacity-based limiting factor model (habitat area and fish density estimates) to convert life-stage specific capacity to potential fish production. To support healthy salmonid populations, each management area must provide enough habitat of the appropriate quality to support each life stage. The connectivity of the different habitat elements in a broad spatio-temporal context and their nestedness, define the fishery's fitness both on the individual (e.g., growth performances) and population (i.e., population structure, mortality, etc.) level (Schiemer 2000). Relevant spatial scales can be the entire river-scape in the case of migration or the availability of complementary microhabitat elements (e.g., incubation). The significance of connectivity at various scales from whole river to local reach must be evaluated based on the requirements, reaction norms, and ecological flexibility of the focal species. Habitat needs must be evaluated with regard to (Schiemer 2000):

(1) population genetics over extensive biogeographic areas and in long time scales;
(2) supplementary habitats during the life cycle of individual species with ontogenetic habitat shifts and specific requirements during the reproductive phase;
(3) longitudinal and lateral transport and exchange processes determining local habitat conditions and the food supply for fish.

See Merz Expert Report (Oct. 2021); *see also* Merz Expert Report (Aug. 2023).

3.1.5 Determine timing and duration of habitat activation and access within the lifecycle framework

Determine timing and duration of habitat activation and access within the lifecycle framework. Therefore, enough habitat must activate at the right time and duration to allow each life stage to successfully transition to the next life stage to support overall management goals (Merz et al. 2013). Activation includes facilitation of fish access to and from the habitat at the appropriate time (e.g., incubation, hatch and emergence from redd before scour or desiccation). This specifically allows for creating the relationship of total water volume needed to activate the area and depth of required habitat for each life stage's needs.

3.1.6 Determine relationship between water and physical habitat needs

Habitat suitability models use relationships between habitat preferences (e.g., depth, velocity, substrate, cover) and ecologically relevant flow (Brown 2022; Step 5) to predict habitat availability. Stakeholders can use model results to predict potential steelhead and Chinook spawning and rearing habitat within each action area. Other data, such as spawning substrate suitability can further inform modeled habitat estimates. Finally, stakeholders can characterize historic water temperature data to determine potential thermal limitations to habitat for key life stages.

3.1.7 Develop relationship between water flow and channel bathymetry to estimate available habitat in relationship to watershed population objectives

Relationship of suitable habitat area to territory size or densities can be used to estimate carrying capacity for each life stage. In this situation, habitat suitability models use relationships between habitat preferences and flow (*see* 3.1.6 above) to predict habitat availability. Stakeholders use model results to predict potential steelhead and Chinook spawning and rearing habitat within each of the Three Creeks. Other habitat parameters, including bed particle size, can improve habitat suitability estimates to further inform modeled habitat estimates.

Two-dimensional hydrodynamic models are used to evaluate fish habitat and plan/assess habitat enhancement programs. However, 2D modeling requires the river's hydrology be put into the context of the target organism's life cycle (ecologically relevant flow/ecohydrology; *see* Brown et al. 2022 and Poff et al. 2007). Under this step, stakeholders develop 2D hydraulic models, including data preparation, flow scenario identification for expected key salmonid life stages (steps 4-5) to be exposed to, and evaluation of model performance. Finally, historic water temperature data can be incorporated into the assessment to determine potential thermal limitations to habitat for key salmonid life stages.

Modeling development allows stakeholders to estimate storage and release strategies that support each target species life stage along the entire watershed corridor accessible to these anadromous fish. These exercises facilitate clearly identifying flow alternative(s) that can provide water quality (e.g., temperature) and flows consistent with favorable, physical requirements (area of habitat to support each life stage) for population goals within The Three Creeks. Further, this process allows for optimizing water allocation and efficiency in a changing environment with increased human demands. Because fish population and habitat quantity and quality data are limiting, an iterative process facilitates an approach to continuously improving a concept, design, or product. Creators produce a prototype, test it, tweak it, and repeat the cycle with the goal of getting closer to the solution. In this approach, several sub-process (e.g., models, restoration actions, monitoring methods etc.) are nested within an overall decision-tree process.

To support this endeavor, the LCM already developed for gaming Three Creeks water allocation, including healthy steelhead and Chinook population management, as identified above. This gaming follows a process for determining the watershed's ability to support target populations and how both flow and non-flow actions will support this endeavor. To facilitate this, stakeholders must specifically define:

1) Population recovery target(s) – quantifying minimum viable population(s) as a starting point
2) Basic life history information, including identification of different life stages and their habitat associations (general demographics)
3) Spawning habitat needs
4) Incubation and emergence needs
5) Rearing habitat needs
6) Migration needs – movement between vital habitat including immigration and emigration
7) General water quality needs – focus on temperature

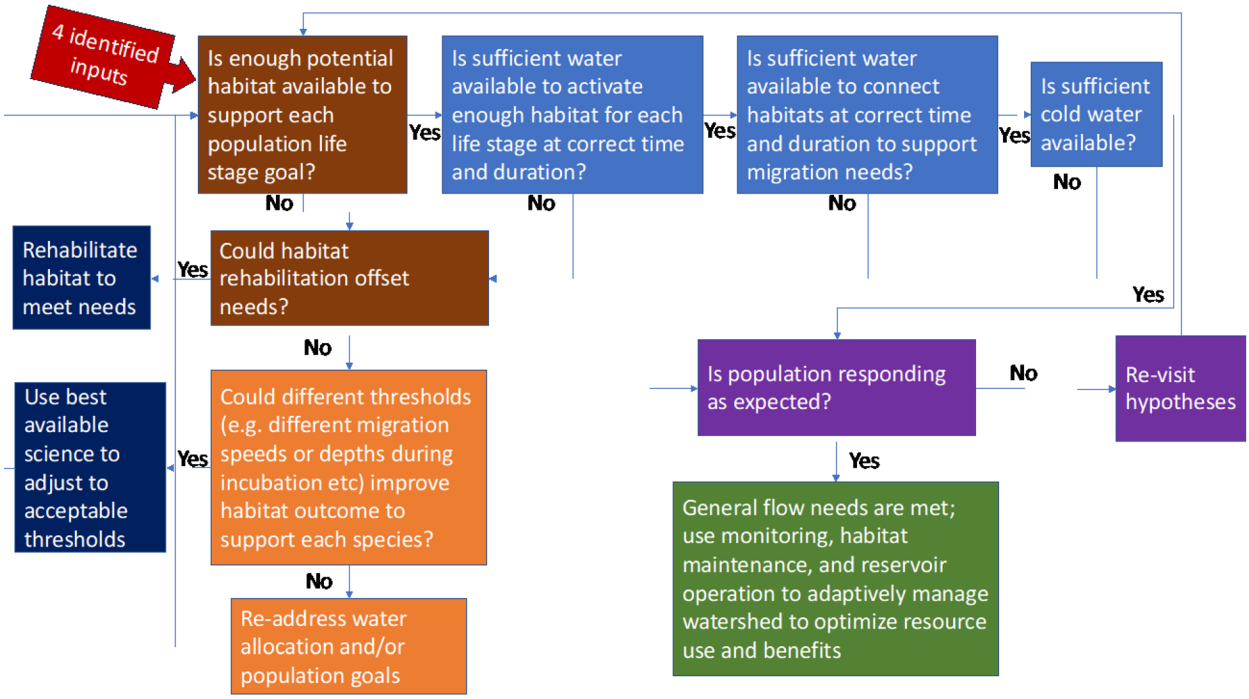
These seven definitions inform background and descriptions.

3.1.8 Incorporate into an iterative, adaptive management process, which considers uncertainty and a changing environment

Once the 7 steps are accomplished, a proposed adaptive management process is undertaken to determine watershed(s) potential to support target species populations gaming the relationships between flow, channel bathymetry and the range of species capabilities available in the literature.

Adaptive management is a systematic approach for improving resource management by learning from management outcomes. Because there is much uncertainty related to ecology of the Three Creeks, including how steelhead and Chinook population(s) demographics and timing will respond to management actions, the Stakeholders should consider them as hypotheses to guide program implementation. Therefore, monitoring will be performed to track timing and success of physical and biological criteria, develop hypotheses, and determine if these hypotheses are correct. If they are not, then adapt (i.e., adaptive management). Consequently, each step identified in this agreement is incorporated into an iterative, adaptive management process, which takes into account uncertainty, flow and restoration implementation, new data collected by the monitoring plan, and a changing environment).

Figure 1. Draft Iterative Adaptive Management Process for FAHCE



In this process, 4 inputs (red box) come from previous steps including: 1. Population target(s) – quantifying minimum viable population(s) as a starting point; 2. Basic life history information, including identification of different life stages and their habitat associations (general demographics); 3. Rearing, spawning, incubation and emergence needs; and 4. Available potential habitat for each of these life stages.

Note that each decision is informed by model outputs and population monitoring identified in **Table 1**.

3.1.9 Develop and implement a monitoring process that informs the AMP

Recovery of the Three Creeks and their native fish fauna will rely upon carefully documenting the ultimate effectiveness of management/restoration actions. For monitoring programs to provide reliable and timely information required by iterative and adaptive approaches to ecosystem restoration and management, monitoring programs must serve as a scientifically rigorous framework for "Empirical Management" of natural resources (Ralph and Poole 2003). To accomplish this, managers and researchers must work together first to design hierarchically structured monitoring experiments and then to plan on-the-ground management and restoration actions that serve as experimental manipulations in the context of the monitoring experiment.

Table 1. Identified monitoring techniques for answering adaptative management questions

Adaptive Management Process Question	Monitoring technique or estimate method
What is population goal based on "fish in good condition"?	Agreement/Settlement; NOAA Fisheries goals- minimum viable population as a starting point
Is there enough potential habitat to support each population goal?	Habitat Suitability Models; Territory needs; 2D flow/form models; Inundated area that meets quality and quantity at or above threshold
Spawning	Gradient and form; sediment size, cover etc.
Incubation	Subset to Spawning Assessment; Physical conditions
Rearing	HSI; Inundated area that meets quality and quantity at or above threshold
Is sufficient water available to activate enough habitat for each life stage at the correct time and duration?	Ecological Meaningful (Relevant) Flow analysis plus WEAP Model provides hydrograph to inform 2D modeling
Is sufficient water available to connect habitat at correct time and duration to support migration needs between habitats?	Ecological Meaningful (Relevant) Flow analysis plus WEAP Model provides hydrograph to inform 2D modeling
Immigration	Migration model informed by monitoring data to Inform WEAP Model
Emigration	Migration model informed by monitoring data to Inform WEAP Model
Emergence	2D model informing WEAP
Movement between incubation and rearing habitat	Depth requirements and 2D model informing WEAP model
Could habitat rehabilitation meet needs?	Iteratively adjust landscape and materials (e.g., substrate particle size, forcing elements, cover etc., in 2D models)
Could different thresholds (e.g. different migration speeds or depths during incubation) improve habitat outcome to support each species?	Migration model informing WEAP

Is population responding as expected?

