

A Brief History of the Fisheries Restoration Workgroup and Efforts to Restore Steelhead to the Alameda Creek Watershed

Prepared for the Alameda Creek Fisheries Restoration Workgroup
By the Center for Ecosystem Management and Restoration

Introduction

In this, the summer of 2013, the members of the Alameda Creek Fisheries Restoration Workgroup anticipate an upcoming period of major construction on fish passage projects. For the first time in over four decades, steelhead will have access to the upper portions of the Alameda Creek basin. To mark this long-awaited event, a brief history has been prepared that records many key individuals, organizations, milestones, and lessons learned during these past 13 years since the Workgroup was established.

Readers are invited to draw their own conclusions about the group's progress, pace and effectiveness. In reviewing the minutes of more than 70 meetings, however, a few themes emerge that are worth noting. These themes are set out in the last section of this history (titled, "Conclusion") that follows a year-by-year review of the activities of the Workgroup.

Early efforts

Several key events in 1997 set the stage for formation of the now long-standing Alameda Creek Fisheries Restoration Workgroup (Workgroup). First, study conducted between 1993 and 1996 led to a Memorandum of Agreement between the California Department of Fish and Game (DFG) and the San Francisco Public Utilities Commission (PUC) for minimum flow releases from Calaveras Reservoir to support resident rainbow trout. Also in that year, Central California Coast steelhead was listed as a "threatened" species under the federal Endangered Species Act. And the non-profit Alameda Creek Alliance (ACA) was founded to advocate for watershed restoration. The ACA began documenting adult steelhead attempting to migrate upstream in lower Alameda Creek beginning in winter of 1997-98.

Between 1999 and 2004, the major issues that would become the focus of Workgroup attention were introduced, and steps were taken to advance understanding and develop solutions. Fish passage in the Flood Control Channel (FCC), Stonybrook Creek, Niles Canyon and the upper watershed was a primary focus. Habitat areas and associated flow needs also were addressed. The potential for supplementing the steelhead population was considered regularly. The group increased its organizational

sophistication, developed significant funding resources and improved outreach to stakeholders within and outside of the watershed.

1999

In 1999, the Workgroup was formed to cooperatively address steelhead restoration issues. The group consisted of ACA, the Alameda County Water District (ACWD), the Alameda County Flood Control and Water Conservation District (ACFCWCD), the California State Coastal Conservancy (SCC), the San Francisco Public Utilities Commission (PUC) and American Rivers. The ACFCWCD decided to support a group facilitator, and that role remained in place for more than a decade.

Then, through funding provided by ACFCWCD and the SCC, a technical assessment of the potential of restoring a steelhead run to Alameda Creek was completed. The four key findings of this report were: 1) suitable habitat exists within the Alameda Creek watershed to support spawning and rearing of steelhead, 2) genetic testing indicates that local trout and returning adult steelhead are part of the Central Coast Evolutionarily Significant Unit (ESU), 3) steelhead are prevented from completing their life-history cycle within Alameda Creek due to the presence of an impassable migration barrier near the bottom of the watershed (*i.e.*, the BART weir), and are severely limited by several other impassable or partial migration barriers, and 4) migration of juvenile steelhead to the ocean may be limited by existing water project operations. The report also described nine essential actions for steelhead restoration.

"Stella the Steelhead" was netted by East Bay Regional Park District staff, fitted with a radio transmitter, and tracked during her spawning migration. After unsuccessfully ascending Niles Canyon, Stella entered Stonybrook Creek, providing direct evidence of the use of that tributary by steelhead. Subsequent study revealed ongoing propagation of trout in pools in the creek's lower section.

2000

Fish rescue (also known as "trap and haul" or "trap and truck") was conducted in winter 1999-2000 at the BART weir. The Workgroup first considered installing a camera at this site (later named, "the Webcam") to aid in detecting steelhead.

A representative from the U.S. Army Corps of Engineers (Corps) attended a July 2000 meeting, and described the potential for a so-called §1135 project to move forward between the Alameda County Water District (ACWD), ACFCWCD and the Corps. The project would treat the issue of fish passage in the FCC and would involve fishways and diversion screens. The Workgroup built support for a possible §1135 project throughout the year, and ACWD and ACFCWCD eventually submitted an application to the Corps. The process was to involve a Preliminary Restoration Plan (PRP) followed by an Ecosystem Restoration Report (ERP). Total costs were estimated at \$9 million, of which the Corps could provide \$5 million. Of this figure, costs were estimated at the BART weir, \$2.9 million, upper dam, 1.4 million, and screening, 4.2 million (all facilities).

The consulting firm of CH2MHill was retained by ACWD to produce designs for passage facilities. Their engineer met with key players to discuss passage and screen options for the FCC, which were presented to the Workgroup. CH2MHill staff described various passage options for the BART weir including vertical slot, pool and weir, and Alaska steep pass with false weir fishways. Designs for the lower rubber dam also were being developed.

