



Water Enterprise Environmental Stewardship Policy Implementation 20-Year Report June 2026



Introduction and Background

Environmental stewardship is a core part of the San Francisco Public Utilities Commission's (SFPUC's) mission:

“Our mission is to provide our customers with high quality, efficient and reliable water, power, and sewer services in a manner that is inclusive of environmental and community interests, and that sustains the resources entrusted to our care.”

The Commission's adoption of the Water Enterprise Environmental Stewardship Policy (Stewardship Policy) in June 2006 provides the direction for how environmental stewardship is implemented within the Water Enterprise.

This direction emerged from the development of the Water System Improvement Program (WSIP) in 2005. In addition to investing over \$4 billion in capital projects, the WSIP environmental review process created an urgency to address environmental concerns associated with construction impacts and meeting future water demands with additional surface water supplies from the Tuolumne River.

In response to these concerns, the San Francisco Board of Supervisors passed legislation as part of the FY05-06 budget that restricted funding for a few WSIP projects until the Commission approved “a policy related to flows and water releases” protecting native fish species in the Tuolumne River and Alameda Creek. The interest groups raising these concerns also requested that some WSIP funding be dedicated to “watershed and environmental improvements” to protect and restore the ecosystems from which water was diverted into the Hetch Hetchy Regional Water System (Regional Water System).

When the WSIP description was adopted by the Commission in November 2005, it included the Watershed and Environmental Improvement Program (WEIP) and set aside \$20 million of WSIP funding for WEIP projects. The Commission budget workshops in FY05-06 established the objective of providing \$50 million for WEIP investments over the next 10 years, with the \$20 million from WSIP providing the initial foundation. Staff have been regularly reporting to the Commission on progress towards meeting this objective.

The policy of protecting rivers from which the SFPUC diverts surface water was the result of discussions among SFPUC staff, the Bay Area Water Supply and Conservation Agency, the Tuolumne River Trust (now Yosemite Rivers Alliance), the Alameda Creek Alliance, the Sierra Club, and Clean Water Action during late 2005 and early 2006. In June 2006, the Commission adopted the Stewardship Policy, and this policy provided guidance for the environmental review of WSIP projects, including the Calaveras Dam Replacement Project, the Lower Crystal Springs Dam Improvement Project, and the Bioregional Habitat Restoration Program.

This policy also supported the WSIP Programmatic Final Environmental Impact Report, adopted by the Commission in October 2008. In the Commission adoption resolution, the SFPUC committed to partially meeting future water supply needs from alternative water supplies, including conservation, conjunctive use (e.g., groundwater), and recycled water.

Water Enterprise staff reported on the WEIP annually to the Bay Area Water Stewards and the Commission, and in March 2017 this report became part of the first report on implementation of the Stewardship Policy. The second Stewardship Policy Implementation report was submitted to the Commission in June 2020, and a third in December 2022 which covered FY19-20, FY20-21, and FY21-22, as well as preliminary information for FY22-23. This report includes FY23-24, FY24-25, and FY25-26.

Based on the investments made through FY25-26, the \$50 million objective established in 2006 has been met. The purpose of this report is to provide a final overview of these investments, including how they relate to the Water Enterprise Level of Service Goals and Objectives, and demonstrate how the Stewardship Policy is integrated into regular operations and maintenance activities.

The Stewardship Policy is a fundamental component of the Water Enterprise Level of Service Goals and Objectives, and a responsibility of Water Enterprise employees including Water Enterprise Divisions such as Hetch Hetchy Water and Power (HHWP), Water Supply and Treatment, San Francisco Water, Water Quality, Water Resources, and Natural Resources and Lands Management. These divisions all contribute to the implementation of this policy.

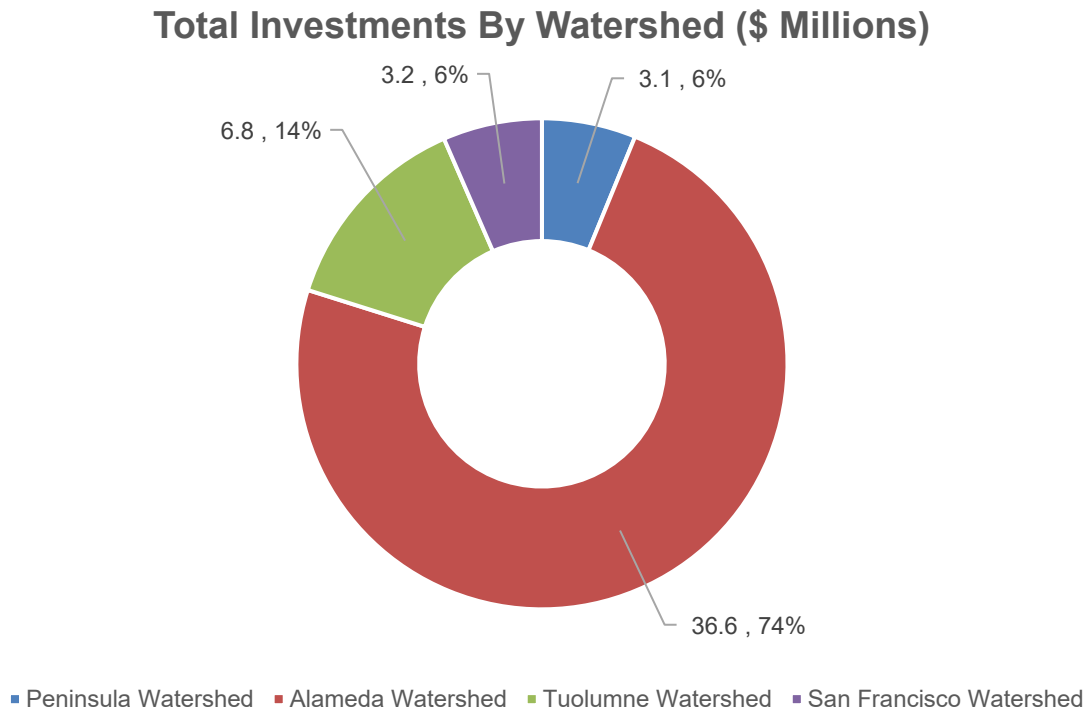
Environmental stewardship is a core aspect of the Water Enterprise's commitment to sustainable water supplies and water efficiency. This commitment was also codified in the WSIP Programmatic Final Environmental Impact Report's adoption in 2008. This includes SFPUC programs led by Water Resources to diversify our water supplies through new and alternative water sources—onsite reuse, groundwater, recycled water, purified recycled water, and technological innovations. The SFPUC's long-running, comprehensive water conservation program provides education, services, and financial incentives to help homes, businesses, and people in our service area use water wisely. See the [Water Resources Annual Report](#) for details.

The remainder of this report is organized by the following topic areas:

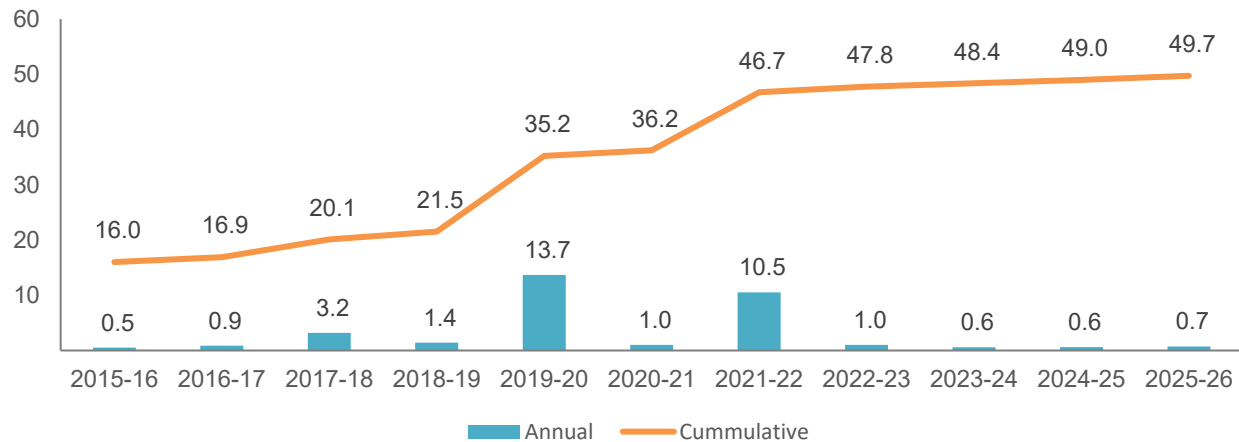
- Watershed and Environmental Improvement Program Investments
- Water Enterprise Level of Service Goals and Objectives
- Environmental Regulatory Compliance
- Watershed Lands Management
- Biodiversity and Climate Resilience
- Environmental Stewardship Education and Interpretation
- On the Horizon
- Next Steps

Watershed and Environmental Improvement Program Investments

Annual WEIP reports were provided to the Commission starting in 2008. The chart below and the graph on the next page show how these investments were allocated among the Tuolumne River, Alameda Creek, Peninsula, and San Francisco “watersheds” through FY25-26, and also timing of the investments since FY15-16. WEIP investments include land acquisition, native fish restoration, rare plant surveys and restoration, historical ecology studies, and environmental stewardship education and interpretation programs. See Appendix A for a list of all of the WEIP investments through FY24-25 which total \$50 million.