Immigration	Passage monitoring; carcass surveys etc.
Spawning	Redd surveys, snorkel surveys, carcass surveys
Incubation/Emergence	Fry surveys used to estimate abundance against adult surveys
Rearing	Seining, snorkeling surveys used to estimate abundance; adult escapement estimates
Emigration	Emigration trap and adult escapement surveys

3.1.10 Implement the AMP

An adaptive approach involves exploring alternative ways to meet management objectives, predicting alternatives outcomes based on the current state of knowledge, implementing one or more of these alternatives, monitoring to learn about the management action impacts, and then using the results to update knowledge and adjust management actions (Williams et al. 2009). Adaptive management focuses on learning and adapting, through partnerships of managers, scientists, and other stakeholders who learn together how to create and maintain sustainable resource systems. Implementation of adaptive management can be facilitated by using pre-existing structures and processes.

3.1.11 Establish scientifically defensible timeline for regular evaluation of the process

Determining and implementing a scientifically defensible timeline to evaluate the process and establish what to do if it is not working for each of the Three Creeks. For instance, a fish population response to a passage project might be immediate, where the effects of woody debris placement could be 5 years or more (O'Neal et al 2016). Such a timeline might include a number of generations needed to determine a trend in target population(s) related to a specific or overall management action (Sharma and Raborn 2011).

References

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APPENDIX D

Adult Fish Passage Evaluation Using Natural Hydrology

FAHCE's Fish Habitat Restoration Program Draft Implementation Plan

Appendix D: Adult Fish Passage Evaluation Using Natural Hydrology

1. Introduction

To understand natural fish passage conditions in the Fish and Habitat Collaborative Effort (FAHCE) managed Guadalupe, Stevens, and Coyote watersheds, an evaluation of stream flow above the reservoirs was conducted. These values provide a prediction of what naturally occurs in the watersheds. From this evaluation a realistic target for anadromous fish passage days can be developed.

The season for upstream migration for Central California Coast Steelhead (winter run) adults, typically occurs between late December and April, which is associated with the rainy months within these systems. The Fall-run Chinook salmon, adult migration occurs as early as July and as late as January with the peak of the migration occurring October and November (Moyle 2002). This early migration period is ecologically mismatched with the hydrology of Santa Clara County streams. Further, Chinook salmon are more mainstem or large tributary spawners, thus access to the smaller tributaries downstream of FAHCE reservoirs is not necessary for this species to complete their life cycle.

2. Methods

Assumptions were made based on prior modeling results and critical riffle field assessments regarding flow magnitude required to meet passage depth criteria over critical riffles. Steelhead were the species used to guide these values. These flow values were derived from the Valley Water, Water Evaluation and Adaptation Planning (WEAP) model developed in collaboration with the FAHCE Adaptive Management Team (AMT). Within the WEAP model, critical riffles were considered passable for adult steelhead if the thalweg (deepest portion of the channel cross-section) had a minimum depth of 0.7 feet. Using WEAP model outputs, reservoir release rates were identified that would ensure adequate passage across these critical riffles. These values were field verified using methodology from the California Department of Fish and Wildlife's Standard Operating Procedure for Critical Riffle Analysis for Fish Passage in California (CDFG 2017; Valley Water 2025), but additional validation will occur. Adult passage values for each creek system can be seen in Table 1. These values are subject to change as additional data collection and modeling occurs, but these are the values based on the best available scientific information for these watersheds.

Table 1: Passage values for FAHCE streams where managed pulse flows occur.

Watershed	Creek	Adult Passage Flow (cfs)
Guadalupe	Guadalupe Creek	38
	Alamitos Creek	50
	Calero Creek	17
	Los Gatos Creek*	28
	Guadalupe River*	18
Stevens Creek	Stevens Creek	38
Coyote	Coyote Creek	90

*No pulse flows are prescribed on these systems.

Stream flow data were retrieved from the Valley Water, Automated Local Evaluation in Real Time (ALERT) stream gage system[1] from sensors that record 15 minute interval data The number of Water Years (WY) available for the analysis was dependent on the number of years the
sensor operated. The passage days were calculated with approximately five percent error rate associated with the gage. Continuous passage days were evaluated based on the largest duration when flows exceeded the flow threshold for a continuous period. The total passage day value is based on the calculated number of days (24 hours) during the month that the flow threshold was exceeded. Specific stream gages and years of available data are included in each description of the individual creek systems.

With respect to the Guadalupe system, it is critical to note that inflow to Lexington Reservoir does not reflect natural hydrology as there are two additional reservoirs upstream of that facility not controlled by Valley Water. Further, limited data are available for conditions upstream of Lexington Reservoir. In addition, no headwater data is available for the mainstem of the Guadalupe River as the river begins at the confluence of Alamitos and Guadalupe Creeks both of which are downstream of reservoirs. Anderson Reservoir is also below Coyote Reservoir. For this analysis, stream flow upstream of Coyote Reservoir was used as an indicator of the natural hydrologic conditions above both reservoirs.

Average passage days provided under FAHCE Plus operations were also calculated using the same methods and assumptions listed above were applicable. The number of years of FAHCE Plus operation was variable as a pilot study was conducted starting in WY2021 on Guadalupe and Stevens creeks only. Implementation in the rest of the Guadalupe Watershed started in WY2024. FAHCE Plus has not been implemented in the Coyote Watershed due to the Anderson Dam Seismic Retrofit Project. The hypothetical passage

[1] https://www.valleywater.org/your-water/alert-system-real-time-data.

days provided by the Conservations Groups (CG) (further explained in Merz (2021)), were also included in this analysis for comparative purposes. The values provided by the CGs were based on calculated distances, swim speed, and number of fish and did not take into consideration watershed capacity, the overlap in passage days from mainstem Guadalupe River and its upstream tributaries, or the diversity of watershed conditions based on water year types.

3. Results

Alamitos Creek Estimated Monthly Adult Passage Days Passage Flow Value: 50 cfs
Data Source[1]**:** Almaden Inflow: Stream Sensor 5048; Alamitos Creek below Almaden Reservoir: Stream Sensor 5016[1]

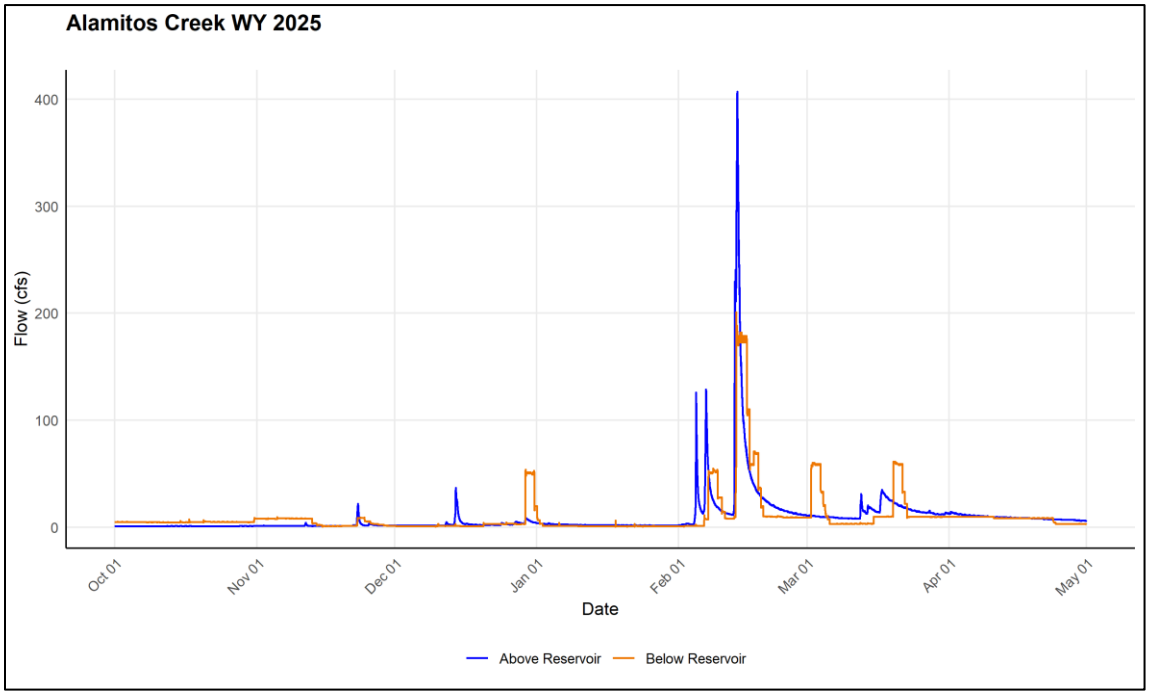
Available Data: 2016-2025

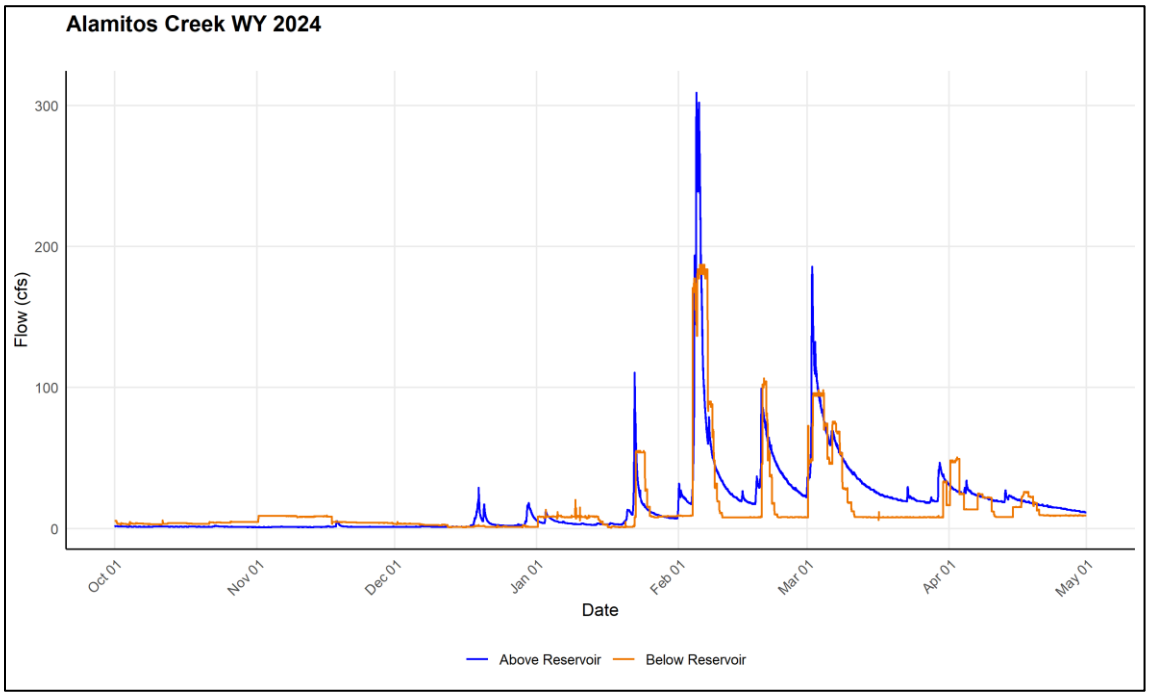
Monthly Above Alamitos Reservoir Continuous Adult Passage Day							
Water Year	**October**	**November**	**December**	**January**	**February**	**March**	**April**
WY2025	0.0	0.1	0.5	0.0	9.8	6.3	0.0
WY2024	0.0	0.0	0.0	0.5	4.5	7.2	0.0
WY2023	0.0	0.0	1.1	15.6	1.5	22.2	3.7
WY2022	0.5	0.0	8.7	0.0	0.0	0.0	0.0
WY2021	0.0	0.0	0.0	0.9	0.0	0.0	0.0
WY2020	0.0	0.0	0.0	0.0	0.0	0.0	1.7
WY2019	0.0	0.0	0.0	3.5	9.2	14.9	0.0
WY2018	0.0	0.0	0.0	0.0	0.0	1.7	0.0
WY2017	0.5	0.0	1.9	13.0	11.8	2.5	0.6
WY2016	0.0	0.0	0.0	0.9	0.0	6.0	0.0
Average	**0.1**	**0.0**	**1.2**	**3.4**	**2.7**	**5.5**	**0.6**
CG Values	**1.2**	**2.4**	**4.8**	**6.4**	**12.8**	**6.4**	**3.2**