Information developed by ACFCWCD was being reviewed by the National Marine Fisheries Service (NMFS) passage engineer, who determined that county road crossings of Stonybrook Creek, a tributary to Alameda Creek with confluence in lower Niles Canyon, constituted a total barrier to fish passage and should be removed. The Workgroup also heard that the culvert at the Niles Canyon Road crossing of Stonybrook Creek, owned by Caltrans, constituted a passage barrier. The consultant Mike Love had been retained to survey barriers on Stonybrook Creek, and he completed the Stonybrook Creek passage study fieldwork that season.

Planning was underway to remove the East Bay Regional Parks District's (EBRPD) "swim dams." The PUC was considering removing the Sunol and Niles dams, obsolete structures formerly serving water supply functions.

In 2000, the consultants Trihey & Associates and Hanson Environmental had developed a statement of work for hydrologic and biological studies focused on the area downstream from the proposed "recapture facility" (*i.e.*, a diversion structure in the Sunol Valley) on behalf of the PUC. ACWD retained Hanson Environmental as a fisheries consultant and the scope of work for their studies was later finalized, with fieldwork expected to begin shortly. By mid-2000, planning was underway to fund genetics research on steelhead/rainbow trout (*Oncorhynchus mykiss*) in the watershed. The need to identify source populations for population plans well in advance of completing restoration actions was noted at a meeting regarding "jump starting" a restored steelhead run.

In August, the Workgroup's Grant Subcommittee reviewed various options for funding projects, design, and support. Applications had been submitted to the Coastal Salmon Recovery Program and the Watershed Assistance Grants Program.

The Executive Director of the Alameda County Resource Conservation District (RCD) addressed the Workgroup about contacting Arroyo Mocho landowners regarding restoration efforts. A second Steelhead Festival was being organized for May 2001. The first festival, held in May 2000, attracted some 200 participants and was considered a success.

The Corps representative announced government negotiations to purchase the Cargill salt ponds (later known as the South Bay Salt Ponds project), potentially allowing

restoration-related approaches to be considered at the mouth of Alameda Creek. The ACFCWCD had retained the U.S. Geological Survey (USGS) to investigate sources of sediment accumulating in the FCC.

2001

A steelhead was captured, tagged, and moved upstream from the BART weir in March 2001. By early 2001, the CH2MHill conceptual design report for fish passage at the BART weir had been finalized. By April, the §1135 applicants had received notification of the approval of the Alameda Creek PRP, whose completion was anticipated in August 2001.

The Department of Water Resources (DWR) noted that the Workgroup needed to examine alternatives for fish passage at the BART weir to document that lower cost alternatives were not available. In December, a subset of the Workgroup evaluated BART weir passage alternatives. The group concluded that available options included trap and haul, no project, removing the BART weir, constructing a bypass channel, and alternate fishway design. Additional options also were listed such as modifying dam operations, removing the inflatable dams and replacing inflatable dams with rock weirs or multiple, lower inflatable dams.

ACFCWCD reported on the results of the Michael Love passage study, Stonybrook Creek Fish Barrier Assessment. He estimated that needed barrier work would cost as much as \$1.8 million.

The Sunol and Niles dams removal project was expected to be completed by 2004. Remaining issues to be addressed included the historic significance of the structures and the disposition of sediment trapped by the dams. In June, the PUC had started allocating funds for dam removals in its budgets. The total cost of removing Niles and Sunol dams was estimated at \$2.75 million.

Staff from NFMS and DFG had visited the PG&E gasline crossing to develop approaches for mitigating this barrier. Alternatives later were described to the Workgroup as: creating downstream step pools, elongating the length of the concrete mat, burying the pipeline, and constructing a fishway.

EBRPD completed removal of two small swim dams from upper Alameda Creek in Sunol Wilderness, marking the barrier projects in the watershed. A ceremony marking the removal of the dams was held in August.

The PUC announced the Division of Dam Safety requirement that Calaveras Reservoir be lowered to 30 percent capacity. The PUC intended to use the drawdown to study hydrologic conditions in the watershed, and had had started to consider water supply alternatives including constructing a larger capacity reservoir.

Fisheries and flows investigation on PUC properties continued. A flows workshop had been scheduled for September 13, at which water agencies would describe their operations. Discussions regarding bypass flows in relation to the proposed recapture facility continued.

The so-called Propagation Subgroup had discussions regarding “founder effects” of moving small numbers of fish upstream of dams in Alameda Creek. Staff from NMFS and others had noted the urgency of continuing population planning efforts. Genetics work was funded with SCC and ACFCWCD support, and fish were sampled from Arroyo Mocho and upper Alameda Creek. Meanwhile, trapping upstream from the PUC’s reservoirs also produced fin clips that were added to the USGS genetics analysis.

The USGS sediment transport investigation concluded that 33,000 cubic yards of sediment passed through the Niles Canyon monitoring station in winter of 1999. A greater amount was estimated to pass through the Arroyo de la Laguna station. The cost of the studies was estimated to be \$500,000 annually.