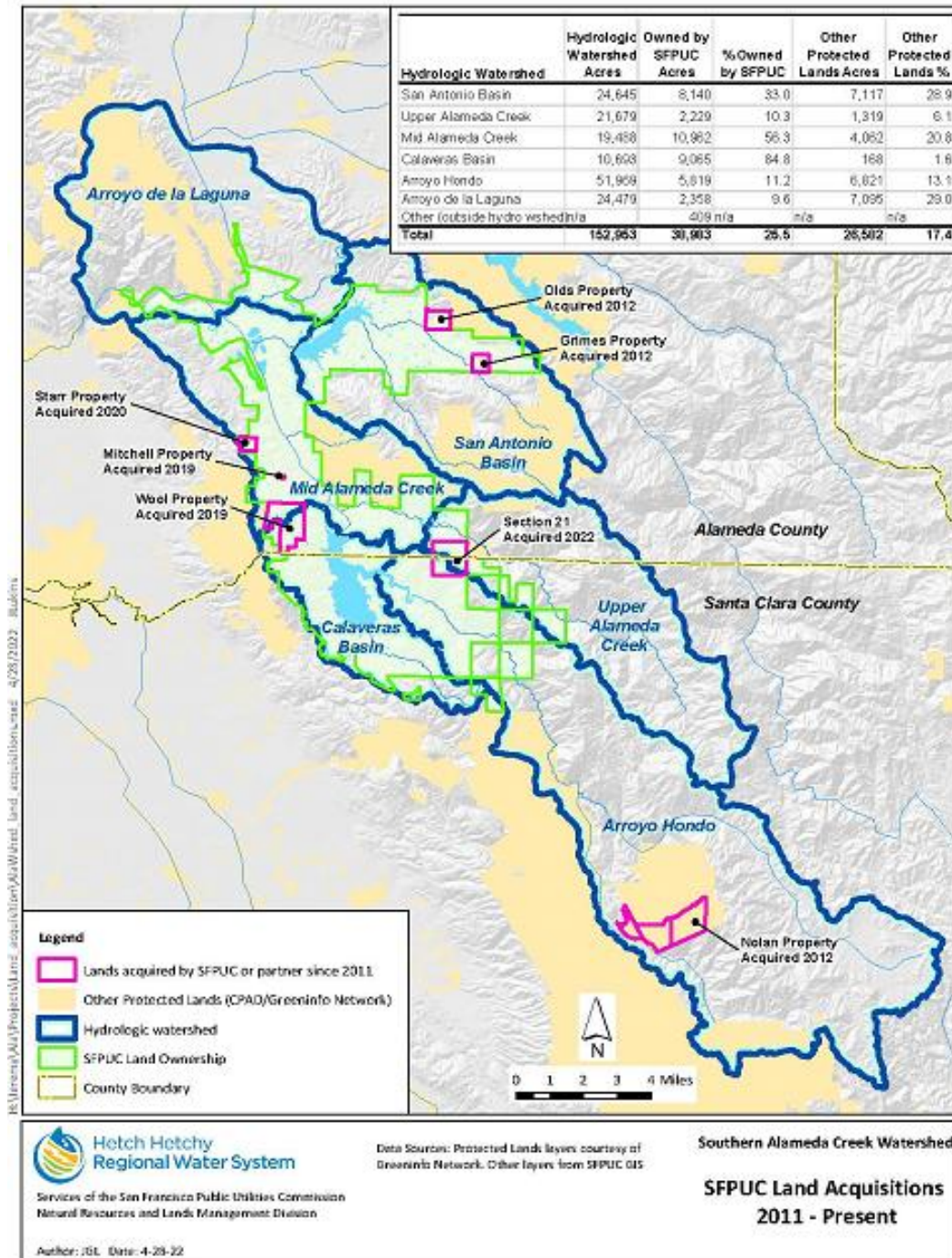
Total Investments By Fiscal Year (\$ Millions)



The Spring Valley Water Company (Spring Valley) started purchasing watershed lands outside of San Francisco in the 1800s to acquire water rights and to provide high quality drinking water to its customers. The SFPUC purchased Spring Valley in 1930 and today owns the land from which rainfall runoff flows to Crystal Springs, San Andreas, and Pilarcitos Reservoirs. Collectively this contiguous area is referred to as the Peninsula watershed, which includes San Mateo Creek flowing into San Francisco Bay and Pilarcitos Creek flowing into the Pacific Ocean.

During this time, Spring Valley also began looking for water sources in Alameda and Santa Clara Counties. Spring Valley purchased land in Calaveras Valley, and other properties throughout the Alameda Creek watershed. These properties provided excellent locations for new reservoirs and infrastructure to serve the increasing demand of new customers.

Spring Valley stopped acquiring Alameda Creek watershed lands when it became clear that San Francisco would purchase their system. The SFPUC did not have an active land acquisition program until WEIP was initiated in 2005. From the beginning, WEIP prioritized purchase of fee title or easements from willing private landowners in SFPUC source watersheds to prevent the land from becoming developed, and to ensure long term protection of water quality and ecological resources. The greatest dollar value investment has been in land acquisition in the Alameda Creek watershed, which is not a surprise given that the SFPUC owns just 25% of the land above Calaveras and San Antonio Reservoirs, and only 40% of these watersheds are publicly owned. The acquisitions in the Alameda Creek watershed are shown on the map on the next page.



SFPUC acquisitions in the Alameda Creek watershed

With this dedicated funding, the manner in which projects were implemented was critical to the program's success. As an example, The Upper Alameda Creek Watershed Partnership was established in 2011 among the SFPUC, Alameda County Resource Conservation District (Alameda County RCD), the U.S. Department of Agriculture Natural Resources Conservation Service, California Rangeland Trust and The Nature Conservancy to ensure transparency and an efficient, effective, and coordinated effort among all of these parties to consider agreements to acquire land rights with private

landowners in the watershed. This partnership allowed organizations with similar interests to work together to further mutual goals, coordinate efforts to avoid confusion, leverage existing funding to maximize the protection of natural resources, and ensure protection of water quality in the watershed.



Nolan Ranch in the Alameda Creek watershed

Natural Resources and Lands Management staff work closely with SFPUC Real Estate Services on these often very complicated real estate transactions with multiple property owners. To date, the SFPUC has purchased six properties and provided funds towards the purchase of a property currently owned by Santa Clara County and soon to be a county park in the Alameda Creek watershed. The properties ranged in size from 5 acres to 1,155 acres, and in total 3,184 acres have been protected within the Alameda Creek watershed. In Stanislaus County, the SFPUC provided funding in 2011 towards the purchase of Dos Rios Ranch at the confluence of the Tuolumne and San Joaquin Rivers. In 2024, this 1,603 acre ranch became California's newest State Park. In total, over \$28 million has been spent to protect these lands to ensure high quality water and conservation of natural resources.

Water Enterprise Level of Service Goals and Objectives

The adoption of the WSIP Programmatic Final Environmental Impact Report in 2008 also included Water Enterprise Level of Service Goals and Objectives for capital

investments. In November 2023, the SFPUC Commission adopted, amended, and updated Level of Service Goals and Objectives to provide direction for ongoing operations and maintenance of the regional water system as well as for capital investment. To illustrate how the Stewardship Policy has become integrated into Water Enterprise regular business, Appendix B shows how the WEIP investments address the amended and updated Level of Service Goals and Objectives.

The remainder of this report provides specific examples of how the Stewardship Policy is being implemented in the context of the amended and updated Level of Service Goals and Objectives. While many of the Level of Service Goals and Objectives are related to Stewardship Policy implementation, the most relevant are Environmental Stewardship and Sustainability. These specific goals and their relevant objectives are shown below, and the complete list is included as Appendix C.

GOAL: Environmental Stewardship – maintain high environmental performance standards

Objectives:

- *Meet all current and anticipated environmental legal requirements.*
- *Manage SFPUC watershed and right of way lands to protect and restore native ecological resources, protect and preserve cultural resources, and minimize wildfire risk.*
- *Manage and operate the Water Enterprise assets consistent with the Water Enterprise Environmental Stewardship Policy.*

GOAL: Sustainability – enhance sustainability in all system activities (environmental, economic, and social)

Objective:

Community Support

- *Be mindful of and responsive to community needs throughout the SFPUC service area, as part of operating and maintaining the water system.*
- *Maintain a proactive program of public outreach regarding all aspects of the water system.*
- *Provide the public with appropriate educational opportunities by providing education programs and recreational opportunities (where appropriate) in cooperation with other local, state, and federal agencies.*
- *Expand targeted, thoughtful efforts to build relationships with Federally Recognized Tribes and other California Native Americans (California Governor Executive Order B-10-11 and Native American Heritage Commission).*
- *Manage watershed and right of way lands to protect cultural and tribal resources.*

The descriptions below do not follow the structure of the amended and updated Level of Service Goals and Objectives verbatim since the operation and maintenance of the Regional Water System is integrated into multiple Level of Service Goals and Objectives. Instead, examples of Stewardship Policy implementation are described under environmental regulatory compliance, watershed lands management, biodiversity and climate resilience, and environmental stewardship education and interpretation. The report concludes with a short description of priorities on the horizon and next steps.

Environmental Regulatory Compliance

The Stewardship Policy states the SFPUC will proactively manage the watersheds under its responsibility in a manner that maintains the integrity of natural resources, restores habitats for native species, and enhances ecosystem function. Compliance with current and anticipated federal and state environmental regulatory laws and policies is a fundamental requirement to support these efforts. Environmental compliance increases regulatory certainty and thus helps support the Level of Service Regional Delivery Reliability Goal. The Water Enterprise has clarified and assigned environmental regulatory compliance roles and responsibilities to ensure this objective is achieved while conducting operations and maintenance activities throughout the Regional Water System, including SFPUC watershed and rights-of-way lands. The Planning and Compliance group within the Natural Resources and Lands Management Division (NRLM) is the hub of environmental compliance within the Water Enterprise, and environmental compliance is achieved in collaboration with all Water Enterprise Divisions.

The Water Enterprise's environmental compliance starts with impact avoidance. Water Enterprise activities are reviewed and modified as needed to incorporate best management practices and environmental impact avoidance measures whenever feasible. An important component of this avoidance effort entails learning where special status species are most likely to be found on watershed and rights of way lands so that impacts to these species can be avoided during maintenance and operations. NRLM biologists monitor nesting eagles, learn how to spot a bat maternity roost, and even hire scent detection dogs specially trained to locate buried Western pond turtle nests or San Francisco garter snakes hiding in underbrush.



Scent dog training to find San Francisco garter snakes on the Peninsula Watershed

After a set of court cases established that insects were legally “fish” under State law, California extended legal protections to four species of bumblebee. Subsequently NRLM biologists joined the Bumblebee Atlas Project to gain expertise in the identification and protection of endangered bumblebees and to learn more about which species occur on SFPUC lands. These efforts minimize the need for the SFPUC to obtain permits to remain compliant with environmental laws.



Bumblebee on Orange Poppy

When impacts cannot be fully avoided, permits are obtained to comply with environmental laws and regulations such as the California Fish and Game Code, the federal Clean Water Act, and the California and federal Endangered Species Acts. The Water Enterprise’s commitment to land stewardship and development of in-house expertise allows the SFPUC to enter into permits in a strategic and informed manner. For example, Hetch Hetchy Water and Power (HHWP) meets operational wildfire risk reduction requirements by enhancing vegetation cover that poses lower fire risk, while promoting native species and benefiting wildlife habitat. HHWP has also partnered with the U.S. Forest Service to collect native milkweed seeds upcountry distribution lines in the Stanislaus National Forest to enhance restoration efforts. This allows Natural Resources and Lands Management staff to cultivate the collected seeds at the Sunol Native Plant Nursery. This approach to rights of way management sets the stage for the SFPUC to enter into a Monarch butterfly habitat conservation effort as part of a federal Candidate Conservation Agreement with Assurances with the U.S. Fish and Wildlife Service. The SFPUC is the first utility in the nation to register not only utility right of ways but also watershed lands within this program.

Project Review

The SFPUC’s process for reviewing its own projects, as well as proposals from other agencies, organizations, and individuals to use watershed and rights of way lands for construction, maintenance, vegetation management, and other purposes is called Project Review. All projects on the SFPUC’s Bay Area watershed and rights of way lands are reviewed by the Project Review Committee convened by NRLM with representation from Water Supply and Treatment Division, Water Quality Division, and Real Estate Service. For rights of way lands in Stanislaus, San Joaquin, and Tuolumne Counties, HHWP convenes a similar Project Review process that includes NRLM, the

SFPUC's Real Estate Services, and other parts of the SFPUC as appropriate. The charge of each Project Review Committee is to vet proposed projects for consistency with SFPUC plans and policies, including the Watershed Management Plans and Stewardship Policy. During Project Review, the Committee may recommend modifications to the project and/or measures to avoid and minimize impacts.