Monthly Above Alamitos Reservoir Total Adult Passage Day							
Water Year	**October**	**November**	**December**	**January**	**February**	**March**	**April**
WY2025	0.0	0.0	0.0	0.0	4.7	0.0	0.0
WY2024	0.0	0.0	0.0	0.6	7.6	7.3	0.0
WY2023	0.0	0.0	2.5	19.2	1.6	26.1	3.7
WY2022	0.5	0.0	10.7	0.0	0.0	0.0	0.0
WY2021	0.0	0.0	0.0	1.0	0.0	0.0	0.0
WY2020	0.0	0.0	0.0	0.0	0.0	0.0	1.8
WY2019	0.0	0.0	0.0	3.9	21.3	14.9	0.0
WY2018	0.0	0.0	0.0	0.0	0.0	1.9	0.0
WY2017	0.6	0.0	1.9	24.1	23.4	5.6	0.8
WY2016	0.0	0.0	0.0	1.4	0.0	11.7	0.0
Average	**0.1**	**0.0**	**1.5**	**5.0**	**5.9**	**6.7**	**0.6**
CG Values	**1.2**	**2.4**	**4.8**	**6.4**	**12.8**	**6.4**	**3.2**

Monthly Average Adult Passage Day Upstream and Downstream Alamitos Reservoir							
Location	October	November	December	January	February	March	April
Average Above WY24-25	0.0	0.0	0.0	0.3	6.2	3.6	0.0
FAHCE+ WY24-25	0.0	0.0	1.0	1.0	6.6	5.2	0.7
CG Values	1.2	2.4	4.8	6.4	12.8	6.4	3.2

Hydrographs Above and Below Alamitos Reservoir during FAHCE Plus Operations





Guadalupe Creek Estimated Monthly Adult Passage Days

Passage Flow Value: 38 cfs

Data Source[1]**:** Guadalupe Creek above Guadalupe Reservoir: Stream Sensor 5148; Guadalupe Creek below Guadalupe Reservoir: Stream Sensor 5017

Available Data: 2021-2025

Monthly Above Guadalupe Reservoir Continuous Adult Passage Day							
Water Year	**October**	**November**	**December**	**January**	**February**	**March**	**April**
WY2025	0.0	0.0	0.0	0.0	3.0	0.0	0.0
WY2024	0.0	0.0	0.0	0.8	2.6	3.3	0.0
WY2023	0.0	0.0	0.8	15.4	0.6	7.9	0.0
WY2022	0.7	0.0	3.0	0.0	0.0	0.0	0.0
Average	**0.2**	**0.0**	**1.0**	**4.0**	**1.5**	**2.8**	**0.0**
CG Values	**1.1**	**2.2**	**4.4**	**6.0**	**12.0**	**6.0**	**3.0**

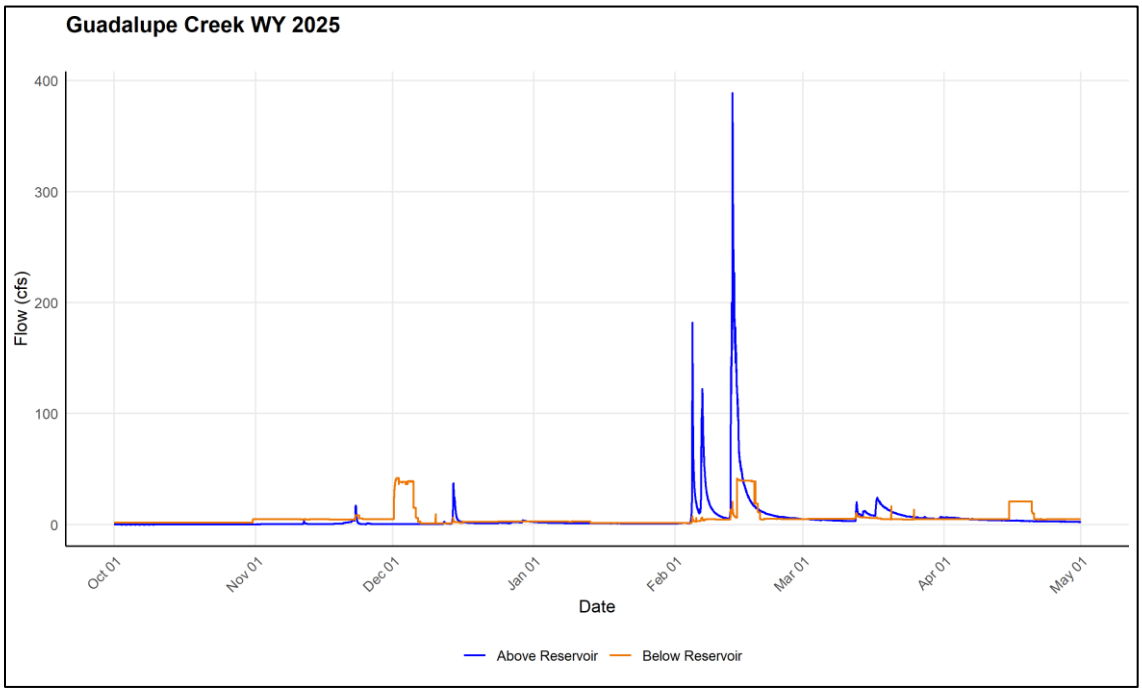
Monthly Above Guadalupe Reservoir Total Adult Passage Day							
Water Year	**October**	**November**	**December**	**January**	**February**	**March**	**April**
WY2025	0.0	0.0	0.0	0.0	4.4	0.0	0.0
WY2024	0.0	0.0	0.0	0.8	5.3	4.1	0.0
WY2023	0.0	0.0	1.5	17.8	0.9	13.0	0.0
WY2022	0.7	0.0	7.1	0.0	0.0	0.0	0.0
Average	**0.2**	**0.0**	**2.2**	**4.7**	**2.6**	**4.3**	**0.0**
CG Values	**1.1**	**2.2**	**4.4**	**6.0**	**12.0**	**6.0**	**3.0**

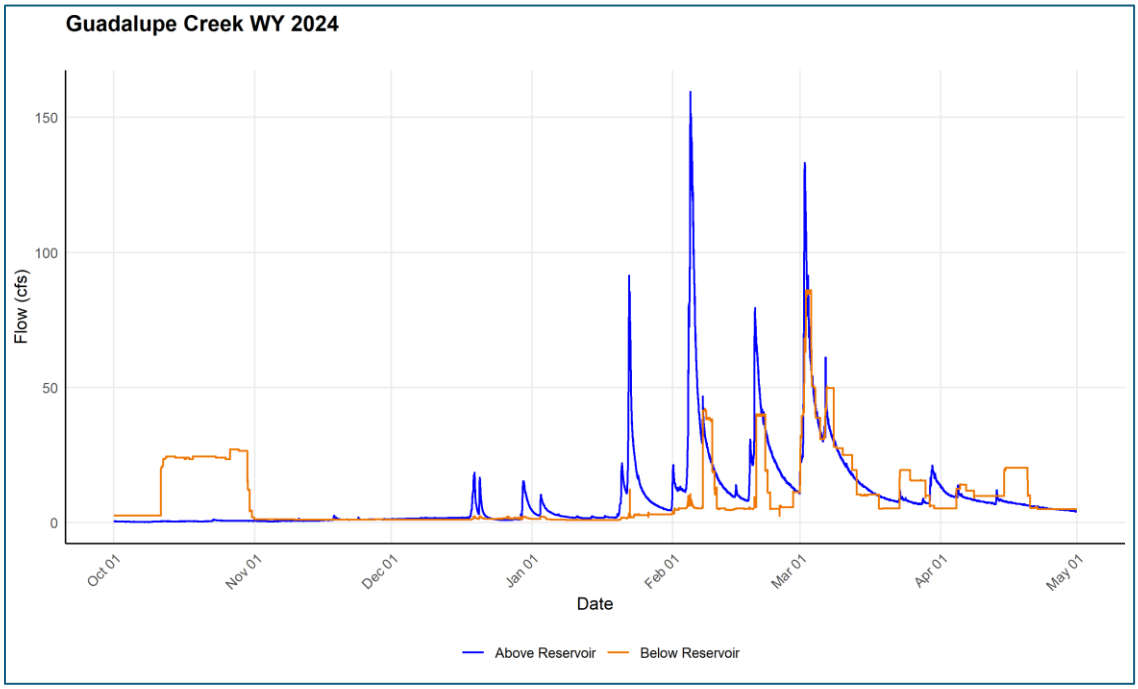
Monthly Average Adult Passage Day Upstream and Downstream Guadalupe Reservoir							
Location	**October**	**November**	**December**	**January**	**February**	**March**	**April**
Average Above WY22-25	0.2	0.0	2.2	4.7	2.6	4.3	0.0
Average FAHCE+ WY22-25	0.0[2]	0.0	2.0	6.2	2.0	6.0	0.5
CG Values	**1.1**	**2.2**	**4.4**	**6.0**	**12.0**	**6.0**	**3.0**

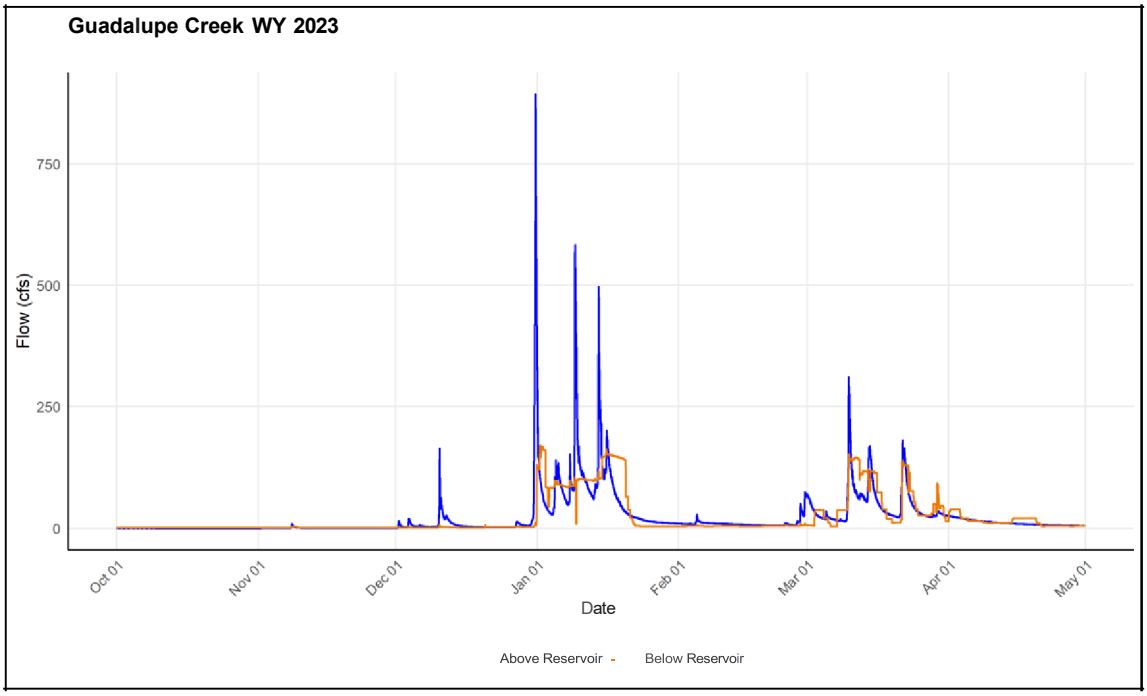
[1] The passage days were calculated with approximately 5.0% error rate associated with the gage. Continuous passage days were evaluated based on the largest duration when flows exceeded the flow threshold.