In 2001, ACFCWCD was poised to complete the last of four lower FCC desilting projects. The district also was exploring modifying the levees at the Alameda Creek mouth and had selected the consulting firm URS to look at levee reconfiguration options.

The Workgroup was awarded a DFG grant to support planning, outreach and coordination. The grant was to be carried out by the non-profit Center for Ecosystem Management and Restoration (CEMAR). The Grants group had met in March to coordinate activities, and the SFPUC had submitted a proposal for Prop 13 funding to remove Sunol and Niles dams. The Workgroup was informed that it was considered a model of cooperation by DWR staff.

The Workgroup began preparing a watershed restoration plan for Alameda Creek. CEMAR collected goals and objectives statements that were drafted, along with a set of guiding principles, to form the basis for the plan.

The Executive Director of CEMAR announced that the group would host a regional steelhead symposium. The Alameda County Board of Supervisors made May 12-19 “Watershed Awareness Week.” The Steelhead Festival was held and again was considered a success.

2002

The Workgroup's Political Advisory Committee met twice to create policies regarding Alameda Creek restoration and to confer with the Corps. The Corps determined that 2007 was the earliest reasonable construction start date. The Workgroup also discussed the criteria for receiving Bay Bridge mitigation funds and other funding opportunities such as the National Oceanic and Atmospheric Administration (NOAA)/American Rivers

program, Proposition 50 monies, funds available through mitigation for PUC projects, and others.

A helicopter tour was taken by EBRPD and SFPUC biologists, who concluded that steelhead production in the Alameda Creek watershed likely was limited by the availability of rearing habitat. A preliminary restoration potential estimate was made that 600 returning spawners could be generated by outmigration of some 30,000 smolts if passage was provided at the Alameda Creek Diversion Dam (ACDD).

The PUC was considering increasing capacity via the Calaveras Dam Replacement Project (CDRP). Approximately 100,000 acre-feet (AF) of additional storage were envisioned, bringing the reservoir size to 420,000 AF. The Zone 7 Water Agency (hereafter, Zone 7) had planned the Arroyo Mocho inflatable dam project diverting South Bay Aqueduct water into abandoned quarries.

2003

A Flows and Habitat Subcommittee of the Workgroup convened to discuss Alameda Creek restoration target areas, needed flows, associated water management, and needed studies. The group established first and second tier habitat areas, and determined that key issues would be providing passage flows and appropriate channel conditions in the Sunol Valley, Stonybrook Creek access, and establishing habitat and flow goals for the Arroyo de la Laguna (ADLL) subbasin. Population estimates for the Calaveras and San Antonio reservoirs were placed between 100 and 200 individuals.

Further advancing the Corps' 1135 program for fish passage in the FCC, the Corps produced a PRP for lower Alameda Creek fish passage improvements. This project was abandoned in 2005 by the Corps due to a lack of federal funding for environmental projects in the Corps' 1135 program.

Zone 7 revised its planned groundwater recharge project, modifying operations and incorporating a fish screen to a proposed inflatable diversion dam. The changes reduced fish migration impacts. Later in 2003, Zone 7 constructed two fishways as part of a project to widen, realign and restore the confluence of Arroyo Mocho and Arroyo de las Positas in Livermore. The agency removed concrete fish passage barriers and re-vegetated affected channel areas.

The consulting firm Watershed Sciences was studying sediment movement. An excerpt from a 2003 report notes that the Arroyo de la Laguna channel and the hillsides of the Alameda Creek drainage likely contribute the highest percentage of total sediment load to Alameda Creek.

A USGS genetics study concludes that *O. mykiss* upstream from San Antonio and Calaveras reservoirs, as well fish collected from other upper watershed areas, are genetically similar to wild Central California Coast steelhead.

2004

NMFS proposed to include Alameda Creek *O. mykiss* populations as part of the Central California Coast ESU. Some Workgroup members favored the inclusion on the basis of the genetic similarity between *O. mykiss* upstream and downstream from passage barriers, while others argued that the isolation of populations above dams likely led to genetic divergence. The proposal was withdrawn in 2005.

After continued evaluation, ACWD announced that it was evaluating an alternative to the 2001 FCC fish passage concept of three fishways and six screens to a new approach involving one fishway, one natural fishway, one screen and the addition of new conveyance pipelines.

Lawrence Livermore National Laboratory completed the Arroyo Mocho Road Fish Passage Project. The project replaced a concrete creek crossing with a bridge.

The PUC initiated workshops regarding its Habitat Conservation Plan (HCP). Also in 2004, the PUC was reviewing alternatives for recapturing Calaveras bypass flows and continuing to discuss impacts related to sediment of the Sunol and Niles dams removal projects. Management of Calaveras Reservoir's adfluvial *O. mykiss* population was topical due to the mandated lowering of the reservoir water level.