Water System Improvement Program (WSIP) Mitigation Requirements

The WSIP is a \$4.8 billion multi-year capital program to upgrade the SFPUC's regional and local water systems. The SFPUC is implementing three major programs to mitigate for habitat and species impacts related to WSIP projects: 1) Vegetation Restoration of WSIP Construction Sites; 2) the Bioregional Habitat Restoration Program (BHR); and 3) native fish monitoring and habitat restoration in the Alameda and Peninsula watersheds.

Vegetation Restoration of WSIP Construction Sites involves restoring temporarily disturbed areas from WSIP construction and is overseen by the SFPUC's Infrastructure Bureau. The BHR and Native Fish Monitoring and Habitat Restoration Programs are the responsibility of the Water Enterprise, and the WSIP federal and state permits require these activities in perpetuity.

Bioregional Habitat Restoration Program (BHR)

The BHR employs a unique approach to compensation by using a portfolio of restoration sites designed to work together at the landscape level to offset combined impacts across multiple WSIP construction projects. The BHR currently includes habitat restoration and enhancements at ten sites totaling over 2,000 acres on property owned by the SFPUC in the Alameda (1916 acres) and Peninsula (161 acres) watersheds.

In addition to the approximately \$94 million of WSIP funding contributing to mitigation requirements, the Water Enterprise Capital Improvement Program (CIP) has also contributed approximately \$38 million to date, as well as approximately \$51 million from Water Enterprise programmatic project funding. Long term BHR monitoring and maintenance activities are required to be supported by financial assurances and conservation easements to protect these habitats in perpetuity. The long-term management plans that prescribe these monitoring and maintenance needs and associated conservation easements and financial assurances at the first set of ten BHR sites will be finalized with the federal and state resource agencies in the next two years and brought to the Commission for consideration. Approximately 14 more BHR sites are still under development and will also require perpetual protection and funding.

The BHR is an important part of WSIP mitigation, and funding is only one perspective on this important and complicated program. During construction of wetlands and ponds, SFPUC staff patrolled the BHR sites in their hard hats and reflective vests, keeping a sharp eye out for endangered snakes and frogs and never hesitating to crawl through

thick vegetation on hands and knees to make sure critters were not in harm's way. Being engaged in these projects from the beginning allowed SFPUC staff to develop extensive knowledge of local wildlife ecology, building a strong foundation that translates to efficient oversight as the BHR sites moved through their 10-year performance periods and now transition to long term monitoring and maintenance. Soon these sites will have conservation easements placed over them, and the monitoring and maintenance will be captured in long term management plans implemented in perpetuity. As an example of the site-specific knowledge gained over time, SFPUC staff noted little stickleback fish stranded in puddles that were slowly drying up at one of the Peninsula BHR sites. Patiently waiting, and as staff biologists suspected might happen, an endangered San Francisco garter snake eventually slid into view and made a quick snack out of the trapped fish. The San Francisco garter snake is a highly elusive species, and this sixth sense for where to find them has lent itself to new insights into this species' ecology.



San Andreas Wetlands Bioregional Habitat Restoration Site

Perhaps unsurprisingly given the scale, complexity, and ambition of the BHR, the experience has been a lesson in humility and the limits to human control over the environment. Early in the BHR program, all along the two miles of newly restored Upper San Antonio Creek in the Alameda watershed, tens of thousands of plantings, creek-stabilizing structures made of boulders and tree trunks, and miles of irrigation tubing were abruptly ripped out and washed away during the floods caused by atmospheric rivers in December of 2012. Then, numerous fragile new wetland plantings withered and died during a drought spanning 2013 and 2014. Later, SFPUC staff battled voles which

were stripping the bark off planted saplings and fought back invasions of non-native bullfrogs which eat endangered amphibians.

Another unexpected turn was the discovery that many of the surviving plantings in the BHR sites were infected with exotic pathogens including one specific pathogen that caused California state officials to put one BHR site under quarantine. This discovery turned out to be more a symptom of the SFPUC's meticulousness than a case of extraordinary bad luck. After hearing about the SFPUC's experience, other restoration practitioners in the state also discovered similar pathogen infestations in their project areas. The SFPUC had simply been among the first to look. This experience also created an opportunity for SFPUC staff to work with plant pathogen experts, which eventually led to the design of the cutting-edge Sunol Native Plant Nursery that now grows pathogen-free plants from seeds collected in our watersheds.

Through all the challenges, the SFPUC staff have modeled the innovation and resilience they are trying to build into their restored habitats. Some have become experts in solar powered irrigation pumps and water distribution systems. Others have become proficient at eliminating non-native bullfrogs to protect endangered amphibians from predation. SFPUC staff have even learned how to outwit voles and protect young tree saplings by removing tall grasses at the base, leaving the rodents uncomfortably open to overhead predators.

All of this collective experience has resulted in a successful BHR program. At the first ten BHR sites, the SFPUC has met nearly all of the performance criteria laid out in over 60 permits from state and federal environmental regulatory agencies. Endangered California tiger salamanders and California red-legged frogs have been observed breeding at a BHR site in the Alameda watershed that was thought to be too far from occupied habitat for them to reach.

The investment in the BHR has also created opportunities for seasonal interns to get experience while assisting the SFPUC in meeting its mitigation obligations. SFPUC staff have provided the in-house expertise to navigate the complexity of BHR implementation, and many started as interns while completing their academic studies before returning as fulltime staff.

Sycamores have proven particularly challenging, often failing to thrive (or even survive) where they are planted. In late 2022, a series of intense atmospheric rivers once again flooded the Upper San Antonio Creek BHR site in the Alameda Watershed. Hundreds of plant cages, which had been installed to protect tasty young trees from hungry deer, were washed away. Initially this felt like a major setback. However, flooding and the scour that comes with it, is a natural process that sycamores are especially well adapted to exploit. Sure enough, a flush of tiny sycamores was soon discovered pushing their way up through the cobbles of the floodplain, suggesting that this BHR site is self-sustaining.



San Antonio Bioregional Habitat Restoration Site in the Alameda Creek watershed

Releases from Dams in Bay Area Watersheds

The primary issues that drove the development of the Stewardship Policy were concerns with native fish downstream of SFPUC dams. The policy directs the SFPUC to operate the regional water system in a manner that protects and restores native fish and wildlife downstream of dams and water diversions, within reservoirs, and on watershed lands. Specifically, the Stewardship Policy specifies that releases from SFPUC reservoirs will mimic the variation of the seasonal hydrology (e.g., magnitude, timing, duration, and frequency) of their corresponding watersheds in order to sustain the aquatic and riparian ecosystems upon which these native fish and wildlife species depend.

Fish monitoring and habitat restoration are integral components to obtaining federal and state permits associated with capital improvements to the Calaveras Dam Replacement and Lower Crystal Springs Dam Improvement Projects. The Water Enterprise led these negotiations in close coordination with the WSIP project teams, and the Stewardship Policy provided the foundation upon which these commitments were developed.

During permit negotiations, the Water Enterprise developed fish monitoring and habitat enhancement proposals for consideration by the federal and state agencies – National Marine Fisheries Service, U.S. Fish and Wildlife Service, and California Department of Fish and Wildlife – that were consistent with the Stewardship Policy. These proposals were informed by years of hydrological and biological monitoring conducted by Water Enterprise staff. This monitoring work had been done in coordination with the federal

and state resource agencies and local community groups in an open and transparent manner. In particular, the Calaveras Dam Replacement Project's federal and state permit conditions were developed in coordination with the Alameda Creek Fisheries Restoration Workgroup and focused on steelhead. The Alameda Creek Fisheries Restoration Workgroup started approximately 30 years ago to focus on removal of barriers to fish migration, and includes the SFPUC, Alameda County Water District, Zone 7 Water Agency, Alameda County, Alameda Creek Alliance, California Department of Fish and Wildlife, and National Marine Fisheries Service. Agreements were reached for releases from Calaveras Dam and bypass flows at the Alameda Creek Diversion Dam in 2010 with the California Department of Fish and Wildlife and National Marine Fisheries Service.

Every year, the Water Supply and Treatment Division works closely with the Natural Resource and Lands Management Division to make sure that instream flow permit requirements are consistently met below Lower Crystal Springs Dam in San Mateo Creek and below Calaveras Dam in Alameda Creek. The water releases that are required vary by water year type and by season to mimic natural conditions and support different life stages of the key species downstream of the dams, consistent with the Stewardship Policy. Releases from Lower Crystal Springs Dam started in January 2015, and releases from Calaveras Dam and bypasses from and operation of the new fish ladder at the Alameda Creek Diversion Dam started in January 2019.

After just a few years of water releases in Alameda Creek, there has been an increase in juvenile steelhead leaving the watershed and moving downstream into San Francisco Bay and the ocean as confirmed by SFPUC monitoring efforts. During annual fish trapping surveys on Alameda Creek below Calaveras Dam between 2015 and 2023, SFPUC biologists captured and released an average of about 40 steelhead a year. In contrast, in 2024, 2,600 steelhead were captured and released. In 2025 that number was over 1,400. This year it's already over 200 and on pace to meet last year's figure.

For the first time in more than 70 years, adult steelhead returning from the ocean can now also reach upper Alameda Creek watershed as a result of the removal of barriers and construction of fish ladders further downstream. This past winter, not only steelhead but also Chinook salmon were documented in the upper reaches of Alameda Creek.

A similar story has been unfolding on San Mateo Creek on the Peninsula watershed. Over the last three years, SFPUC staff captured and released an average of almost 350 juvenile steelhead leaving San Mateo Creek. In comparison, SFPUC captured only 45 steelhead in 2013 and 145 in 2014, although the trap location was different at that time and so the numbers of fish may not be directly comparable. Chinook salmon were also documented in San Mateo Creek this past winter for the first time in decades.



Rotary Screw Fish Trap



Pit Tag Array

Another component of SFPUC fish monitoring is tracking the movement of individual fish. When juvenile fish are caught in rotary screw traps or fyke nets, SFPUC staff tag each fish with a passive integrated transponder (PIT) tag. PIT tags are small radio transponders that have unique identification codes. Tracking the downstream movement of tagged fish helps confirm that they are successfully migrating out towards the ocean.

The Alameda Creek Diversion Dam fish ladder includes PIT tag readers, and in March 2020 one of these readers recorded the first juvenile fish tagged by the SFPUC to pass through this facility.

The fish ladder further downstream in the Alameda Creek Flood Control Channel operated by the Alameda County Water District also has PIT tag readers, and every spring Alameda County Water District staff communicate with SFPUC staff the results from these readers. This same technology has also been deployed along San Mateo Creek on the Peninsula. Recently one of these PIT tag readers picked up an adult steelhead as it returned from the ocean, years after it had been tagged by the SFPUC in San Mateo Creek.