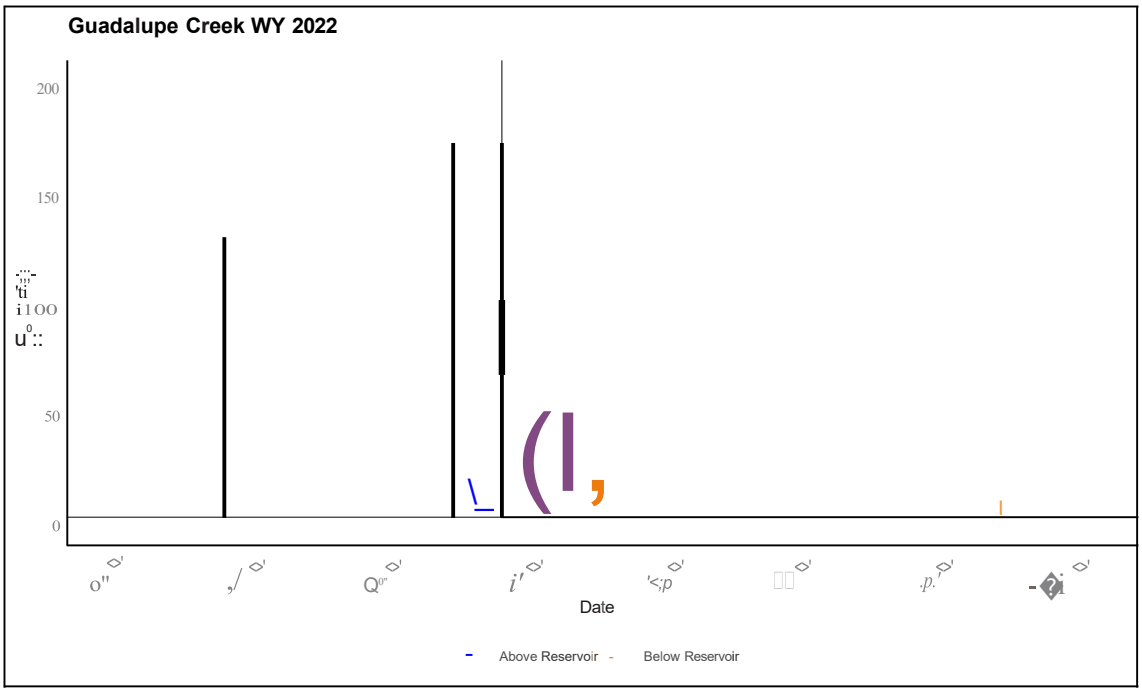
[2] The 0.2 average days above the reservoir in October, but zero day average below the reservoir, is a result of a storm and associated power outage at the reservoir in 2021. The outage limited the ability to adjust outlet releases therefore adjustments were not made to match inflow to outflow. This deviation to the water rights was reported to the Water Board. Under normal conditions, outflow volumes would have matched inflow, resulting in an increase in average passage days in October below the reservoir.

Hydrographs Above and Below Guadalupe Reservoir during FAHCE Plus Operations






Guadalupe Creek WY 2023
750
500
250
0
Flow (cfs)
Oct 01
Nov 01
Dec 01
Jan 01
Feb 01
Mar 01
Apr 01
May 01
Date
Above Reservoir
Below Reservoir


Guadalupe Creek WY 2022
200
150
50
0
Date
Above Reservoir
Below Reservoir

Calero Creek Estimated Monthly Adult Passage Days

Passage Flow Value: 17 cfs

Data Source[1]**:** Calero Creek above Calero Reservoir: Stream Sensor 5147; Calero Creek below Calero Reservoir; Stream Sensor 5013

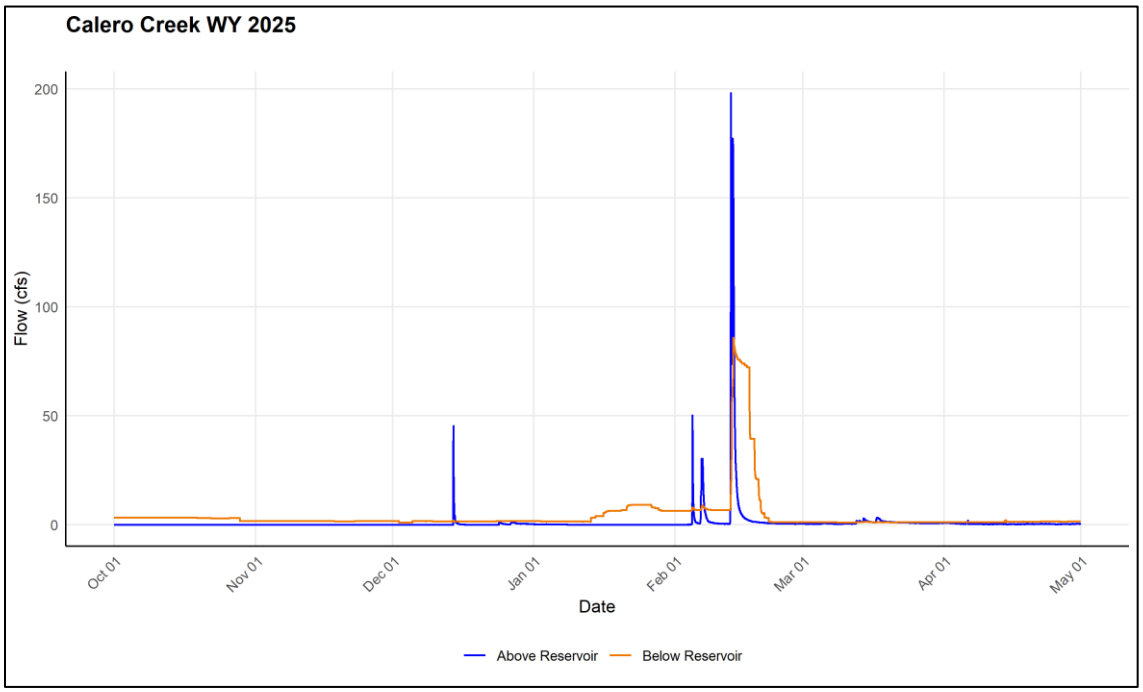
Available Data: 2022-2025

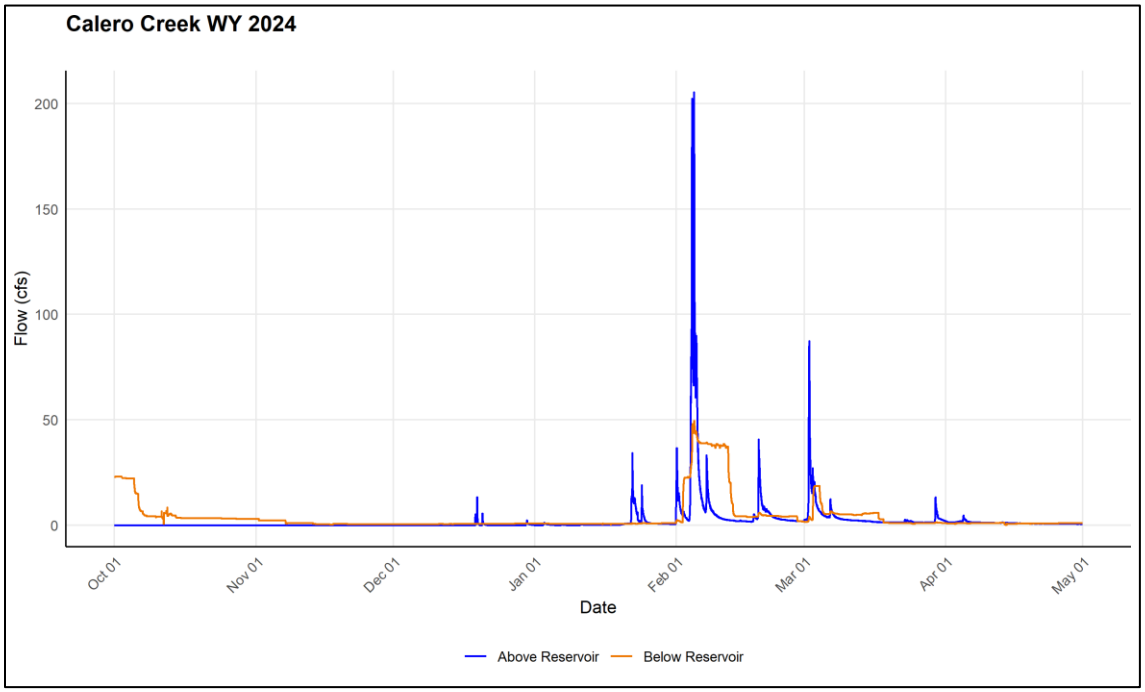
Monthly Above Calero Reservoir Continuous Adult Passage Day							
Water Year	**October**	**November**	**December**	**January**	**February**	**March**	**April**
WY2025	0.0	0.0	0.1	0.0	1.4	0.0	0.0
WY2024	0.0	0.0	0.0	0.1	2.2	0.7	0.0
WY2023	0.0	0.0	0.5	4.6	0.4	2.0	0.0
WY2022	0.0	0.0	0.4	0.0	0.0	0.0	0.0
Average	**0.0**	**0.0**	**0.3**	**1.2**	**1.0**	**0.7**	**0.0**
CG Values	**1.2**	**2.3**	**4.6**	**6.3**	**12.6**	**6.3**	**3.2**

Monthly Above Calero Reservoir Total Adult Passage Day							
Water Year	**October**	**November**	**December**	**January**	**February**	**March**	**April**
WY2025	0.0	0.0	0.1	0.0	2.0	0.0	0.0
WY2024	0.0	0.0	0.0	0.2	3.4	1.3	0.0
WY2023	0.0	0.0	1.0	11.3	0.7	6.0	0.0
WY2022	0.0	0.0	0.5	0.0	0.0	0.0	0.0
Average	**0.0**	**0.0**	**0.4**	**2.9**	**1.5**	**1.8**	**0.0**
CG Values	**1.2**	**2.3**	**4.6**	**6.3**	**12.6**	**6.3**	**3.2**

Monthly Average Adult Passage Day Upstream and Downstream Guadalupe Reservoir							
Location	**October**	**November**	**December**	**January**	**February**	**March**	**April**
Average Above WY24-25	0.0	0.0	0.4	2.9	1.5	1.8	0.0
FAHCE+ WY24-25	2.1	0.2	3.0	5.3	4.1	0.3	0.0
CG Values	**1.2**	**2.3**	**4.6**	**6.3**	**12.6**	**6.3**	**3.2**