The Middle Years

From 2005 through 2008, the Workgroup became more formalized as it put the flesh of increased specificity on the bones of fish passage and flows issues it had previously considered. Multiple technical studies were completed or launched that would inform the design of major projects, particularly the BART weir fishway and the Calaveras Dam replacement. Workgroup members added staff and consultants, several of whom would influence the path of Alameda Creek watershed restoration greatly in following years.

2005

Using funding from the Alameda County Fish and Wildlife Commission, CEMAR designed and installed a camera to detect steelhead at the BART weir by transmitting images via the Internet. The "Webcam" allowed watchers to see steelhead attempting passage at the weir from their computer and increased the efficiency of fish rescues. In one notable example, a former CEMAR employee first observed a migrating steelhead in Alameda Creek from his desk at the University of Wisconsin-Madison.

Under a grant from the SCC, a CEMAR-led team produced a conceptual design and feasibility study for the so-called Re-graded Channel Alternative. The approach was shown to allow passage at the BART weir under a wide range of flows, but involved abandoning diversion at ACWD's middle inflatable dam. At the same time, ACWD was

actively planning the upper inflatable dam fish screen. A request for a Congressional appropriation to support FCC projects was denied, but ACWD was awarded a \$1 million grant for two projects to improve fish passage.

Another grant from the SCC, in conjunction with money from an environmental fine, supported preparing conceptual designs to remove two total barriers to fish passage on Stonybrook Creek. The need to maintain Palomares Road open during construction led to a very high cost estimate for these removals.

The PUC created the Natural Resources Division and adopted the Water Supply Improvement Program (WSIP) that would guide massive system changes, including important projects in the Alameda Creek watershed. The PUC published population estimates for adfluvial *O. mykiss* upstream from their reservoirs. The PUC installed a system to oxygenate the deep water layer in Calaveras Reservoir.

2006

Two steelhead were rescued at the BART weir, including an individual measuring 31 inches and weighing 11 pounds. Soon after, four additional steelhead were captured and moved upstream.

ACWD announced receipt of a NFWF grant to develop a fish screen and intertie pipeline at the lower inflatable dam. Another alternative for this site would later be developed. The upper ACWD diversion fish screen environmental review had been completed, with construction scheduled for summer 2007.

Alameda County (ACFCWCD) and ACWD were continuing discussions regarding a preferred alternative for fish passage at the BART weir, and retained the consulting firm Wood Rogers to evaluate options. Kosmo Bates presented the results of this analysis, took comments and issued a final report of his team's findings.

The USGS gauge weir had been evaluated for passage and was considered a total barrier. This designation resulted from the analytical technique, despite the fact that steelhead had passed the barrier during immigration. Surveys of Stonybrook Creek found multiple *O. mykiss* year classes.

Zone 7 approved a Stream Management Master Plan, intended to make flood protection in Livermore and Pleasanton creeks consistent with ecological goals. The plan included projects to remove or modify fish passage barriers and restore natural stream and riparian habitat. Stream restoration projects to enhance instream cover in Arroyo de la Laguna were implemented by the RCD funded by the Natural Resources Conservation Service (NRCS), SFPUC, Alameda County, Zone 7, Dublin San Ramon Services District and ACWD.

The environmental review process for the Sunol and Niles dams removal project closed, and Alameda County and the PUC had involved discussions regarding the impact of sediment stored behind Sunol Dam on the capacity of the FCC. The agencies eventually settled this issue, and the dams were removed from Niles Canyon.

The PUC was actively planning the CDRP and the HCP for the commission's Alameda Creek activities. The PUC expected release of the draft EIR for the Calaveras Dam project in August 2007. The PUC had shelved the inflatable dam "recapture facility" project in Sunol Valley. The PUC was close to completing the low-flow valve for Calaveras Dam releases. The PUC completed an erosion control project on a 1,000-foot reach of Arroyo de la Laguna in collaboration with Zone 7 and the Alameda County RCD and NRCS.

Fisheries biologists retained by the PUC were developing information about passage barriers, water supply operational issues, bypass flows, and upper Alameda Creek habitat. The schedule for technical memoranda regarding the Calaveras project was released with completion dates in early 2007 for four related studies. The PUC named a new lead of its fisheries section and added to staff.

Seventeen public agencies and nonprofit organizations signed a formal agreement to collaborate on a study of streamflows and fish habitat needed for Alameda Creek fish restoration. The Workgroup developed the structure and goals of the Memorandum of Understanding (MOU) through which the funding partners would advance Alameda Creek steelhead restoration planning, and the Workgroup's Flows Subcommittee was formed under the MOU. The Flows Study consultants, CEMAR and McBain & Trush, developed a scope of work that was approved.

The Workgroup continued to consider possible population effects of a "genetic bottleneck" caused by moving small numbers of steelhead into the upper watershed. NMFS informed the Workgroup that Alameda Creek watershed *O. mykiss* would not be included in the Central Coast Steelhead ESU, as their habitat was not connected to the ocean.

2007

In January, a radio-tagged steelhead was being tracked in Alameda Creek. By the end of the year, NMFS and the Workgroup had worked out conditions for continued steelhead rescues at the BART weir. New Zealand mud snail was identified in Alameda Creek.