Pit tagging

Since October 2006, the SFPUC has operated Pilarcitos and Stone Dams to ensure that approximately 1-2 cubic feet per second of water are released continuously below Stone Dam to support steelhead in Pilarcitos Creek. This work was included in the Pilarcitos Integrated Watershed Management Plan (2008), developed by the Pilarcitos Creek Restoration Workgroup under a State Water Resources Control Board grant to the SFPUC and administered in coordination with the San Mateo County Resource Conservation District. The SFPUC continues to operate Pilarcitos Dam to meet this target and conducts annual monitoring along the creek. All of this work will inform a potential future rehabilitation project at Pilarcitos Dam and permit conditions similar to what now exist at Calaveras and Lower Crystal Springs Dams. PIT tag readers have also recently been installed on Pilarcitos Creek below Stone Dam.

This monitoring provides very encouraging and important information, and over time the data collected will help document the results of investments made to support steelhead recovery in Bay Area creeks, and also direct future investments that may be necessary.

Releases from Dams in the Upper Tuolumne River Watershed

The Stewardship Policy provides guidance for the operation of all SFPUC dams, including O'Shaughnessy Dam (O'Shaughnessy), Cherry Dam, and Eleanor Dam in the upper Tuolumne River watershed. Specifically, the Stewardship Policy requires SFPUC releases to mimic the variation of the natural seasonal hydrology in order to sustain aquatic and riparian ecosystems downstream. The SFPUC staff developed the Upper Tuolumne River Ecosystem Program to study the ecosystems downstream of these facilities.

Over the past 20 years, the Natural Resources and Lands Management Division and Hetch Hetchy Water and Power have collaborated with Yosemite National Park staff to identify and implement beneficial hydrological flow regimes below O'Shaughnessy Dam.

NRLM and Yosemite National Park staff have studied flora, fauna and stream geomorphology processes below O'Shaughnessy Dam in coordination with HHWP



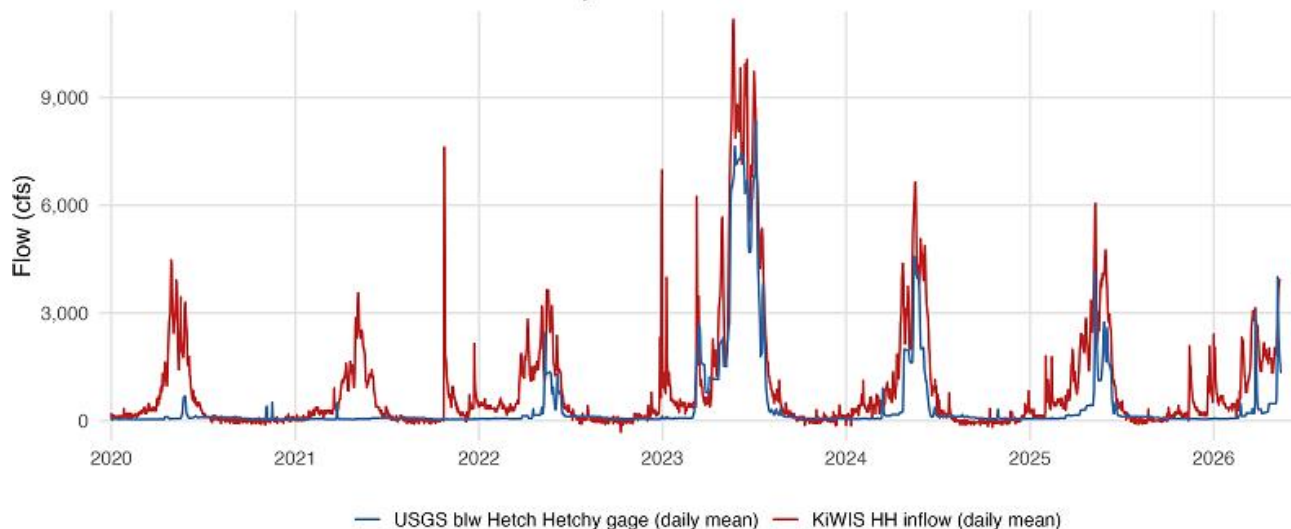
Water Release from O'Shaughnessy Dam

reservoir operations team. Through this work, the SFPUC has gained a thorough understanding on how to best operate the reservoir to protect downstream wetland and meadow habitats as well as the flora and fauna that call them home. This work now includes an ongoing Yosemite National Park project supported by the SFPUC.

Environmental flow releases from O'Shaughnessy Dam are governed by stipulations with the U.S. Department of Interior under the Raker Act, and the SFPUC works closely with Yosemite National Park staff, U.S. Fish and Wildlife Service, and the US Forest Service on implementation. Although there are no WSIP projects related to O'Shaughnessy Dam, the WSIP Programmatic Final EIR included a project-level analysis of future water supply reliability objectives. This triggered a discussion with the federal agencies and other interested parties focused on updating the operational criteria for O'Shaughnessy Dam which are based on agreements from the 1980s. The SFPUC convened the Upper Tuolumne River Workgroup starting in 2006. In coordination with this collaborative forum, the group developed the Environmental Flow Study for the Hetch Hetchy Reach below O'Shaughnessy Dam, a priority for the Upper Tuolumne River Ecosystem Project. The Upper Tuolumne River Workgroup includes representatives from Yosemite National Park, U.S. Fish and Wildlife Service, U.S. Forest Service, Bay Area Water Supply and Conservation Agency, Yosemite Rivers Alliance, Central Sierra Environmental Resource Center, and the white-water rafting community. The Environmental Flow Study was drafted in 2014, and updated in 2024, and must be submitted for federal and state environmental review before these proposed changes can be fully implemented. In the interim, annual spring releases from O'Shaughnessy Dam target specific ecological objectives to maintain important habitats downstream. The SFPUC continues to convene biannual meetings with the Upper Tuolumne River Workgroup to ensure ongoing coordination with all interested parties.

The hydrograph graph, labeled "Inflows and releases from Hetch Hetchy Reservoir 2020-2026," the red lines show the water flowing into Hetch Hetchy Reservoir and the blue lines show the water released from O'Shaughnessy Dam for the last seven years. The comparison illustrates how the Stewardship Policy is implemented based on the Environmental Flow Study since the timing, magnitude, frequency, and duration of the blue hydrograph effectively follows the trace – or mimics – the red hydrograph which is the natural flow from the watershed above the reservoir resulting from the annual runoff from rainfall and snowmelt.

Hydrograph: Inflows and releases from Hetch Hetchy Reservoir 2020-2026



The hydrograph above shows in red the water flowing into Hetch Hetchy Reservoir and in blue the water released from O'Shaughnessy Dam for the last seven years. The comparison illustrates how the Stewardship Policy is implemented based on the Environmental Flow Study since the timing, magnitude, frequency, and duration of the blue hydrograph effectively follows the trace – or mimics – the red hydrograph which is the natural flow from the watershed above the reservoir resulting from the annual runoff from rainfall and snowmelt.

Lower Tuolumne River

While not immediately below SFPUC facilities, the Lower Tuolumne River is a significant resource that is the subject of collaboration and partnership with the Turlock and Modesto Irrigation Districts (The Districts). In 2021 The Districts, together with the SFPUC and U.S. Fish and Wildlife Service (collectively, MOU Partners) executed a Memorandum of Understanding titled *Pilot Project to Improve Habitat on the Lower Tuolumne River* (MOU).

The MOU outlines the intention of the MOU Partners to engage in habitat improvement work on the Lower Tuolumne River prior to issuance of a new license by the Federal Energy Regulatory Commission to The Districts for the Don Pedro Project and an original license for the La Grange Project.

In 2024, this partnership led to the implementation of the Old La Grange Bridge Project, which created seven acres of new spawning habitat for fall-run and spring-run Chinook salmon. It will also help maintain other restoration projects as 50,000 cubic yards of new spawning gravel move slowly downstream. In 2026, the partnership aims to build another spawning habitat project – Powerhouse Riffles – just upstream of the Old La Grange Bridge Project. And in the next few years, the partners will work toward bringing

77 acres of new floodplain rearing habitat online to give juvenile salmon their best chance at growing and surviving their challenging migration to the ocean.

The State Water Resources Control Board is in the process of updating its legally required Bay-Delta Water Quality Control Plan to protect native fish, wildlife and other “beneficial uses” of water, including municipal, domestic and agricultural water supplies. In March of 2022, the SFPUC and The Districts signed an agreement with the California Natural Resources Agency and other state agencies committing to work together to develop enforceable agreements with actions and funding to help improve habitat for native fish in the Sacramento-San Joaquin River Delta watershed. The agreement seeks to meet Bay-Delta Plan objectives through an integrated program that restores habitat, secures new flows for the environment above existing regulatory requirements, expands funding for environmental improvements and water purchases, and establishes a new, collaborative science program to monitor environmental conditions and adaptively manage implementation over an 8-year timeframe.



Gravel was added to a previously uniform depth channel to create spawning habitat for Chinook salmon on the Lower Tuolumne River

In May of 2025, the Lower Tuolumne River saw around 1,000 spring-run Chinook salmon arrive for the summer and later successfully spawn, with thousands of juveniles beginning their migration to the ocean over this past winter. It is hopefully a trend that will continue as habitat projects are built, and monitoring continues for Chinook salmon populations. So far in 2026, 30 spring-run adults have arrived, with more expected through May and June.