Hydrographs Above and Below Calero Reservoir during FAHCE Plus Operations





Los Gatos Creek Estimated Monthly Adult Passage Days

Passage Flow Value: 28 cfs

Data Source[1]**:** Los Gatos Creek above Ryland Dam: Stream Sensor 5068; Los Gatos Creek at Lincoln Ave: Stream Sensor 5050

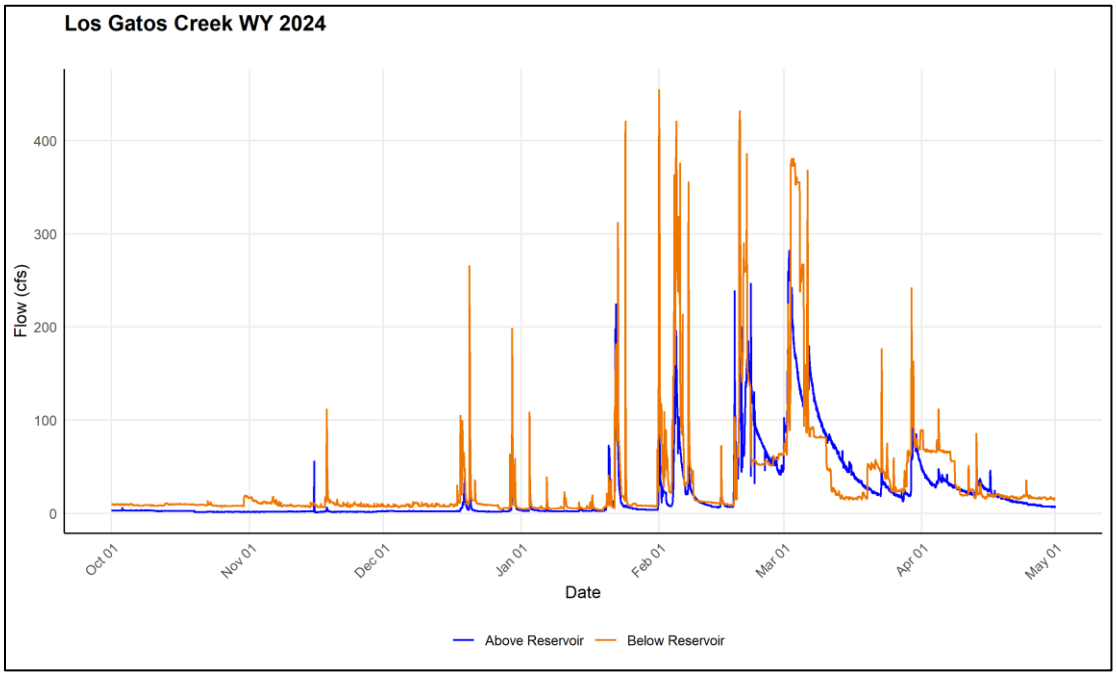
Available Data: 2024-2025

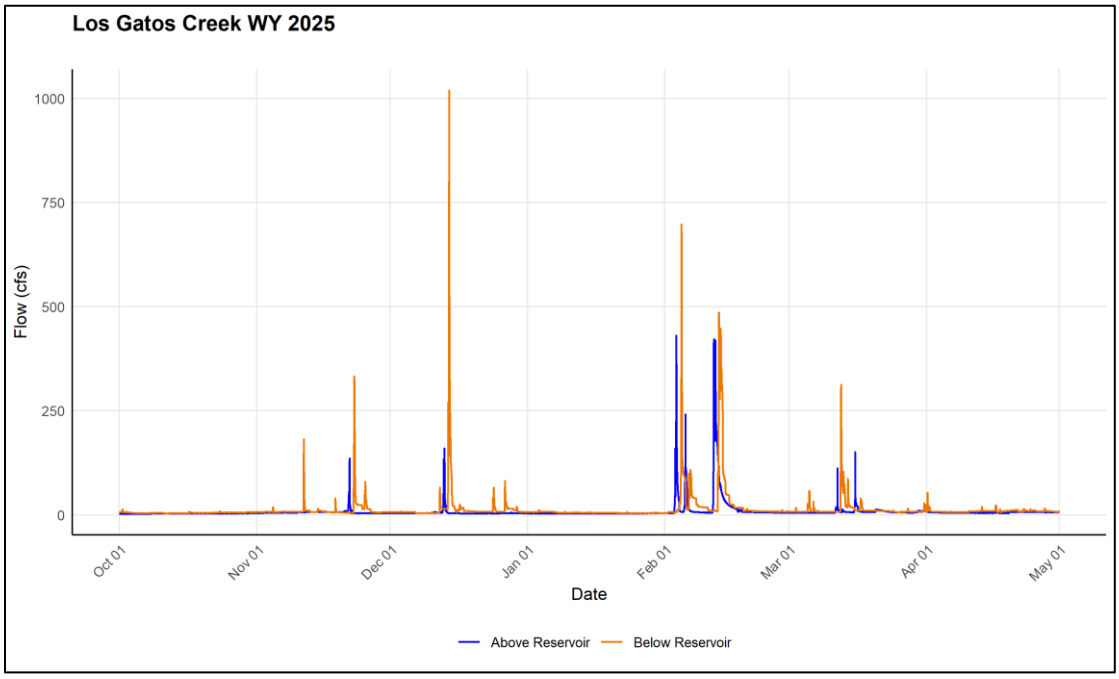
Monthly Above Lexington Reservoir Continuous Adult Passage Day							
Water Year	**October**	**November**	**December**	**January**	**February**	**March**	**April**
WY2025	0.0	0.2	0.4	0.0	1.14	0.3	0.0
WY2024	0.0	0.0	0.1	0.35	3.7	4.0	3.4
Average	**0.0**	**0.1**	**0.3**	**0.2**	**2.4**	**2.2**	**1.7**
CG Values	**0.8**	**1.6**	**3.2**	**4.4**	**8.8**	**4.4**	**2.2**

Monthly Above Lexington Reservoir Total Adult Passage Day							
Water Year	**October**	**November**	**December**	**January**	**February**	**March**	**April**
WY2025	0	0.3	0.4	0	4.8	0.3	0
WY2024	0	0	0.4	1.5	12.4	24.6	12.7
Average	**0.0**	**0.2**	**0.4**	**0.8**	**8.6**	**12.5**	**6.4**
CG Values	**0.8**	**1.6**	**3.2**	**4.4**	**8.8**	**4.4**	**2.2**

Monthly Average Adult Passage Day Upstream and Downstream Lexington Reservoir							
Location	**October**	**November**	**December**	**January**	**February**	**March**	**April**
Average Above WY24-25	**0.0**	**0.2**	**0.4**	**0.8**	**8.6**	**12.5**	**6.4**
FAHCE+ WY24-25	0.0	0.8	2.0	1.2	12.4	11.0	4.5
CG Values	**0.8**	**1.6**	**3.2**	**4.4**	**8.8**	**4.4**	**2.2**

Hydrographs Above and Below Lexington Reservoir Reservoir during FAHCE Plus Operations





Guadalupe River Estimated Monthly Adult Passage Days

Passage Flow Value: 18 cfs

Data Source[3]**:** Guadalupe River above Almaden Expwy: Stream Sensor 5023_2; Guadalupe R Abv Hwy 101 a San Jose CA : Stream Sensor USGS-11169025

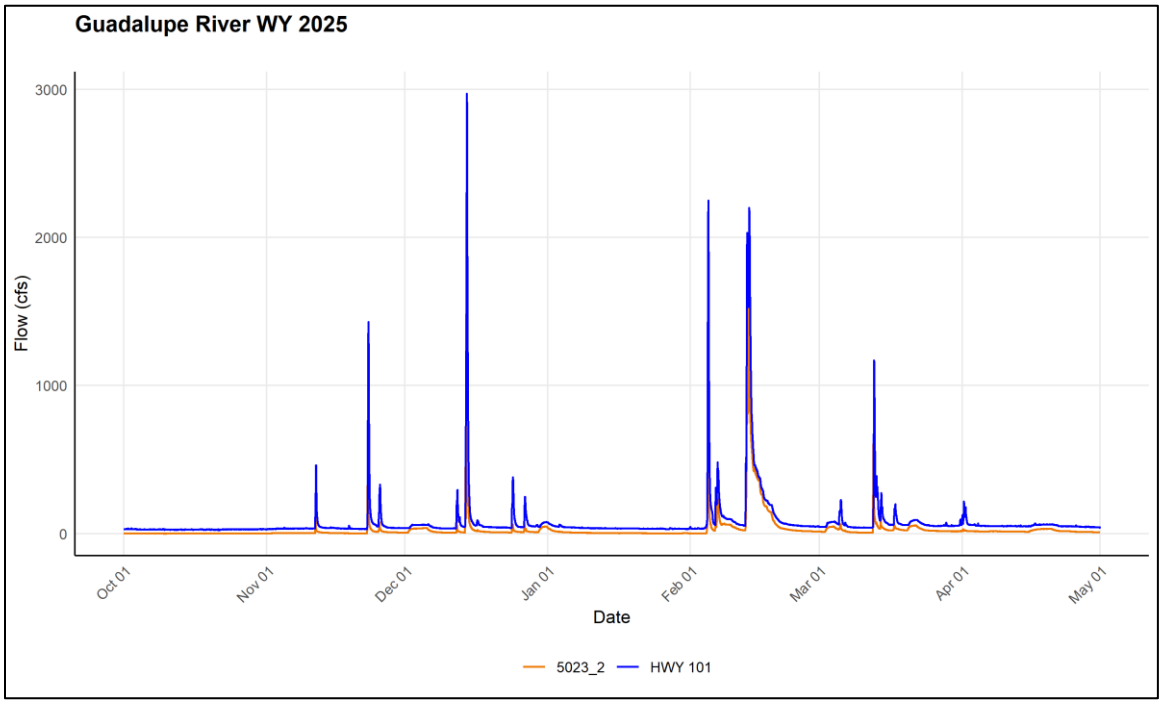
Available Data: 2024-2025 (Full FAHCE Implementation Years)