Preliminary designs for a vertical slot fishway for the BART weir were distributed to the resource agencies for review, and consultants were sought to complete the design. ACWD and ACFCWCD signed an agreement to proceed with the BART weir fishway, with a goal of 2010 construction.

The upper inflatable dam fish screens were constructed supporting in part by a National Fish and Wildlife Federation (NFWF) grant, and by the end of the year ACWD was

awaiting electrical work before being able to activate the screens. ACWD planned a celebration of the fish screen installations in spring 2008, and lower dam removal was expected in summer. The PUC and the USGS started discussions about the fate and operation of the Niles Canyon gauge.

Zone 7 and Livermore Valley School District remove the "Granada" fish passage barrier. The barrier consisted of a concrete crossing of Arroyo Mocho in Livermore.

In June 2007, an MOU was finalized between the Alameda Creek stakeholders that documented the Workgroup process and the flows and habitat studies to be undertaken on their behalf. In particular, the Alameda Creek Population Recovery Strategies and Instream Flow Assessment for Steelhead Trout was intended "to develop the basis to estimate the range, magnitude, timing, duration, frequency and location of flows necessary to restore steelhead fisheries...while minimizing the potential impacts to water supply."

The flows studies work plan was developed and finalized. Key issues at play in the Alameda Creek watershed were reviewed by the flows consultants including: turbidity effects, juvenile growth rates, and passage flows and passage barriers. Workgroup members were delivering materials, and highly specific data needs were considered, including turbidity values and temperature measurements. Temperature recorders had been installed to help fill out the dataset that would be used in the flows studies.

The flows consultants prepared a Phase 1 report for review. In discussions about the Phase 2 Work Plan elements, "Coordinate estuary restoration" was deemed a relatively low priority.

The PUC introduced the fisheries HCP process and its relationship to other planning and studies in the watershed. Completion was projected for 2009-2010. Stranded fish in Arroyo Hondo were the topic of discussions between DFG and the PUC. About 15 fish were moved back into the Calaveras Reservoir.

The group began discussing the role of the PUC's reservoirs in providing passage flows in the FCC, in relation to development of the PUC's programmatic EIR and the expected Section 7 consultation between NMFS and ACWD for the BART weir project.

Zone 7's consultants presented on the Livermore Valley flood protection, water supply and stream restoration program, StreamWise.

2008

Fish rescue permitting was secured early in the year and by March, two large steelhead (nicknamed Bonnie and Clyde) had been collected, radio-tagged and moved upstream from the FCC. The fish moved into Stonybrook Creek, where they appeared to be

spawning. In May, hundreds of young of the year steelhead were observed in Stonybrook Creek.

The tracking project spawned a larger discussion about monitoring needs in the watershed, although no specific direction was established. EBRPD's smolt predator study in the FCC found only one large-mouth bass and one pikeminnow upstream from the ACWD inflatable dams.

The ACWD board approved hiring Winzler and Kelly to lead the BART weir fishway design team. The contract also included designs for the upper dam fishway and for screens at the remaining unscreened diversions. The middle dam fishway was scheduled for completion in 2010.

The flows group met repeatedly during the year. The Phase 1 report was finalized, with comments noting the importance of considering flow, temperature, food supply and visibility in efforts to model or assess dry season habitat quality. Priority tasks for the Phase 2 study were developed and refined. Phase 2 work responsibilities were assigned.

Comments on the Phase 2 scope concerned the geographic area under study, impacts on amphibians and special considerations related to fish passage and quarry operations in the Sunol area. (It was hoped at the time that cutoff walls could be built in 2010.) The flows group completed the draft Sampling and Analysis Plan, and received additional comments regarding the geographic scope (as it did not include areas deemed important for spawning and rearing, such as Niles Canyon). McBain & Trush also received input regarding the use of available streamflow gauge data, the need for information regarding reservoir water temperatures, and treating the issue of outmigration flows.

The work plan for habitat mapping three Alameda Creek reaches was developed, with mapping planned for about six flow flows ranging between 5 and 80 cubic feet per second (ft³/s). The growth rate team was assembled to evaluate factors such as temperature and food supply on growth rate for use in modeling. Bill Trush reviewed the "good days" modeling concept, and the group's input into questions to be answered through the study was solicited.

The PUC was negotiating Sunol Valley gravel operation lease conditions included those related to re-vegetation, cutoff wall construction and fish passage at the gasline crossing. NMFS and the PUC began discussing the process by which study results would be integrated with terms and conditions of the CDRP, which at the time was scheduled for construction in 2009. The PUC's consultants reviewed the modeling that would be incorporated into the HCP. The model was characterized as a tool for identifying actions/factors most affecting the watershed's fish resources.

Jones and Stokes, the PUC's HCP consultant, emphasized the importance of identifying flow-habitat relationships in the watershed, an area of overlap with the Phase 2 study. The group found consensus on the need to assess habitat quality and quantity under alternate flows in key Alameda Creek reaches.