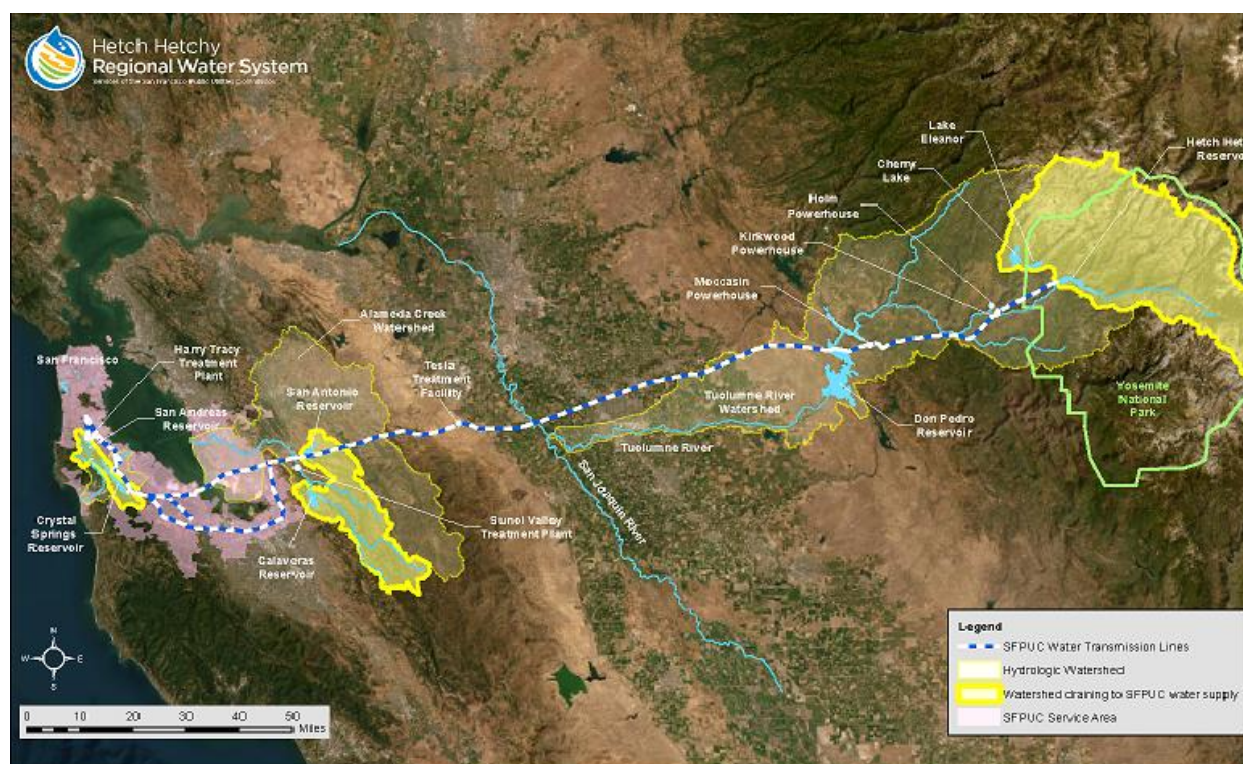


Photo Credit: FishBIO. Spring run chinook salmon schooling in the lower Tuolumne River.

All of this work is vital as The Districts and the SFPUC work to balance the needs of the river ecosystem and water supply reliability for the millions of people and thousands of businesses in the Bay Area and Central Valley who rely on the river for water.

Watershed Lands Management

The SFPUC water system relies on over 425,000 acres of watershed lands draining to SFPUC reservoirs in 5 different counties to provide high quality source water for our customers. The “watershed” system map below was created as part of the Alameda Creek Watershed Center interpretive program work and illustrates this context.



Hetch Hetchy Regional Water System Map

Tuolumne River Watershed

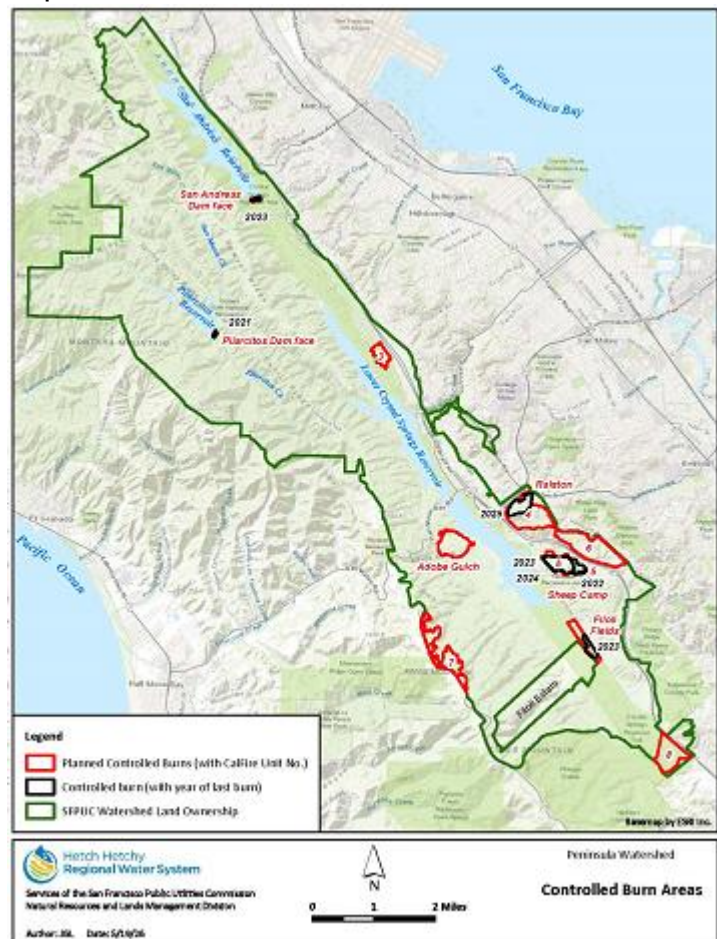
The vast majority of the Hetch Hetchy watershed (293,760 acres) is designated as federal wilderness and is managed by Yosemite National Park staff under a multi-year agreement with the SFPUC. This agreement includes provisions to address water quality, environmental stewardship, and security issues – and is required to ensure Hetch Hetchy water maintains its filtration avoidance determination. Cherry and Eleanor watersheds are permitted as standby drinking water sources. The Eleanor watershed is part of Yosemite National Park, and its management is also governed by the multi-year agreement and its wilderness designation. The Cherry watershed is managed under a multi-year agreement with the Stanislaus National Forest.

The Upper Tuolumne River above and below Hetch Hetchy Reservoir is also designated under the federal Wild and Scenic Rivers Act and is managed by Yosemite National Park and Stanislaus National Forest accordingly. In the spring of each year, the SFPUC and Yosemite National Park co-host a stewardship symposium where researchers working in the watershed describe their water quality and environmental stewardship projects and present findings based on their field work. This event has expanded each year, and now includes Water Enterprise staff from multiple divisions, the U.S. Fish and Wildlife Service, Stanislaus National Forest, and university researchers. This forum has allowed participants to learn from each other and increasingly focus collective efforts to prioritize future investments

Bay Area Watersheds

In the Bay Area, approximately 40% of the Upper Alameda Creek watershed (40,649 of 108,986 total acres) above San Antonio and Calaveras Reservoirs is protected by public ownership and/or conservation easements. The SFPUC owns 38,983 acres in the larger Alameda Creek watershed, and some of this is downstream of the two reservoirs. On the Peninsula watershed, the SFPUC owns 22,854 acres, which protects 98% of the San Mateo Creek and Pilarcitos Creek watersheds that deliver water to Pilarcitos, San Andreas, and Crystal Springs Reservoirs. The Alameda Creek watershed is managed under the Alameda Watershed Management Plan, adopted by the SFPUC Commission in September 2000. The San Mateo and Pilarcitos Creek watersheds are managed under the Peninsula Watershed Management Plan, adopted by the Commission in June 2001. The goals and objectives of both watershed management plans are identical – the primary goal is to maintain and improve source water quality to protect public health and safety. There are six secondary goals, and one of these is to preserve and enhance the ecological and cultural resources of the watersheds. The Natural Resources and Land Management Division manages the Bay Area watersheds and is responsible for operations and maintenance of the land management assets within the watersheds (fuel breaks, roads, fences, culverts).

Another secondary goal from the watershed management plans is to protect the watersheds, adjacent urban areas, and the public from fire and other hazards. In June of each year, Water Enterprise staff from the Alameda and Peninsula watersheds each host First Responder Liaison meetings and invite all first responders, including local California Department of Forestry and Fire Protection (CALFIRE) staff, County Sheriff's offices, and other local fire protection and law enforcement, to gather and share information related to fire protection and other emergency response measures so that all parties can work together to minimize risk from catastrophic wildfires. The Alameda



Peninsula Watershed Prescribed Burn Map

and Peninsula Watersheds are both State Responsibility Areas, which means CALFIRE is the lead for the prevention and suppression of wildfire.

The Alameda Creek Watershed Historical Ecology Study (February 2013) supports land management activities and planning in the Alameda watershed, and the more recent Peninsula Historical Ecology Study (August 2021) provides important information regarding how the Peninsula watershed landscape has changed over time. This information provides useful context and insight for restoration and land management efforts, including mitigating the risk from wildfire.

On the eastern boundary of the Peninsula watershed, as in many other parts of California, native grasslands have been lost to development. The undeveloped remnants of native grassland here are highly biodiverse and support numerous special status species. However, the historical ecology study demonstrates that development is not the only threat to these habitats. Over the course of many decades, these grasslands have also been gradually displaced by non-native trees. These same trees increase the wildfire risk to the adjacent homes, utilities, and other infrastructure in the area. Working with CALFIRE, the SFPUC is removing these non-native trees to restore native watershed ecosystems and reduce the risk of wildfire.



Peninsula Watershed Prescribed Burn

The SFPUC is also working with CALFIRE to conduct prescribed burns on the Peninsula watershed as conditions and staff availability allow. Prescribed burns are scheduled annually at San Andreas and Pilarcitos Dams, and starting in 2022 prescribed burns can also be conducted in specific locations within 775 acres on the Peninsula watershed based on a new agreement with CALFIRE. As of 2023, SFPUC staff also have two additional agreements with CALFIRE to implement prescribed burns on the Peninsula watershed, including a BHR site.

Prescribed fires not only reduce the risk of catastrophic wildfires but also reintroduce a type of natural disturbance with which many native plant species have evolved. SFPUC staff are conducting studies to evaluate the conditions before and after prescribed burns to determine the effects of prescribed fire in these natural ecosystems. This monitoring is performed in collaboration with CALFIRE and will contribute to the understanding about the effects of prescribed fire on habitats in other parts of California as well as the Bay Area.

SFPUC staff also oversaw monitoring related to the effects of the 2020 Santa Clara Unit (SCU) Lightning Complex fire, which burned almost 400,000 acres in the Diablo Range, including over 10,000 acres of the SFPUC Alameda watershed. Although most of the area burned at a low intensity, approximately 60 miles of watershed fencing was damaged or destroyed. The SFPUC has since rebuilt the fencing and is seeking federal and state reimbursement for this work because the fire was declared a disaster. SFPUC staff are also closely monitoring for the introduction of non-native invasive species that may have been unintentionally introduced during the fire-fighting response.



Watershed Keeper Rob Cyr captured a lightning strike in the Alameda Watershed, one of many that started small fires on August 16, 2020 that became the SCU (Santa Clara Unit) Lightning Complex Fire.



Chamise Resprouting



Poppies

The SFPUC is the second largest landowner in both Alameda and San Mateo Counties and managing the watershed and rights of way lands is a high priority. The SFPUC partners with outside agencies for many aspects of land management including for fire protection, public access, and public safety. The SFPUC has agreements with and/or have provided easements to the East Bay Regional Park District, San Mateo County Parks, and the Golden Gate National Recreation Area and meet regularly with these groups. The SFPUC is also part of several collaborative forums which provide opportunities for coordinated operation and environmental stewardship activities at the landscape scale.