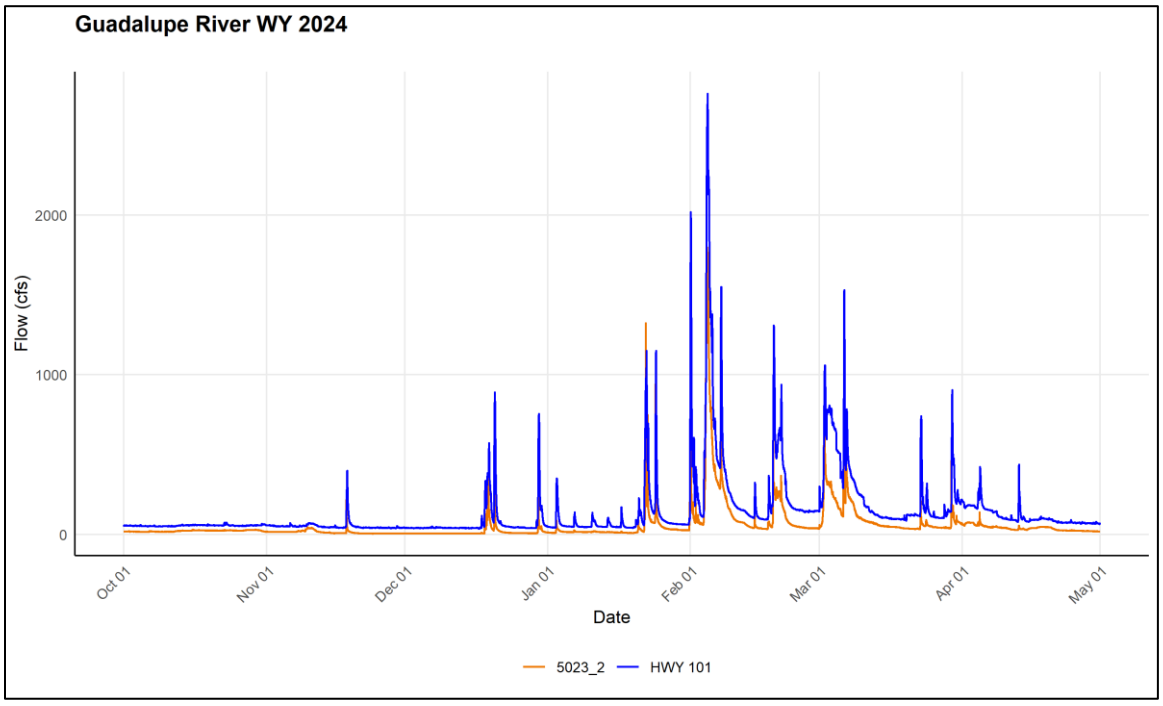
Monthly Continuous Adult Passage Day Guadalupe River (Gage 5023_2)							
Water Year	**October**	**November**	**December**	**January**	**February**	**March**	**April**
WY2025	0.0	1.3	4.8	1.4	21.4	14.1	6.9
WY2024	19.8	4.6	3.6	10.1	29.0	31.0	30.0
Average	**9.9**	**3.0**	**4.2**	**5.7**	**25.2**	**22.5**	**18.5**
CG Values	**0.8**	**1.6**	**3.2**	**4.4**	**8.8**	**4.4**	**2.2**

Monthly Guadalupe River Total Adult Passage Day (Gage 5023_2)							
Water Year	**October**	**November**	**December**	**January**	**February**	**March**	**April**
WY2025	0.0	2.4	11.1	1.4	21.4	19.6	8.4
WY2024	25.8	5.5	4.9	14.0	29.0	31.0	30.0
Average	**12.9**	**4.0**	**8.0**	**7.7**	**25.2**	**25.3**	**19.2**
CG Values	**0.8**	**1.6**	**3.2**	**4.4**	**8.8**	**4.4**	**2.2**

[3] Upstream data is not available for Guadalupe River as it is the main tributary will multiple upstream reservoirs. Passage days are based on observed conditions under FAHCE Plus Operations.

Hydrographs Guadalupe River Gage 5023_2 and HWY 101 during FAHCE Plus Operations





Stevens Creek Estimated Monthly Adult Passage Days

Passage Flow Value: 38 cfs

Data Source[1]**:** Stevens Creek Inflow: Stream Sensor 5045; Stevens Creek below Stevens Creek Reservoir: Stream Sensor 5044

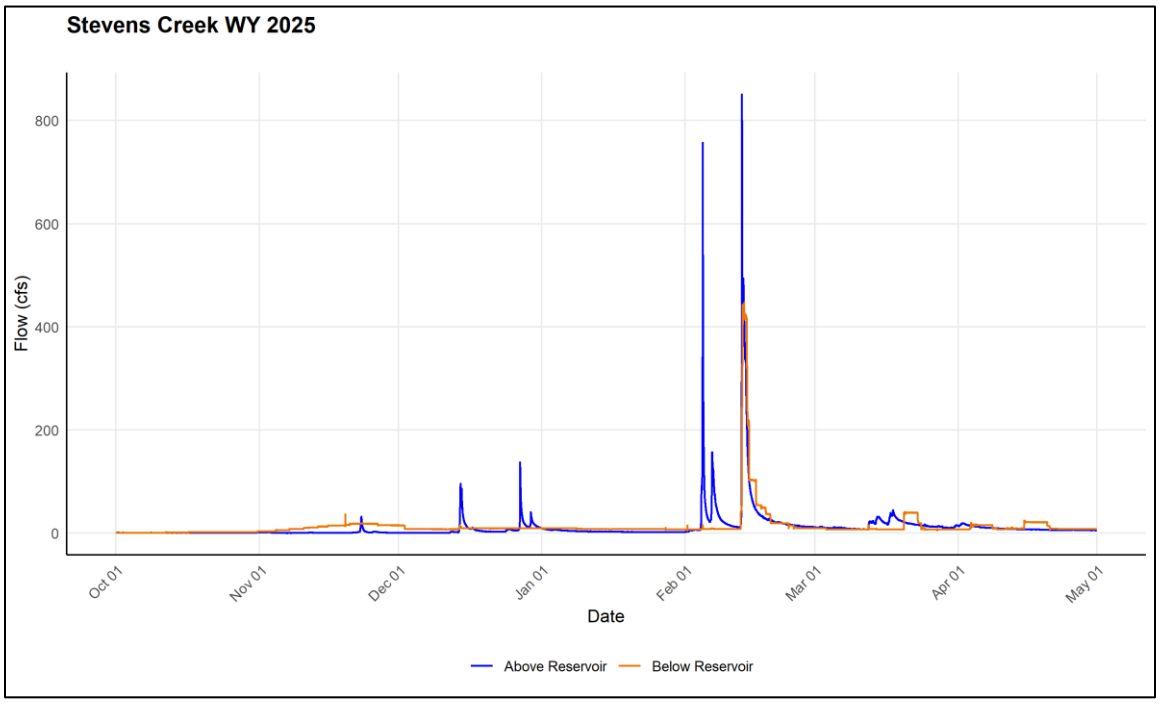
Available Data: 2017-2025

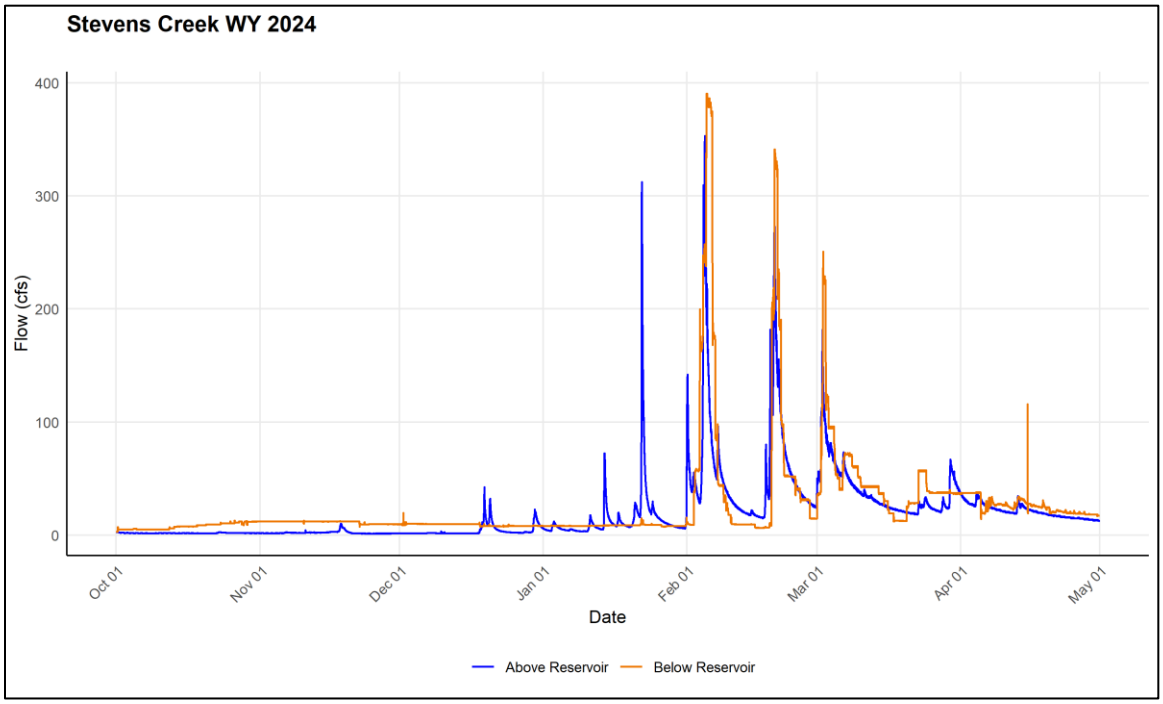
Monthly Above Stevens Creek Reservoir Continuous Adult Passage Day							
Water Year	**October**	**November**	**December**	**January**	**February**	**March**	**April**
WY2025	0.0	0.0	0.6	0.0	4.0	0.4	0.0
WY2024	0.0	0.0	0.0	1.2	6.8	9.6	0.1
WY2023	0.0	0.0	1.7	19.0	1.5	22.5	8.3
WY2022	0.1	0.0	1.3	0.0	0.0	0.0	0.0
WY2021	0.0	0.0	0.0	0.1	0.0	0.0	0.0
WY2020	0.0	0.0	0.2	0.0	0.0	0.0	0.3
WY2019	0.0	0.1	0.0	1.0	5.5	16.7	0.0
WY2018	0.0	0.0	0.0	0.8	0.0	0.5	0.3
WY2017	0.0	0.0	0.5	13.0	25.8	9.6	2.2
Average	**0.0**	**0.0**	**0.5**	**3.9**	**4.8**	**6.6**	**1.2**
CG Values	**0.5**	**1.0**	**2.0**	**2.8**	**5.6**	**2.8**	**1.4**