Habitat/flow work was being conducted in association with necessary releases from Calaveras Reservoir. A series of surveys was conducted between the Arroyo de la Laguna confluence and Calaveras Dam to related dam releases with downstream conditions. The ACA signed an agreement regarding the operation of the Apperson Ridge quarry and one of the PUC's Sunol Valley quarry leases that included up to \$3 million in fish passage mitigation monies.

A Fisheries Technical Report by Hagar Environmental Science was prepared for the Calaveras Dam Replacement Project. The report describes aquatic habitat and fish populations in the project area and concludes, among other findings, that temperature conditions for coldwater species are marginally suitable throughout the watershed, with most favorable conditions in upper Alameda Creek and the PUC reservoir tributaries. It also determined that ACDD bypass flows had the potential to substantially improve conditions for rainbow trout spawning.

Recent Era

The Workgroup's activities since 2009 have been marked by increasing commitment, building momentum and narrowing of the universe of outstanding restoration related questions. Projected construction dates become less of a moving target as designs are finalized and permits secured. And ongoing studies produce conclusions, particularly regarding flows and habitat, that are incorporated into terms and conditions that will form a backbone to the overall watershed management scenario that accounts for the life history requirements of steelhead.

2009

The year marked the removal of the lower inflatable dam and completion of a fishway to allow passage without creating new grade control effects. With support from DWR, ACWD installed fish screens at Bunting Pond.

A workshop was held to discuss design parameters for the BART weir ladder, where construction was anticipated in 2010. Geotechnical and environmental review work was underway for the BART weir fishway. Test releases between 15 and 75 ft³/s had been made to assess passage conditions in the FCC.

The fishway at the upper dam was slated for 2011-12 construction with the Kaiser and Shinn ponds fish screens following in 2012-13. ACWD estimated the district would spend

\$21 million in improvements related to fish passage overall. An initial design had been prepared for the PG&E gasline crossing, although the project was "on hold".

The PUC had approved the Sunol Valley Quarry lease that involved associated conditions including constructing cutoff walls, riparian restoration and support of the Sunol Valley Restoration Plan. Comments were being received on the Calaveras Dam Replacement Project Environmental Impact Report. The PUC was beginning to evaluate its proposed upper Alameda Creek Filter Gallery project. Fish flows were to be considered in the project design. A deep water layer oxygenation system was installed in San Antonio Reservoir. Fish collected after installation of the Calaveras Reservoir system appeared to be healthier as a result of the operation of the system, likely due to their ability to escape parasites. The PUC published a technical memorandum on the feasibility of fish passage at ACDD.

The flows group heard that the habitat team had completed 5 of 18 planned habitat sampling events to characterize conditions over a range of flows in three reaches. An agency staff and consultant group worked to develop temperature criteria for the habitat analysis. Staff from ACWD and consultants developed a modeling approach to estimate historical flows and future conditions. This involved using available gauge and reservoir data, data from the 2008 PUC release study and other information.

Between 2009 and 2010, the Alameda County RCD, NRCS and Zone 7 studied various Arroyo de la Laguna reaches in order to develop alternatives for channel stabilization. Various approaches were vetted with the stakeholder group and with landowners.

The Workgroup identified the need for a population planning subgroup. Zone 7 signed a Statement of Understanding (SOU) promoting data sharing and cooperation with NMFS for their preparation of the Central California Coast steelhead recovery plan, and encouraged other water and flood agencies to sign the SOU.

2010

The Bunting Pond Fish Screen installation ceremony was held. The BART weir fishway design was still under development and was addressing issues of multiple exits and entrances. Construction of the BART weir fishway was expected in 2012. Mike Love had completed a barrier removal plan for Stonybrook Creek.

The PUC had sent agency letters regarding the HCP process and was working with City of San Francisco staff to respond to comments received on the Calaveras Dam Replacement Project EIR. A finalized Biological Opinion for the CDRP was expected. Tim Ramirez announced that an independent review panel would be used to evaluate fisheries work conducted for the HCP.

The PUC also was looking to advance the Sunol Valley restoration plan, although expected payments from the quarry leasee had not been received. The scope of the

plan had been developed, including a groundwater model, riparian and channel modifications and other elements. The PUC's consultant URS described the results of its study of fish passage at critical riffles in the Sunol Valley and upper Alameda Creek sites including Little Yosemite, Calaveras Creek and Arroyo Hondo.

The temperature modeling team was producing good match between observed and projected temperatures over a range of flows at the calibration site, while the temperature subgroup was finalizing the criteria that would be used in the models. Their approach was to be documented in the technical memorandum, Evaluating Water Temperature and Turbidity Effects on Steelhead Life History Tactics in Alameda Creek Watershed. The modeling group was incorporating field data to calibrate the temperature model. The issue of accurate boundary conditions also was being considered, particularly with respect to Calaveras Dam release temperature.