- Together Bay Area, formerly the Bay Area Open Space Council, is a regional coalition of nonprofits, public agencies, and local Native governments working together to provide for climate resilient lands in the ten county Bay Area region. The Together Bay Area mission is to be a champion of and a regional voice for the resilient lands and watersheds that are integral to a thriving Bay Area and all people who live here. Their vision is a Bay Area that is home to healthy lands, people, and communities where the impacts of the climate and biodiversity crises are addressed through collaboration. In addition to the focus on regional conservation, coordination, and funding, SFPUC staff have participated in training focused on building capacity and relationships for Native American tribal alliances provided by Redbud Resource Group.
- The East Bay Stewardship Network coalition includes the East Bay Regional Park District, California State Parks, East Bay Municipal Utility District, Contra Costa Water District, Zone 7 Water Agency, the National Park Service, and the SFPUC. This coalition collectively stewards over 250,000 acres of interconnected land in the East Bay area. The San Francisco Bay Area is an internationally recognized biodiversity hotspot with a high density of diverse and unique species, and the East Bay Stewardship Network reflects the connectivity and richness of the East Bay by approaching environmental stewardship at a landscape scale across multiple partners, jurisdictions, and ecologies. The East

Bay Stewardship Network members work together to improve the ecological health of East Bay lands, increase climate adaptability to heat, drought, and wildfires, and build broad support to align strategies across landscapes and projects.

- The Golden Gate Biosphere Network is a voluntary partnership of federal, state, and local government agencies, nonprofit organizations, universities, and private partners located within the Golden Gate Biosphere Region, along the western portion of the San Francisco Bay Area. The Golden Gate Biosphere Network has been part of the United Nation's UNESCO Biosphere Program since 1988 and has been recognized by UNESCO due to the significant biodiversity of the region, as well as the partners' collective efforts to conserve natural resources and demonstrate a balanced relationship between humans and the biosphere. The Network has recently completed a climate change vulnerability assessment, which included recommended climate-informed adaptation priorities and strategies for habitats and species within the Golden Gate Biosphere region.

Natural Resources and Lands Management and Water Quality Division staff conduct all of the water quality sampling and analysis of the regional water system, that inform Water Supply and Treatment Division's operation of the Sunol Valley and Harry Tracy Water Treatment Plants and the hypolimnetic oxygenation systems in Calaveras and San Antonio Reservoirs. The operation of hypolimnetic oxygenation facilities improves water quality conditions by increasing the oxygen concentration in the deepest part of the reservoirs, thus limiting nutrient release from the sediments to the water column. This reduces the risk of algal blooms that can lead to unpleasant taste and odors associated in the water. The increased oxygen concentration also helps maintain the cold-water habitat in the reservoirs for the landlocked rainbow trout populations.

The majority of the Alameda and Peninsula Watersheds are also contributing to the State's effort to conserving 30% of California's lands by 2030. This ambitious goal recognizes the values of SFPUC Bay Area watersheds to protecting and restoring biodiversity, expanding access to nature, and mitigating and building resilience to climate change.

San Francisco lands

The SFPUC is also contributing to the improved management of natural landscapes in San Francisco. The area around Lake Merced is managed under an agreement between the SFPUC and the San Francisco Recreation and Parks Department (SFRPD), approved by the Commission in July 2013. The Water Division has an interdepartmental work order with the SFRPD to assist with environmental stewardship of SFPUC properties in San Francisco. SFPUC staff work with the SFRPD's Natural Resource Division managing grasslands by controlling invasive species on Twin Peaks and hazardous and invasive trees impacting grasslands, seasonal wetlands and coastal

scrub communities at Laguna Honda and Glen Canyon. SFPUC has also been supporting environmental outreach and stewardship efforts at Hummingbird Farm at Crocker Amazon Park.



Laguna Honda Restoration

NRLM works closely with the San Francisco Water Division to manage open space lands and protect water system infrastructure at Laguna Honda, Sutro Reservoir, University Mound Reservoir, Sunset Reservoir, Lake Merced Pump Station, and the rights of way in Stern Grove. This is particularly important given the increasing severity of storms over the past several years. These investments to control invasive species, restoring open spaces, and protecting infrastructure have confirmed that this preventive maintenance reduces wildfire risk and damage to infrastructure to these areas.

Lake Merced Water Level Restoration Project

Lake Merced is a non-potable emergency water source for the SFPUC and is connected to the groundwater within the Westside Groundwater Basin. Declines in Lake Merced water levels have generally been attributable to diversion of stormwater away from Lake Merced following construction of the Vista Grande Canal and Tunnel in 1897, the 20th century urban development in San Francisco and Daly City, drought conditions, and regional groundwater pumping. Since then, the SFPUC, working with Daly City and various stakeholders, has developed and provided recycled water to surrounding entities that previously relied on groundwater to alleviate pumping. Working with Daly City, the SFPUC developed and is funding a share of the Vista Grande Drainage Basin

Improvement Project which will bring storm water from portions of Daly City to augment levels in Lake Merced. The SFPUC also monitors water quality quarterly at four separate locations in Lake Merced. Parameters such as pH, dissolved oxygen, water temperature, nutrients, metals, bacteria, and phytoplankton are monitored and tracked. The SFPUC conducts monthly harmful algal bloom by-product analysis as part of its lake water quality monitoring program. Results are compared to the California Environmental Protection Agency's harmful algal bloom voluntary screening levels and appropriate notifications are posted around the lake if sampling results indicate algal toxin concentrations exceed these thresholds.



Lake Merced

Biodiversity and Climate Resilience

Biodiversity is the variety between and within ecosystems and species. The interactions between living things, and with the physical environment, result in a complex and interdependent web of life that humans are a part of and cannot live without. Because ecosystems are more resilient to the effects of climate change when they are more biodiverse, biodiversity and ecosystem health is a focus of San Francisco's 2026 Climate Action Plan. SFPUC staff supported the San Francisco Department of the Environment in the development of the Healthy Ecosystems Chapter of the Climate Action Plan. In 2023, the SFPUC completed the Alameda Watershed Carbon Study which quantified the value of carbon storage provided by protecting this large ecosystem. The SFPUC also recently participated in the Golden Gate Biosphere

vulnerability assessment which identified high priority risks and strategies for protecting regional biodiversity. SFPUC staff continue to work within regional collaborative forums and adjacent landowners to inform ecosystem protection efforts.

Native species restoration

The Stewardship Policy provides direction for the Water Enterprise to proactively restore native species and their habitats, which means taking actions that are not otherwise required by federal or state regulations. An example from the Peninsula watershed is the work being done to protect and restore Hillsborough chocolate lily, a rare plant which is not currently protected by federal or state laws. NRLM's Hillsborough chocolate lily efforts have included seed banking, non-native tree removal around the lilies, fence installation to reduce opportunities for deer to eat the lilies, rotational weed whacking to remove thatch, and propagation efforts at the Sunol Native Plant Nursery. NRLM also works in partnership with the federal and state resource agencies to protect and restore native plants on watershed lands that are protected by laws and regulations even when there is no permit requirement to do so. An example of this work is the effort to protect San Mateo thornmint, a rare plant listed as endangered under state and federal law, where NRLM introduced the species via seeding to the Peninsula watershed. The most recent census of that effort identified 1,142 individual San Mateo thornmint plants.



Cultivating Chocolate Lily in the Sunol Native Plant Nursery



San Mateo thornmint

NRLM is also collaborating with U.S. Fish and Wildlife Service, California Department of Fish and Game, Golden Gate National Recreation Area, San Mateo County Parks, and other local agencies and landowners to jointly conserve special status wildlife species that exist across political and management boundaries, specifically, Mission blue butterfly, San Francisco garter snake, and California red-legged frog.

Non-native invasive species management

The inadvertent and sometimes illegal introduction of new species into a water body or terrestrial habitats can have devastating effects on ecosystems and/or SFPUC regional water system infrastructure.

In response to the discovery of aquatic non-native invasive species in the Bay Area and new state requirements in 2007 (amendments to California Fish and Game Code related to aquatic invasive species), NRLM developed a decontamination protocol for aquatic surveys that all SFPUC staff, consultants, and access permit holders must comply with to prevent the introduction or spread of organisms that might negatively impact aquatic resources. This protocol was recently updated based on experience and the introduction of the golden mussel to California. The decontamination protocol is the first line of defense to protect native species in the Alameda and Peninsula watersheds and SFPUC regional water system infrastructure.

As part of efforts to collaborate with other Bay Area open space agencies and nonprofits, and to better inform our operations and maintenance, SFPUC staff developed an initial agreement with the U.S. Forest Service (January 2008) to seek the insight of university researchers and other experts with experience in plant pathogens (e.g., Sudden Oak Death). The Commission authorized a new agreement (Sustaining Plant Health for Restoration and Management of Vegetation on SFPUC lands) with the U.S. Forest Service in August 2017 to continue this work, which has expanded in scope to include additional partners, to address emerging concerns with new plant pathogens, and develop educational material that can be used by staff to minimize the risk of additional damage done by plant pathogens to watersheds. The SFPUC has been participating in the *Phytophthoras* in Native Habitats Work Group, a diverse multi-stakeholder group that aims to protect native vegetation in California wildlands from introduced plant pathogens, and with input from this work group, the SFPUC developed a standard operating procedure for decontamination of non-aquatic tools, vehicles, and attire to minimize risk of introduction and spread of invasive plants, and plant pests and pathogens.

Invasive species management is also being performed throughout the Alameda and Peninsula watersheds in areas where invasive plants are threatening critical ecosystems and species.

Sunol Native Plant Nursery

Healthy, resilient watersheds produce high-quality water. In the fall of 2018, SFPUC's commitment to environmental stewardship led to the construction of the Sunol Native Plant Nursery. This one-of-a-kind facility uses strict, laboratory-like procedures to produce healthy, disease-free stock with seeds gathered from local watersheds. Shortly after its opening, the nursery grew over 30,000 plants that were planted at the Sunol Yard landscaping and in habitat restoration projects on SFPUC managed lands. An additional 25,000 plants were propagated for the Alameda

Creek Watershed Center Discovery Garden and planted in Spring 2022. The Sunol Native Plant Nursery is also growing plants for habitat restoration and conservation projects related to Marin flax, Peninsula onion, San Francisco collinsia, Hillsborough chocolate lily, and summer lupine, the host species for Mission blue butterfly. To date more than 74,000 container plants have been grown. NRLM staff have collected over 100,000 seeds from more than 100 different species of plants on SFPUC lands in support of these projects. Since the start of the FY19-20, the Sunol Native Plant Nursery staff have provided tours and presentations to almost 700 participants ranging from San Francisco Public Works Department, Fremont high school students, and East Bay Regional Parks District.



Bree Candiloro, who directs the operation of the Sunol Native Plant Nursery, where she says “We are growing plants and community.”



Buckeye Trees growing in the Sunol Native Plant Nursery

The Nursery is not just a place to grow plants. In addition to hosting site visits for others interested in its operation, the Nursery is run with the support of numerous part-time staff (students enrolled in colleges) and volunteers. These volunteers often include staff from throughout the SFPUC.