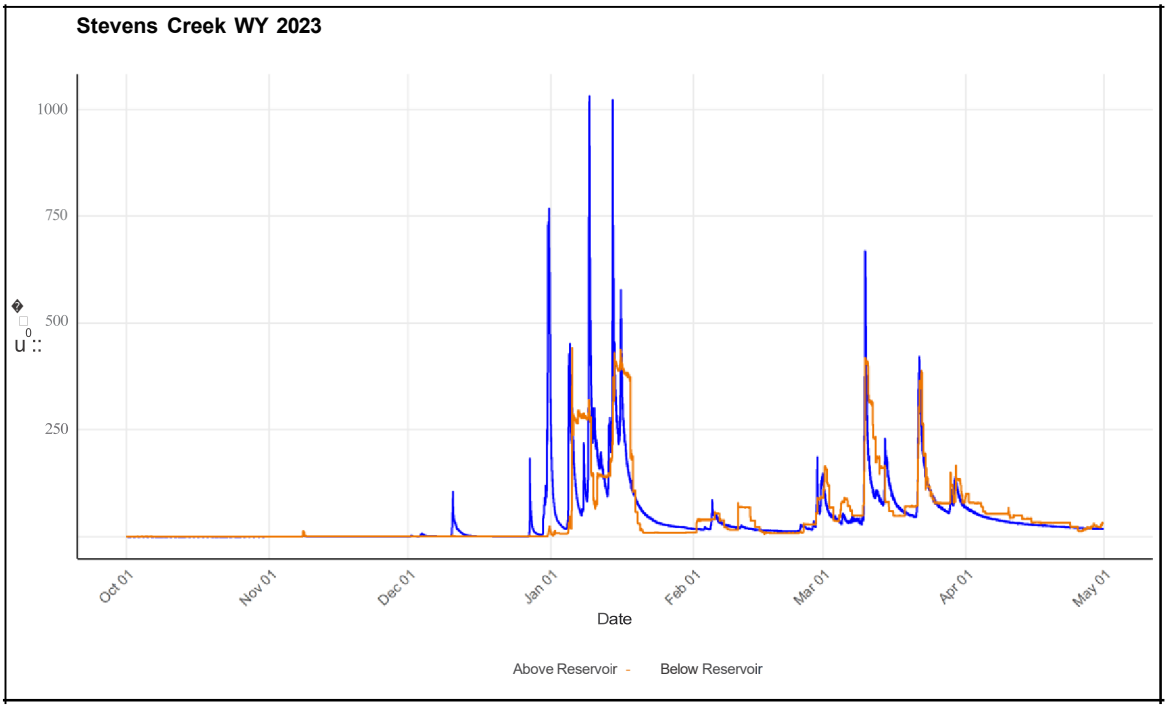
Monthly Above Stevens Creek Reservoir Total Adult Passage Day							
Water Year	**October**	**November**	**December**	**January**	**February**	**March**	**April**
WY2025	0.0	0.0	1.2	0.0	6.8	0.7	0.0
WY2024	0.0	0.0	0.0	1.7	15.7	12.6	0.3
WY2023	0.0	0.0	2.7	20.7	3.1	29.2	8.7
WY2022	0.1	0.0	5.6	0.0	0.0	0.0	0.0
WY2021	0.0	0.0	0.0	0.1	0.0	0.0	0.0
WY2020	0.0	0.0	0.2	0.0	0.0	0.0	0.5
WY2019	0.0	0.2	0.0	2.0	14.3	20.3	0.0
WY2018	0.0	0.0	0.0	0.8	0.0	0.6	0.3
WY2017	0.0	0.0	0.8	22.7	26.3	14.9	3.6
Average	**0.0**	**0.0**	**1.2**	**5.3**	**7.4**	**8.7**	**1.5**
CG Values	**0.5**	**1.0**	**2.0**	**2.8**	**5.6**	**2.8**	**1.4**

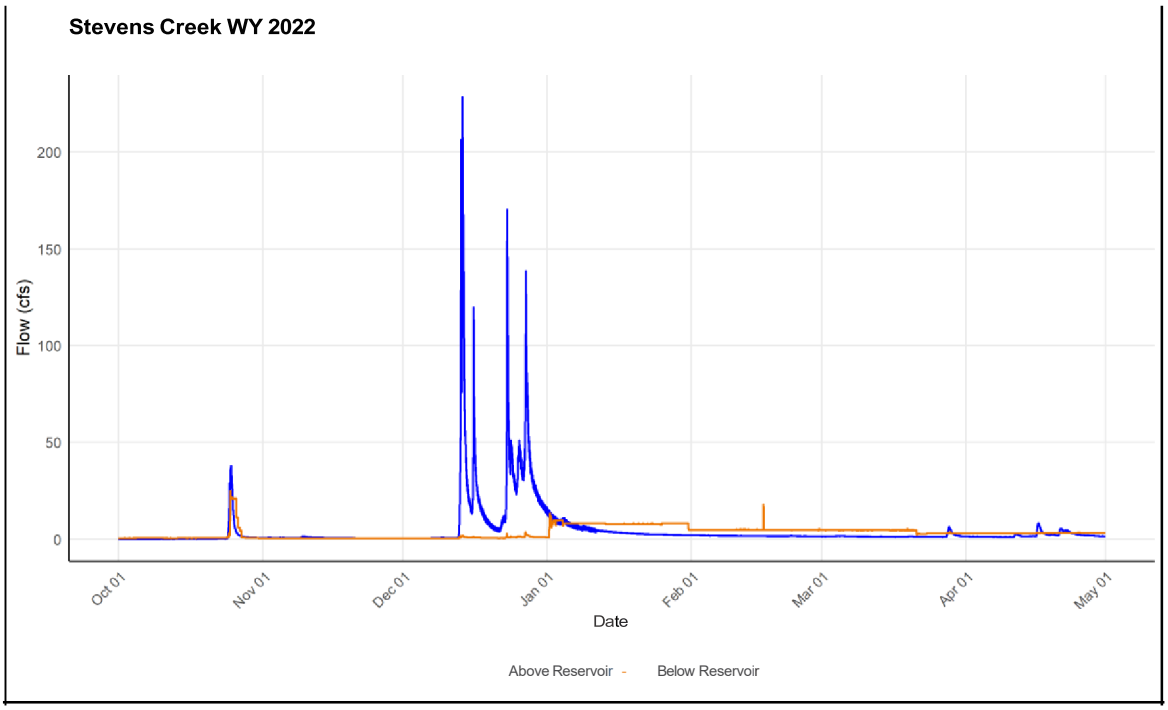
Average Adult Passage Day Upstream and Downstream Stevens Creek Reservoir							
Location	**October**	**November**	**December**	**January**	**February**	**March**	**April**
Average Above WY21-25	0.0	0.0	1.6	3.8	4.3	7.1	1.6
FAHCE+ WY21-25	0.3	0.0	0.0	3.1	8.3	12.6	11.7
CG Values	**0.5**	**1.0**	**2.0**	**2.8**	**5.6**	**2.8**	**1.4**

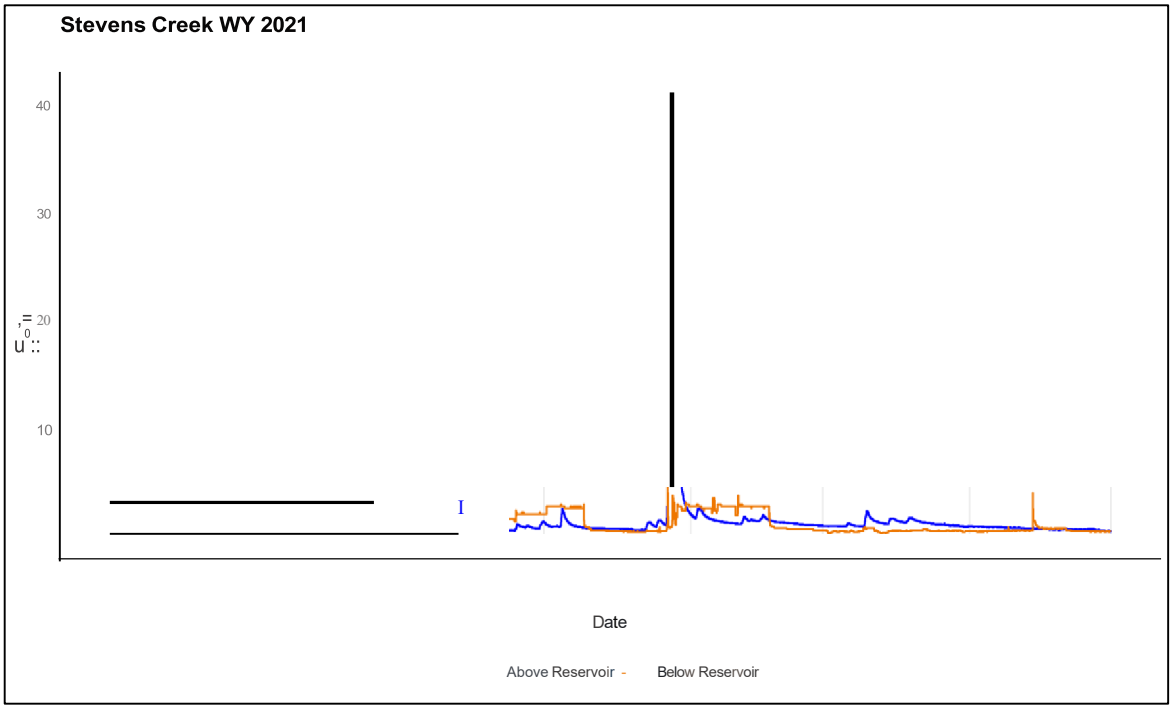
Hydrographs Above and Below Stevens Creek Reservoir during FAHCE Plus Operations






Stevens Creek WY 2023
1000
750
500
250
Oct 01
Nov 01
Dec 01
Jan 01
Feb 01
Mar 01
Apr 01
May 01
Date
Above Reservoir
Below Reservoir


Stevens Creek WY 2022
Flow (cfs)
200
150
100
50
0
Oct 01
Nov 01
Dec 01
Jan 01
Feb 01
Mar 01
Apr 01
May 01
Date
Above Reservoir
Below Reservoir


Stevens Creek WY 2021
40
30
20
10
Date
Above Reservoir
Below Reservoir

Coyote Creek Estimated Monthly above Reservoir Adult Passage Days[4]

Passage Flow Value: 90 cfs

Data Source[1]**:** Coyote Creek above Coyote Reservoir: Stream Sensor 5077

Available Data: 2017-2025

Monthly Above Anderson Reservoir Continuous Adult Passage Day							
Water Year	**October**	**November**	**December**	**January**	**February**	**March**	**April**
WY2025	0.0	0.0	0.0	0.0	3.6	3.2	0.0
WY2024	0	0	0	4.8	14.7	12.7	5.9
WY2023	0.0	0.0	4.4	28.5	2.7	28.7	9.7
WY2022	1.0	0.0	8.6	0.1	0.0	0.0	0.0
WY2021	0.0	0.0	0.0	2.3	0.0	0.0	0.0
WY2020	0.0	0.0	1.5	0.1	0.0	2.9	3.2
WY2019	0.0	0.4	0.8	6.7	22.5	15.8	0.0
WY2018	0.0	0.0	0.0	1.1	0.0	3.8	1.3
WY2017	0.0	0.0	1.6	27.9	28.0	9.8	1.5
Average	**0.1**	**0.0**	**1.9**	**7.9**	**7.9**	**8.6**	**2.4**
CG Values	**1.8**	**3.6**	**7.2**	**9.7**	**19.4**	**9.7**	**4.9**

Above Anderson Reservoir Total Adult Passage Day							
Water Year	**October**	**November**	**December**	**January**	**February**	**March**	**April**
WY2025	0.0	0.0	0.0	0.0	5.1	6.4	0.0
WY2024	0.0	0.0	0.0	4.8	22.1	15.2	9.8
WY2023	0.0	0.0	7.6	28.5	5.3	28.7	9.8
WY2022	1.1	0.0	11.8	0.1	0.0	0.0	0.0
WY2021	0.0	0.0	0.0	2.3	0.0	0.0	0.0
WY2020	0.0	0.0	2.4	0.1	0.0	2.9	3.3
WY2019	0.0	0.4	0.9	8.6	24.0	17.0	0.0
WY2018	0.0	0.0	0.0	1.1	0.0	8.9	1.3
WY2017	0	0	2.72	27.9	28	17.64	2.04
Average	**0.1**	**0.0**	**2.8**	**8.2**	**9.4**	**10.7**	**2.9**
CG Values	**1.8**	**3.6**	**7.2**	**9.7**	**19.4**	**9.7**	**4.9**

[4] Data from downstream of Anderson Reservoir does not represent conditions under FAHCE Plus operations due to the current seismic retrofit project. FAHCE Plus has not been implemented in this watershed.