The "Ascendograph" model was demonstrated by McBain & Trush. The output of the model was to be combined with the temperature/habitat models to predict steelhead production in the watershed. These models were expected to be useful in evaluating potential flow management scenarios. Preliminary flow habitat curves had been developed for the six study reaches.

The group discussed the need to approach flow issues on a watershed-wide basis, including possible del Valle flows. NMFS reported that migration flows were a "work in progress" and their determination was being informed by modeling. There was consensus that this issue should be a standing agenda item.

The flows group agreed that a new MOU should include a scope of work and budget for a steelhead population plan. Dick Butler (NMFS) and Michael Lacy and Bob Coey (DFG) participated in the discussion of using supplementation to restore steelhead and salmon populations. Key features of a population program were said to include long term commitment, extensive funding, flexibility and a high degree of monitoring.

The San Francisco Estuary Institute's historical ecology project was underway using data from a variety of sources. The project goals included showing change over time to flow, morphology, riparian cover and sediment/substrate.

In December 2010, John Bourgois presented to the Workgroup on the South Bay Salt Ponds restoration project. John described the need to establish flood control levees prior to possibly opening the lower/southern portion of the Eden Landing complex to tidal action.

ACWD, ACFCWCD and the resource agencies continued discussions on migration flows in the FCC. Several Workgroup members had visited the San Lorenzo River to understand the challenges of creating a vegetation controlled low-flow channel.

The group heard about the NRCS's 2007 project on Arroyo de la Laguna, whose goals were to restore and stabilize portions of the channel and improve wildlife habitat. The project involved Christmas tree revetments, rock and (later failed) vegetative barbs, rootwads and other bioengineering approaches.

Staff of ACFCWCD stepped down as Workgroup chair after two years of service. Staff from Zone 7 was selected as the new chair.

The upper and lower Niles Canyon gauge datasets had been correlated to allow for alteration or abandonment of the lower gauge for fish passage improvement. New fishing regulations had been proposed for above and below the three upper Alameda Creek watershed reservoirs that went into effect in March 2010.

2011

In March, ACWD announced that it had been awarded two grants to support FCC projects. Environmental review for the ACWD fish passage projects was scheduled to begin in early 2012 and construction at the BART weir was expected in 2013. A draft Biological Assessment for the BART weir project was in preparation. ACWD, DFG and NMFS announced a conceptual agreement on flows in the FCC. Bypass flows at ACWD's fishways consist of 25-40 ft³/s plus flows slated for bypass from the southern watershed. The Regional Water Quality Control Board, the Corps, DFG and the ACFCWCD were collaborating on plans for fish passage in the FCC. ACFCWCD authorized the San Francisco Estuary Institute (SFEI) to proceed on a study of sedimentation in the FCC.

The Biological Opinion (BO) for the CDRP was signed by NMFS. The BO included wet and dry year release regimes beginning in 2015, lessening of the duration and amount of ACDD diversions, screening of the adits and modifications of Little Yosemite to improve fish passage.

The PUC selected a contractor for the CDRP and was working to complete permit applications. CDRP related activities included planning for winter drawdown, possibly moving fish between the reservoir and its tributaries and installation of a new streamflow gauge on Calaveras Creek. CDRP groundbreaking happened in September.

The PUC announced preparation of a watershed and environmental improvement program for upper Alameda Creek, including a land acquisition element. Plans also were in development for improved offices and a watershed visitors' center near the water temple, with construction planned for 2014-16. The PG&E gasline crossing project appeared to be budgeted for 2013-14, and was awaiting details on the PUC's filter gallery project, due to the need for coordination of the two efforts. The PUC also was undertaking ADLL erosion control projects. PUC smolt trapping in Sunol Valley was expected in spring 2012. This activity was later delayed until spring 2013.

The hydrology subgroup had continued to refine the watershed hydrology models and was expecting to complete its work in early 2012. The group established 12 analytical nodes throughout the watershed to create the "Daily Model," which processes unimpaired, impaired and future impaired hydrology scenarios. The HEC-RAS hydraulic analysis model was being developed to support the Ecosystem Diagnosis and Treatment (EDT) and Number of Good Days (NGD) models. The NGD analysis was being conducted to characterize conditions below ACDD, below Little Yosemite, below the Sunol Water Treatment Plant, and in Niles Canyon. The PUC was developing details of the independent review of the EDT analysis, to be led by Dr. Johnnie Moore. Caltrans cut about 80 trees as part of the Niles Canyon project's first phase, which was the subject of an ACA lawsuit. Comments were being prepared for Caltrans' Phase 2 environmental review.

In fall 2011, collaboration between the Alameda County RCD, NRCS, SFPUC, ACFCWCD, Alameda County Public Works Department, and Zone 7 produced the Verona Bridge Project. This 600-foot long streambank stabilization used bioengineering techniques to reduce erosion. It received funding from a federal appropriation from Congressman McNerney. An additional earmark was received to develop fish passage solutions and habitat improvements for Stonybrook Creek. The Alameda RCD and NRCS administered these funds to develop and implement projects in Stonybrook Creek.