Environmental Stewardship Education and Interpretation

Given the large and diverse landscapes spanned by the SFPUC regional water system – from the Sierra Nevada, through the Central Valley, across the Alameda watershed, around and under San Francisco Bay and along the Peninsula watershed into San Francisco – the SFPUC strives to provide education opportunities related to environmental stewardship. Specific to the Bay Area watersheds, another secondary goal of the watershed management plans is to continue existing compatible uses and provide opportunities for potential compatible uses on watershed lands, including education, recreational, and scientific uses. Existing and new public access to trails on the watersheds presents opportunities to deliver and expand education programs related to environmental stewardship. These opportunities need to be weighed against the implications of potential new impacts associated with recreational access.

There is some level of recreational access to all of the watersheds delivering drinking water to the SFPUC regional water system. Yosemite National Park manages access in the upper Tuolumne River watershed, including the High Sierra back country which allows permitted access to the wilderness areas. East Bay Regional Park District leases Alameda watershed lands as part of their Sunol Regional Park and the Ohlone Trail. San Mateo County Parks manages the Crystal Springs Regional Trail on the Peninsula watershed which is used by over 300,000 visitors annually. The examples provided below highlight some of the SFPUC environmental stewardship education efforts.

Yosemite National Park and Interpretive Programs

SFPUC's Water Enterprise works closely with Yosemite National Park staff to develop water quality and environmental stewardship messaging to incorporate into their interpretive programs for the public. A resource guide was developed to assist Yosemite National Park staff in delivering water quality messaging to diverse audiences, and new signage has also been developed and installed to inform the public about potential water quality impacts resulting from visitor activities and about mercury-contaminated fish in lakes and reservoirs. SFPUC staff are currently working with Yosemite National Park staff to update the interpretive signage on and around O'Shaughnessy Dam.

Sunol AgPark

The Alameda County Resource Conservation District manages the Sunol AgPark, a unique urban edge farm that integrates sustainable agriculture, natural resource stewardship, as well as public education focused on the agricultural, natural, and cultural resources of Sunol Valley in the Alameda watershed. This includes delivery of the "Farming in the Watershed" 4th- 8th grade curriculum, developed by Sustainable Agriculture Education (SAGE) and the SFPUC when the Sunol AgPark started in 2008. Since then, approximately 14,000 students have participated in school field trips and nearly 3,700 community members have participated in Sunol AgPark education events.



Sunol AgPark

Calaveras Reservoir Public Access for Fishing

The SFPUC is working to establish authorized and limited public access for shoreline fishing at Calaveras Reservoir and provide an educational opportunity and recreational experience while protecting drinking water quality, the existing water infrastructure, and natural resources within SFPUC watershed lands. The project is scheduled to start construction in 2026 and will include a new parking area and restrooms, security fencing, and interpretive signage.

Montara Mountain

A new trail segment to the summit of Montara Mountain opened to the public in May 2026. The trail creates expanded access for hikers and bikers to reach the true peak - a bucket list item for many. From this vantage point, visitors can enjoy sweeping views of the Peninsula watershed while learning how the watershed is protected and how the regional water system functions. The trail also highlights the mountain's ecological importance, including habitat for the endangered San Bruno elfin butterfly, as well as the telecommunications facilities that support emergency response and communication networks. Together, these elements offer a deeper understanding of the connections between water, wildlife, and critical infrastructure.



Interpretive signs stand at the summit of Montara Mountain, overlooking coastal scrub-covered hills, the San Francisco Bay, and distant mountain ridges under an overcast sky.

On the horizon

The foundation built over the last 20 years by Watershed and Environmental Improvement Program funding and Stewardship Policy implementation has led to the construction of two large education and interpretation investments both envisioned in the Alameda and Peninsula Watershed Management Plans over 25 years ago: the Alameda Creek Watershed Center and the Bay Area Ridge Trail on the Peninsula Watershed. In addition to these investments in education and interpretation, there are two other priorities staff are working on now which are priorities for Stewardship Policy implementation related to environmental regulatory compliance and tribal engagement.

Alameda Creek Watershed Center

The Alameda Watershed Management Plan includes the concept of an education center, although the location and details were not included at the time it was adopted by the Commission. After years of planning, including many gatherings with the Town of Sunol, the Commission approved the construction contract for the Alameda Creek Watershed Center (Center) in December 2019. As part of the Sunol Yard Long Term Improvements Project the Center is nearing the end of construction. The Center will include an interpretive exhibit hall, a watershed discovery lab to support public education programs, a community gathering space, staff office space, and a watershed discovery garden. The Interpretive Master Plan for the Center was finalized in February

2014, which led to the design of the Center interpretive displays. Since 2014, the SFPUC has been working with the Muwekma Ohlone tribe on the development of interpretive exhibits and education programming for the Center. In May 2017, the SFPUC completed an Education Master Plan for the Center which will guide the development of new education programs at the Center and Sunol AgPark, including field trips, classes, workshops, and seminars.



Alameda Creek Watershed Center, Sunol Native Plant Nursery and Sunol Water Temple

SFPUC and the Bay Area Ridge Trail

The Fifield/Cahill Ridge Trail on the Peninsula Watershed opened in 2003, and since then over 21,000 hikers, mountain bikers and equestrians have used this trail operated by the docent program managed by NRLM.

The Peninsula Watershed Management Plan includes an analysis of constructing the proposed Southern Skyline Boulevard Ridge Trail from Highway 92 south to the Golden Gate National Recreation Area Phleger Estate along the east side of Highway 35. Immediately across Highway 35 is the Midpeninsula Regional Open Space District's Purisima Redwood Preserve, and a future crossing is planned to allow trail users to safely cross the highway. After years of planning, conversation, and environmental review, the SFPUC approved its construction in 2023. Similar to the Alameda Creek Watershed Center, the education programming included in the design is built on the

foundation of an Interpretive Master Plan (October 2019). The project includes trailhead construction at the intersection of Highways 92 and 35 to support the new 6-mile trail, and also improvements south and around Cemetery Gate, north of Skylawn Cemetery. Inside the Cemetery Gate a new “universal access” loop trail that will be meet Americans with Disabilities Act accessibility standards will be constructed to accommodate school programs and the ongoing docent-led events. The new 6-mile trail south of Highway 92 will be operated under a permit provided by NRLM staff at no cost to the public, allowing trail users to gather information about the trail, the watershed, and the regional water system in advance of their adventure. The construction project also includes new interpretive signs along the universal access loop trail, existing Fifield/Cahill Ridge Trail, and the new 6-mile trail south of Highway 92 which is planned to open in the late Summer of 2026.



Southern Skyline Boulevard Ridge Trail

SFPUC staff are working with San Francisco Recreation and Parks Department (SFRPD) staff, through an interdepartmental work order, are working with the Bay Area Ridge Trail Council to re-align the Bay Area Ridge Trail near Twin Peaks and Summit Reservoirs in San Francisco. The conceptual alignment is still under development and has been discussed in community meetings hosted by SFRPD and the SFPUC. Once finalized, staff from both agencies will organize additional meetings to get further input

from the surrounding communities. This is a significant opportunity to provide about the watershed, the drinking water, and high-pressure fire-fighting water systems. The interpretive signs are under development as part of this realignment.

Bioregional Habitat Restoration Program - Phase 2

There are still outstanding compensatory mitigation requirements for WSIP impacts that need to be completed. This includes mitigation for impacts to unique farmland, serpentine grassland, oak woodland, foothill yellow-legged frog, fountain thistle, Marin western flax, San Mateo wooly sunflower, Mission blue butterfly, and rare plants that are not Endangered or Threatened but have special status under the California Environmental Quality Act. These projects are in various stages of development and will primarily provide compensatory mitigation for habitats impacted by the post-construction refilling of Calaveras



Mission Blue Butterfly



San Mateo wooly sunflower

reservoir, and for future increases in water levels and recovery of operational storage capacity in Lower Crystal Springs Reservoir. Construction or other implementation measures have begun for serpentine grassland, oak woodland, fountain thistle, Marin western flax, Mission blue butterfly, and rare plants that are not Endangered or Threatened but have special status under the California Environmental Quality Act. Mitigation programs for unique farmland, foothill yellow-legged frog, and San Mateo wooly sunflower are still in the planning phase.

Tribal Engagement

While the construction of the Alameda Creek Watershed Center has been the main focus of tribal engagement over the past decade, efforts have expanded in recent years and are reflected in the amended and updated Level of Service Goals and Objectives. Specifically, goals related to Environmental Stewardship and Sustainability are now more inclusive of stewardship of cultural and tribal resources and strive to expand outreach and build relationships with Native American communities. California was the most diversely populated area in native North America, and home to more than 60 traditional cultural regions. The traditional boundaries of these native homelands encompass the entire State.

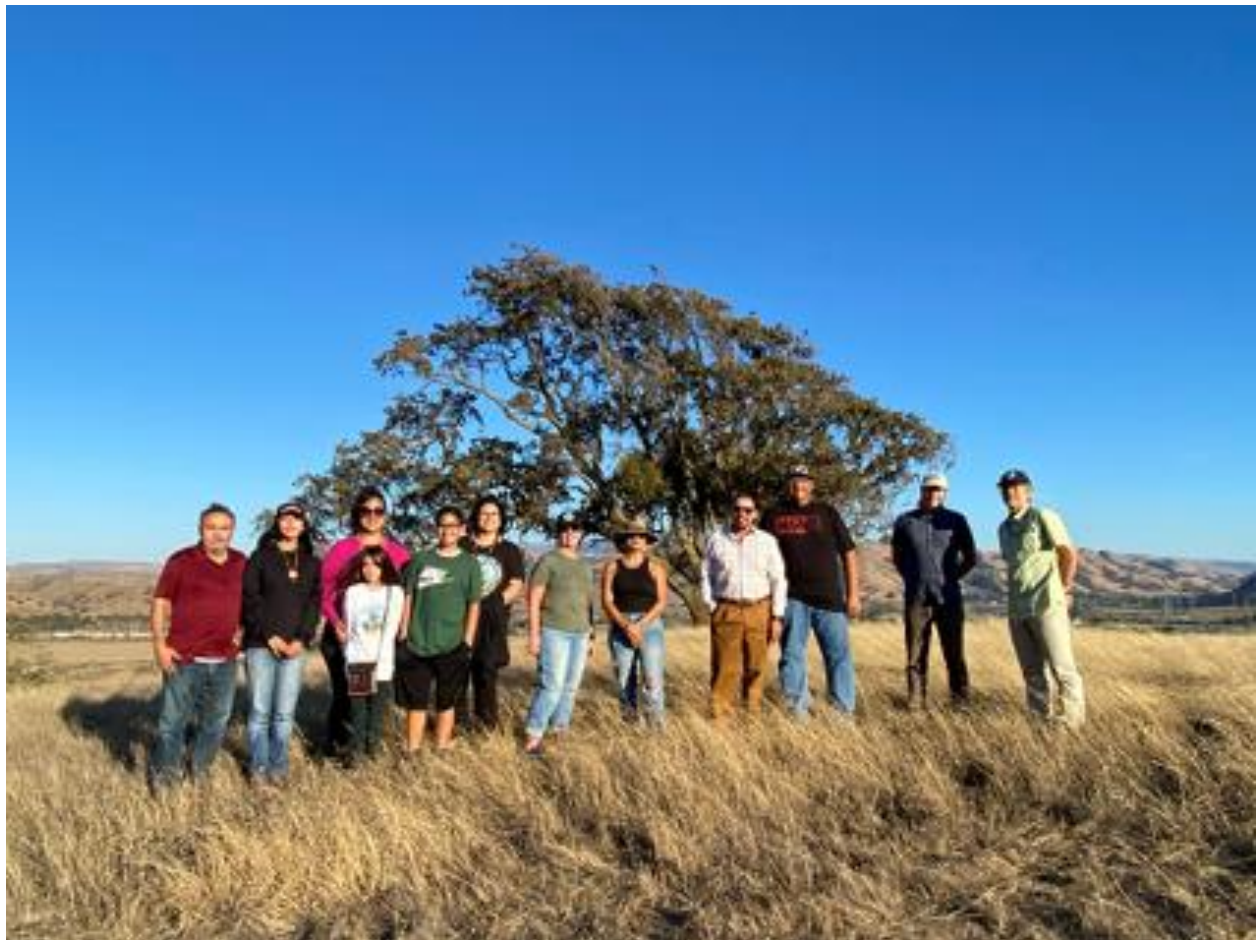
To meet these objectives, a number of Natural Resources and Lands Management staff are working to prioritize proactive stewardship of cultural and tribal resources and expand outreach to Native American communities. NRLM staff have participated in extensive tribal engagement training with other Together Bay Area members and developed resources and educational materials to share with other SFPUC staff. NRLM staff developed an initial Tribal Engagement Action Plan as part of this training to help guide the utility beyond land acknowledgements to meaningful tribal engagement that supports tribal sovereignty. NRLM staff have organized and participated in tribal site visits, presented on SFPUC projects and programs during official tribal meetings, developed contracts for services provided by tribes to compensate them for their time working on SFPUC projects, and worked to center cultural and tribal resources as integral and integrated elements of Water Enterprise environmental stewardship responsibilities. While many of these expanding tribal engagement efforts are in their initial phases, staff have begun to build tribal relationships rooted in respect and reciprocity and are excited to pursue this important work. Areas for future collaboration with tribal communities include fish monitoring, prescribed/cultural burns, propagation of native plants, habitat restoration, and education and interpretation.