4. Work Cited

CDFW (California Department of Fish and Wildlife). 2017. Critical Riffle Analysis for Fish Passage in California. California Department of Fish and Wildlife Instream Flow Program Standard Operating Procedure DFG-IFP-001, 24 p.

Valley Water. 2025. Fish and Aquatic Habitat Collaborative Effort Annual Report Water Year 2024.

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Fish and Habitat Collaborative Effort (FAHCE)

Stream Planning and Operations Committee Meeting

March 12, 2026

Agenda

- Update on Stevens Creek and Guadalupe River Water Rights Change Petitions
- Monitoring Updates
- Next steps

Stevens Creek and Guadalupe River Water Rights Change Petitions

- Submitted an Agreement to Resolve Protest to the State Water Resource Control Board (Water Board) on 1/16/2026
- The Agreement proposes to add new conditions to the Water Right Licenses
- Met with the Water Board on 2/12/2026

New Fish and Habitat Restoration Plan (FHRP) a.k.a. “Implementation Plan”

- Based on the Final EIR’s Appendix A
- Concise, action-oriented, focused on FAHCE-Plus
- Adds more fish species
- Adds new Biological and Ecological Objectives
- Consensus-seeking Adaptive Management
- Submit an Initial Five-Year Update of the FHRP to the Water Board

Existing Monitoring Objectives

- Board-approved FAHCE-Plus
- Focused on flow objectives
- SMART= Specific, Measurable, Achievable, Realistic, Timely

Table 4. Existing Compliance and Monitoring Objectives and Actions

Stevens Creek					
Number	**Relevant Natural Resource Goals**	**SMART MOs**	**Monitoring Methods**	**Monitoring Period and Frequency**	**Triggers for Adaptive Management Actions**
STV-01-C	Maintain flows in Stevens Creek that support steelhead habitat during the winter and spring base flow period, in accordance with the FAHCE Plus rule curves.	Target winter base flow releases based on reservoir storage[1]: • 3 cfs, 5 cfs, 8 cfs and 16 cfs in compliance with winter base rule curves set to storage within Stevens Creek Reservoir between Jan. 1 to Apr. 30, except for deviations during flood risk reductions releases, annually. • Minimum low storage release of 1 cfs and 0.5 cfs targeted when storage is below the lowest winter base flow curve.	Monitor reservoir storage level within Stevens Creek Reservoir (ALERT 4009) and 3-day rolling average of streamflow at Gauge No. 5044 for compliance of storage and flow magnitude Jan. 1 to Apr. 30, annually.	Immediately after implementation, annual monitoring during winter base flow period (Jan. 1 to Apr. 30) will occur for the duration of the Program.	From Jan. 1 to Apr. 30, winter base flow curve storage met at ALERT 4009, and target release level not maintained at Gauge 5044[2].

New Objectives- More Species to Consider

Species	General Life Cycle Description	Habitat by Life State
Pacific Lamprey	Anadromous, spawning in fresh water, larvae rear in streams, adults migrate to the ocean to feed parasitically, then return to fresh water to spawn and die.	**Eggs & Larvae:** Freshwater streams, burrowed in sediment. **Juvenile:** Migrate to the ocean to feed on fish. **Adult:** Migrate back to freshwater streams to spawn.
Prickly Sculpin	Mostly fresh water, sometimes brackish. Spend days hiding under rocks and logs, feeding on invertebrates at night.	**Juveniles:** Shallower, slower water than adults. Stream margins with submerged vegetation, cobble, gravel. **Adults:** Rocky bottoms of ponds and streams. Lower reaches of bays and estuaries
Sacramento Hitch	Omnivorous, feeding on zooplankton and insects near the surface of streams or in open water. Primarily fresh water, tolerant of some brackish conditions. Spawning occurs in rivers.	**Juvenile:** Shallow, vegetated areas near the shore of lakes. **Adult:** Slow, warm water of lakes and quiet stretches of rivers. Also found in cool, clear, low-gradient streams.
Sacramento Sucker	Bottom dwellers, feeding on a mix of algae, detritus, and invertebrates. Thrive in various freshwater conditions, including streams, lakes, and mild estuaries. Move from pools to riffles to spawn.	**Young larvae:** Hiding in gravel substrate of streams or lake tributaries. **Juvenile:** Forage along the bottom of stream banks. **Adult:** Deeper water during the day, feeding during twilight hours. Occupy pools, runs, or riffles with cover from predators.
Southern Coastal Roach	Highly adapted to intermittent streams and can persist in fragmented or seasonal habitats. Feed on small invertebrates, algae, and detritus. Spawn in spring to early summer. Lay adhesive eggs in shallow, slow-moving or still waters over gravel, rocks, or submerged vegetation.	**Larvae/Juveniles:** Warm, shallow backwaters or pool edges with cover (vegetation, woody debris). **Adults:** Small streams, perennial pools, and low-gradient creeks with warm water. They tolerate seasonal drying by seeking residual pools or deeper refugia.
Riffle Sculpin	Headwater rivers and streams with cold water and adequate flow with rock or gravel substrate; adults occupy fairly shallow, fast flowing water with adequate velocity refugia; spawns under rocks in swift riffles or inside cavities in submerged woody debris; all life stages are benthic and do not disperse far from their natal nest.	**Larvae/Juveniles:** Shallow, fast-flowing riffles and runs with coarse substrate and interstitial spaces for cover. **Adults:** Same riffle and run habitats, often in cold, well-oxygenated headwater streams with rocky bottoms and minimal sedimentation.
Chinook Salmon	Anadromous, spawning in freshwater rivers, rearing as juveniles in fresh water before migrating to the ocean to mature, and returning to fresh water to spawn and die.	**Eggs & Fry:** Redd (nest) in gravel of freshwater streams. **Parr:** Freshwater streams, feeding on insects. **Smolt:** Migrate downstream to the sea, adapting to saltwater. **Adult:** Ocean, feeding and growing. Return to natal streams to spawn.
Steelhead/Rainbow Trout	Exhibit diverse life history patterns, including an anadromous form (steelhead) and fresh water residents (rainbow trout). Anadromous steelhead spawn in fresh water, rear as juveniles in fresh water, migrate to the ocean, and return to fresh water to spawn.	**Eggs & Juvenile:** Freshwater streams, similar habitat to other salmonids. **Adult (steelhead):** Ocean. Return to fresh water to spawn. **Adult (rainbow trout):** Fresh water.
Longfin Smelt	Multi-stage life cycle with habitat needs that vary by stage. Adults migrate into and spawn in fresh or slightly brackish water typically from October to April. Spawning sites are usually in tidal reaches of rivers or streams, with sandy gravel bottoms. Newly hatched larvae are buoyant and disperse with currents. Larval recruitment is positively tied to freshwater inflow to the estuarine environment. Larvae live in a wide range of salinities but tend to aggregate in low salinity environments (0-6ppt).	**Eggs:** Adhesive **Larvae:** Buoyant, drift downstream and aggregate in brackish water. **Juvenile:** Brackish waters. **Sub-Adults:** Saltwater. **Adults**: Bays and saltwater habitats.

Biological and Ecological Objectives

- Commitment to develop new **SMART** objectives with AMT
- Biological: Abundance, life history, productivity, and spatial extent for the new species (i.e., number of spawners)
- Ecological: Establish targets for habitat qualities and quantities that would support Biological Objectives (i.e., acres of spawning habitat)
- New objectives would be included in the Initial Five-Year Update to the Water Board

Monitoring Updates

1. Migration monitoring using PIT Tags
2. Temperature monitoring
3. Biotactic Camera at Stevens Creek
4. Spawning habitat transects
5. Improvements on Guadalupe Vaki Riverwatcher

https://fta.valleywater.org/dl/gpCYY8RftKr4/1Beaver.mp4_

https://fta.valleywater.org/dl/dW77JWkMXx3b/2Salmon.mp4_

https://fta.valleywater.org/dl/FgBc3gkTcmMw/3Steelhead.mp4_

https://fta.valleywater.org/dl/B98jFCrFRfPT/4TwoSalmon.mp4_

Next Steps

- FAHCE Annual Report for 2024-2025 will be released in mid-March 2026
- Additional studies to support the development new objectives
- Work with the Water Board to complete the water rights amendments

QUESTIONS

Valley Water

Clean Water • Healthy Environment • Flood Protection

Santa Clara Valley Water District

File No.: 26-0261

Agenda Date: 3/12/2026
Item No.: 5.2.

COMMITTEE AGENDA MEMORANDUM
Stream Planning and Operations Committee

Government Code § 84308 Applies: Yes ☐ No ☒
(If "YES" Complete Attachment A - Gov. Code § 84308)

SUBJECT:
Receive and Accept the 2026 Proposed Stream Planning and Operations Committee (SPOC) Work Plan, Provide Feedback on Upcoming Discussion Items, and discuss a 2026 SPOC Meeting Schedule.

RECOMMENDATION:
Receive and accept the 2026 Proposed SPOC Work Plan, provide feedback on upcoming discussion items, and discuss a 2026 SPOC meeting schedule.

SUMMARY:
Under direction of the Clerk, Work Plans are used by all Board Committees to increase Committee efficiency, provide increased public notice of intended Committee discussions, and enable improved follow-up by staff. Work Plans are dynamic documents managed by Committee Chairs and are subject to change.

For 2026, staff is seeking Committee acceptance of the 2026 proposed Work Plan and general meeting schedule.

ENVIRONMENTAL JUSTICE IMPACT:
The review and acceptance of the SPOC Work Plan and meeting schedule are not subject to environmental justice analysis.

ATTACHMENTS:
Attachment 1: 2026 SPOC Work Plan

UNCLASSIFIED MANAGER:

Wendy Ho, 408-630-3874

2026 Stream Planning and Operations Committee Work Plan
March 12, 2026 Meeting

The annual work plan establishes a framework for committee discussion and action during the annual meeting schedule. The committee Work Plan is a dynamic document, subject to change as external and internal issues impacting the Valley Water occur and are recommended for committee discussion. Subsequently, an annual committee accomplishments report is developed based on the work plan and presented to the District Board of Directors.

ITEM	WORK PLAN ITEM BOARD POLICY	MEETING DATE	INTENDED OUTCOME(S) (Action of Information Only)
1	**Election of Chair and Vice Chair for 2026**	First annual meeting	• Committee Elects Chair and Vice Chair for 2026 **(Action)**
2	**Review Committee Work Plan, the Outcomes of Board Action of Committee Requests, and the Committee Next Meeting Agenda**	Every meeting	• Receive and review the 2025 Committee work plan **(Action)** • Discuss general meeting schedule for 2026 (Information) • Submit requests to the Board, as appropriate **(Action)**
3	**FAHCE Implementation Update**	TBD	• Receive updates on FAHCE Implementation (Information)
4	**Discuss District and Non-District Projects and Other Activities that May Affect SPOC**	June or TBD	• Receive information on activities affecting SPOC, as needed (can be integrated into the field or virtual tour). (Information)
5	**Receive update on Anderson Dam Seismic Retrofit Project and Incorporation of FAHCE Conservation Measures for Coyote Creek**	TBD	• Receive updates on the Anderson Dam Seismic Retrofit Project and the incorporation of FAHCE Conservation Measures for the Coyote Creek Watershed into ADSRP. (Information)
6	**Field or Virtual Tour**	TBD	• Attend an annual field or virtual tour of an applicable site; invite public (Information)

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