2012

ACWD and ACRCWCD continued work on environmental review of FCC projects and were expecting construction in 2013 and 2014. The agencies continued preparation of a biological assessment for its activities in the FCC including the two proposed FCC fishways (at the BART weir/upper inflatable dam and middle inflatable dam).

Zone 7 initiated a process to study hydrologic and environmental effects of various potential flow regimes in relation to the agency's facilities. The work was being undertaken in part in relation to Zone 7's water right on Arroyo del Valle. Zone 7 also announced installation of a temperature recorder at the USGS gauge at Arroyo Valle Near Livermore.

Using Environmental Protection Agency funds that ACFCWCD redirected, Alameda County RCD contracted for installation of streamflow gauges in Stonybrook Creek. The monitoring program was developed to improve the understanding of potential fish habitat in Stonybrook Canyon.

McBain & Trush presented findings from the NGD and Number of Good Year analyses. Among the conclusions of these studies were: 1) good fish growth and rearing capacity in downstream reaches (especially Niles Canyon and the Alameda Creek mouth) likely are necessary to achieve greater estimated adult steelhead returns; 2) enhancing downstream habitat would improve the viability of the watershed's population and support additional Life History Tactics.

The Independent Science Review Panel was convened, and released its Review of the Alameda Creek Habitat Conservation Plan Modeling Strategy in August. The panel, comprised of Thomas Dunne, Brian Cluer, David Manning and Joseph Merz, made several recommendations for improving and applying ecological models to evaluate water and land management scenarios' effects on Alameda Creek steelhead resources.

The San Francisco Estuary Institute conducted the Alameda Creek Historical Ecology Study, an assessment of changing watershed conditions over time. In a report on draft findings, SFEI staff pointed to possible longer term aquatic habitat improvements to benefit steelhead and other biota in such areas as the Sunol Valley, Arroyo de la Laguna, the FCC and mouth of Alameda Creek.

On behalf of the Alameda County RCD, CEMAR conducted a survey of Stonybrook Creek pool habitat. In cooperation with EBRPD, tissue and scale samples were collected from 50 *O. mykiss* for analysis by NMFS (genetics) and CEMAR (growth rates).

The PUC continued developing the Watershed and Environmental Improvement Program, including a portion devoted to Alameda Creek, and the Sunol Valley Restoration Plan. The program includes land purchases in areas tributary to the PUC's reservoirs, while the plan characterizes biota and physical features and processes in the valley. PG&E announced that construction of the natural gasline crossing was scheduled for 2014.

In constructing the Calaveras Dam Replacement Project, the PUC found unexpected conditions leading to substantial increases in the cost of the project. Work at ACDD was not expected to be affected, with fish screens and ladder installation scheduled for completion by the end of 2016.

2013

SFEI published the Alameda Creek Watershed Historical Ecology report. The project, funded by the PUC and ACFCWCD with additional funding from Zone 7 and ACWD, described conditions in the watershed in the early 1800s to inform present-day management decisions, and to provide managers with new tools to assess ecosystem functions.

Conclusion

As promised, this history of the Workgroup concludes by presenting a number of themes that have characterized the group's proceedings. First, we can say that steelhead restoration (at least in Alameda Creek) "takes a village." The Workgroup itself has some ten regularly represented organizations, and its proceedings have involved

hundreds of individuals from advocacy, water management, consulting, government and educational groups. Virtually all of the stakeholders in the watershed are engaged.

Further, membership of the Workgroup has been very stable, and not merely at the organizational level. At least six people regularly attend meetings and have active involvement in Alameda Creek restoration who were "there at the start." A newer participant may only have been involved, say, six, seven or eight years. This continuity has contributed to strong working relationships and a depth of perspective that allows for setting a common agenda, solving problems and building consensus for solutions.

It is also clear that many, if not most, of the issues facing the Workgroup require surprisingly extensive planning, financial and intellectual resources to solve. While the accomplishments of the Workgroup and its members are impressive, several key recovery steps await implementation, and others are only in early stages of development. Fish passage through the Flood Control Channel likely will be possible in 2014-2015, some 30+ years after fisherman began moving steelhead over the barriers there. Dedicated "fish flows" are being codified in relation to the Calaveras Dam replacement and Flood Control Channel fish passage facilities. But a comprehensive flows approach for the watershed has yet to be completed. And uncertainty exists regarding where and how to grow sufficient numbers of large smolts predicted to survive their ocean phase.

Finally, it seems plain that the Workgroup is a model for sustained collaboration that results in progress on a complex inter-jurisdictional and interdisciplinary matter such as steelhead restoration in an urbanized watershed. Workgroup members have disagreed at times about strategy, responsibility, schedule, science, and restoration goals. Nevertheless, the members are still at the table; conflicts continue to be resolved, solutions are found and vetted, funds are raised and, most importantly, hope remains that a viable steelhead population will be restored to Alameda Creek.