The foundation of this work with tribal communities was built as part of planning, design and construction of the Alameda Creek Watershed Center. Starting in early 2014, SFPUC staff reached out to the Muwekma Ohlone Tribal Chairwoman about including exhibits that are inclusive of the past, present, and future of the Muwekma. Over the following months, SFPUC and the Muwekma developed a professional services contract to compensate Tribal members for their time and expertise and worked together for more than a year to create exhibits and interpretive panels focused on the Muwekma's history and enduring presence.

Soon after pre-construction excavation began, human remains and artifacts were discovered. The Chairwoman invited SFPUC staff to this sacred site, who recognized the importance of the invitation. Witnessing the burials firsthand—including those of a

mother and child—was deeply emotional and reinforced the commitment to ensuring the project honored the Muwekma with sensitivity and dignity.

Over 18 months of excavation, conducted in close collaboration with Muwekma and archaeologists, more than 100 burials and 13,000 artifacts were uncovered. In response, the project shifted to focus the Center's interior exhibits on the site's rich cultural history. SFPUC and the Muwekma are now working together to respectfully reinter the remains and create a protected space for ceremony and gathering. The trust built prior to excavation proved essential in navigating the discoveries and decisions that followed.



Alameda Creek watershed tour with Muwekma Ohlone Tribe

Next Steps

The SFPUC is a major Bay Area landowner with a significant responsibility to manage both the regional water system and the natural resources that affect or are affected by its operation and maintenance, and to support the native plants and wildlife that depend on them for future generations. Over the past twenty years, the Water Enterprise has demonstrated that responsible water management and environmental stewardship are not competing priorities, but deeply interconnected commitments that strengthen both ecosystems and the operations and maintenance efforts. The progress reflected in this report—restored habitat, improved water quality and meaningful partnerships—provides a strong foundation for what comes next. These efforts also support the ability to continue providing high quality drinking water to 2.7 million SFPUC customers. Future reports will focus on milestones rather than the expenditure of funds. This report provides an overview of environmental stewardship work completed to date work, and increasingly a measure of progress.

The challenges ahead, from climate variability to growing demand, call for continued innovation and care and collaboration within and outside the SFPUC. The SFPUC remains committed to advancing sustainable practices, honoring the natural systems that sustain us, continuing to work with indigenous communities and ensuring that clean, reliable water resources endure for generations to come.

APPENDICES

The following appendices provide supporting information for this report:

Appendix A.

Watershed and Environmental Improvement Program Projects — Expenditures through June 30, 2026

Appendix B.

Watershed and Environmental Improvement Program Projects

Appendix C.

[Water Enterprise Level of Service Goals](#)

Appendix A: Watershed and Environmental Improvement Program Project Expenditures

Project	Total Expenditures
Nolan Ranch Acquisition and Conservation Easement	\$999,817
Olds Acquisition	\$1,300,000
Alameda Creek Watershed Protection Project	\$83,300
Alameda Creek Watershed Center Planning and Interpretive Design	\$508,965
Alameda Creek Watershed Center Education Master Plan	\$67,440
Sunol Native Plant Nursery	\$2,940,746
Sunol AgPark - Sustainable Agriculture Education	\$479,788
Sunol AgPark Alameda County Resource Conservation District Transition	\$166,498
Sunol AgPark Management - Alameda County Resource Conservation District	\$1,083,625
Sunol AgPark/Alameda Creek Watershed Center Education Program Support	\$210,641
Alameda Creek Watershed Rare Plant Survey	\$52,000
Alameda Creek Fisheries Restoration Workgroup Flow Studies	\$182,246
Alameda Creek Historical Ecology Study	\$250,000
Alameda Creek Watershed Weed Survey	\$62,298
East Bay Stewardship Network	\$25,000
Niles/Sunol Dam Removal	\$1,505,000
Arroyo de la Laguna Erosion Control Demonstration and Restoration Project	\$467,821
Calaveras Reservoir Hypolimnetic Oxygenation System	\$1,381,600
San Antonio Reservoir Hypolimnetic Oxygenation System	\$2,375,663
New Zealand Mud Snail Survey	\$13,000
Wool Ranch Acquisition	\$9,850,000
Mitchell Acquisition	\$1,590,000
Starr Acquisition	\$1,282,500
Section 21 Acquisition	\$9,151,875
U.S. Forest Service Memorandum of Understanding	\$202,308
Alameda Watershed Carbon Sequestration Study	\$401,210
U.S. Forest Service Memorandum of Understanding	\$1,425,588
San Mateo thornmint Restoration	\$135,933
Pilarcitos Creek Integrated Watershed Management Program	\$96,532
Pilarcitos Stream Gage Operation	\$45,171

Appendix A: Watershed and Environmental Improvement Program Project Expenditures

Project	Total Expenditures
Bay Area Ridge Trail Extension Interpretive Master Plan	\$73,477
Peninsula Weed Survey	\$62,297
Pulgas Water Temple Interpretive Signs	\$24,000
Crystal Springs Regional Trail South of Dam Segment Construction	\$300,000
Peninsula Historical Ecology Study	\$410,303
Peninsula Trials Interpretive Master Plan	\$260,501
Peninsula Rare Plant Survey	\$134,306
Bay Area Ridge Trail Highway 35 Crossing Feasibility Study	\$114,000
Lake Merced Watershed Management Report	\$250,000
Lake Merced Stormwater Infrastructure	\$500,000
Laguna Honda Scrub Restoration	\$252,198
San Francisco Recreation and Parks Natural Areas Program	\$2,247,191
Yosemite National Park Amphibian Survey	\$1,256,443
Yosemite National Park Looking Downstream Program	\$3,480,479
Economic Impact of the 2013 Rim Fire on Natural Lands	\$30,000
Dos Rios Ranch Acquisition	\$2,000,000

Appendix B: Watershed and Environmental Improvement Program Projects

Project	Level of Service Goals			
	Drinking Water Quality	Water Supply	Environmental Stewardship	Sustainability
Alameda Creek Watershed				
Nolan Ranch Acquisition and Conservation Easement	X		X	X
Olds Acquisition	X		X	
Alameda Creek Watershed Protection Project			X	X
Alameda Creek Watershed Center Planning and Interpretive Design			X	X
Alameda Creek Watershed Center Education Master Plan				X
Sunol Native Plant Nursery			X	X
Sunol AgPark - Sustainable Agriculture Education			X	X
Sunol AgPark Alameda County Resource Conservation District Transition			X	X
Sunol AgPark Management - Alameda County Resource Conservation District			X	X
Sunol Agpark/Alameda Creek Watershed Center Education Program Support			X	X
Alameda Creek Watershed Rare Plant Survey			X	
Alameda Creek Fisheries Restoration Workgroup Flow Studies			X	
Alameda Creek Historical Ecology Study			X	
Alameda Creek Watershed Weed Survey			X	
East Bay Stewardship Network			X	
Niles/Sunol Dam Removal			X	
Arroyo de la Laguna Erosion Control Demonstration and Restoration Project			X	
Calaveras Reservoir Hypolimnetic Oxygenation System	X		X	
San Antonio Reservoir Hypolimnetic Oxygenation System	X		X	
New Zealand Mud Snail Survey			X	
Wool Ranch Acquisition	X		X	
Mitchell Acquisition	X		X	
Starr Acquisition	X		X	
Section 21 Acquisition	X		X	
U.S. Forest Service Memorandum of Understanding			X	
Carbon Sequestration Study			X	
Peninsula Watershed				
U.S. Forest Service Memorandum of Understanding			X	
San Mateo thornmint Restoration			X	
Pilarcitos Creek Integrated Watershed Management Program			X	
Pilarcitos Creek Stream Gage Operation			X	
Bay Area Ridge Trail Extension Interpretive Master Plan			X	X
Peninsula Weed Survey			X	
Pulgas Water Temple Interpretive Signs				X
Crystal Springs Regional Trail South of Dam Segment Construction				X
Peninsula Historical Ecology Study			X	
Peninsula Trails Interpretive Master Plan			X	X
Peninsula Rare Plant Survey			X	
Bay Area Ridge Trail Highway 35 Crossing Feasibility Study				X
San Francisco Properties				
Lake Merced Watershed Management Report			X	X
Lake Merced Stormwater Infrastructure			X	X
Laguna Honda Scrub Restoration			X	
San Francisco Recreation and Parks Natural Areas Program			X	X
Upper Tuolumne River (above Don Pedro Reservoir)				
Yosemite National Park Amphibian Survey			X	
Yosemite National Park Looking Downstream Studies			X	
Economic Impact of the 2013 Rim Fire on Natural Lands			X	
Lower Tuolumne River (below Don Pedro Reservoir)				
Dos Rios Ranch Acquisition			X	X