



2019 ANNUAL REPORT

CALIFORNIA FISH PASSAGE FORUM

The mission of the Fish Passage Forum is to protect and restore listed anadromous salmonid species, and other aquatic organisms, in California by promoting collaboration among public and private sectors for fish passage improvement projects and programs.

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Projects Funded in 2019

The Forum's conservation priorities and objectives are based on the goal of restoring and protecting healthy anadromous fish populations by restoring habitat connectivity. Remediation of fish passage barriers in California is complex, and the Forum works to find opportunities to achieve these goals by contributing to projects of all sizes and supporting the development of tools, science, and data to inform fish passage restoration efforts throughout the state.

2019 PROJECTS

In 2019, the Forum received level three NFHP funding for the first time in its history, and selected six projects that will address connectivity needs and habitat restoration for Coho and Chinook salmon, steelhead, Pacific Lamprey, and other aquatic species by improving access to at least 44 miles of habitat. In addition to removing and remediating barriers to fish passage, some of these projects also provide collaborative and outreach opportunities to key partners and stakeholders. Projects will build upon tools recently supported and developed by the Forum and strategically apply them as management tools for barrier assessments and the optimization of remediation strategies.

In 2019 the Forum provided funding support to the following projects: *Iron Horse Vineyards Dam Removal Project*, *Lamprey Passage at Rowdy Creek*, *M-1 Road Fish Passage Improvement Project*, *Seiad Creek Off-Channel Connection Project*, *Upper Noyo River – Skunk Train*, and *Lamprey Passage Design for Priority Obstacles in the Sacramento Basin*. These projects supported the development of designs, as well as the remediation or removal of barriers to fish passage in key watersheds across California. Additionally, monitoring, and education and outreach activities are also supported. The Forum's contribution to the Lamprey Passage Design for Priority Obstacles in the Sacramento Basin builds off of work previously conducted by USFWS members of the Forum's Science & Data Committee. This project was partially funded in FY19, and the Forum hopes to fully fund this project in FY20.

All of these projects also addressed anticipated impacts of climate change (increased/exacerbated flooding and limited cold water refugia), and will ultimately contribute to opening many miles of habitat for anadromous species. Learn more about each of the projects receiving FY19 funding from the Forum [here](#).

In September of 2019, the Forum released a project solicitation for 2020 NFHP funds.

Iron Horse Vineyards Dam Removal Project

Project Lead: Gold Ridge Resource Conservation District

Project Description: Located in western Sonoma County, Green Valley Creek is considered a vitally important anadromous salmonid stream in the Lower Russian River basin. The watershed has been identified by the California Department of Fish and Wildlife (CDFW) and National Marine Fisheries Service (NMFS) as core priority recovery habitat for both threatened steelhead trout (*Oncorhynchus mykiss*) and endangered Coho salmon (*Oncorhynchus kisutch*). The NOAA Coastal Multispecies Plan's Central California Coast Steelhead volume draft (October 2015) prioritizes the Green Valley Creek steelhead population as one of 28 essential independent populations targeted for attaining a low extinction risk, while the watershed is a focus of both CDFW's Coho recovery program and the Russian River Coho Salmon Captive Broodstock Program.

In 2013, the Gold Ridge RCD (GRRCD) and its partners, through funding from the State Coastal Conservancy and CDFW, finalized a management plan for the Green Valley Creek Watershed, focused on its potential to support salmonid populations through the restoration of watershed function. Fish passage for both adult and juveniles has been identified as a major hindrance to salmonid recovery. The access to quality spawning grounds for adults and the ability of juveniles to seek deep, cool water during summer low-flow conditions are key to the survival of the species. The removal of instream barriers in lower Green Valley Creek has been a priority to facilitate adult and juvenile salmonid passage through this critical migration corridor.

This project seeks to completely remove an obsolete flashboard dam at the Iron Horse Vineyards on lower Green Valley Creek, allowing for free passage of both adult and juvenile Coho and steelhead through the site, while performing additional assessment work in lower Green Valley to identify and characterize both physical and biotic barriers to fish passage. The Iron Horse dam has been identified in several historical CDFW stream surveys, and most recently championed for removal by local CDFW fisheries biologists.

While the dam removal received funding from CDFW's FRGP program, funding from the California Fish Passage Forum (Forum) will support several activities:

- Post-implementation monitoring of the site through 2020 beyond the CDFW grant term to ensure functionality of the erosion control measures and large wood structures;
- Landowner outreach and assessment work through lower Green Valley Creek to identify additional barriers, and corresponding updates to the PAD;
- Investigation of water quality conditions at and below Green Valley Creek's confluence with Atascadero Creek (the upper end of the lower Green Valley reach) where a wetland complex significantly expanded through recent sedimentation has been identified as a significant biotic barrier to outmigrating salmonids.

The low-gradient lower Atascadero is a wetland complex, which fisheries biologists believe serves as critical habitat for salmonids, providing both plentiful food sources and low-velocity off-channel highflow refugia for salmonids migrating through Green Valley Creek. However, relatively recent sediment deposition in lower Atascadero Creek above its confluence with Green Valley has significantly altered conditions in these wetlands, converting them from seasonal riparian/wetland complex to a stagnant perennial instream pond, which suffers from fatally low dissolved oxygen levels and hydrogen sulfide concentrations from organic matter decay.

Forum funding is focused on lower Green Valley's primary role as a migration corridor, and will be used to investigate the winter-spring water quality conditions through this reach. The water quality monitoring will include deploying sondes to measure depth, temperature, dissolved oxygen, pH and conductivity at 15 minute intervals in the marsh section of this wetland complex to characterize the water quality and fish passage conditions during adult in-migration and smolt out-migration in the winter and spring. This data will be compared against the existing PIT-tag antennas and out-migrant fish trap in lower Green Valley Creek. GRRCD will deploy one sonda in Atascadero wetlands and another below the sediment accumulation area to characterize water quality conditions on both sides of the potential migration barrier. Additionally, GRRCD will conduct storm series sampling of chemical oxygen demand (COD), biological oxygen demand, and hydrogen sulfide. Finally, GRRCD will continue to collect and evaluate sonda and water quality data from several locations in lower Green Valley Creek to better characterize the wetland's effects on downstream water quality. Project partners also include California Sea Grant Russian River Salmon and Steelhead Monitoring Program.

Lamprey Passage at Rowdy Creek

Project Lead: Tolowa Dee-ni' Nation

Project Description: This project will provide passage for Pacific Lamprey over a diversion barrier through the installation of California-style lamprey passage route (tube), provide video monitoring facilities to count and observe lamprey as they move through, and provide a viewing facility and outreach display at the Rowdy Creek tribal fish hatchery's public visitor's station. This project will open 11.4 miles of spawning and rearing habitat for Pacific Lamprey. The USFWS is also providing support as a partner on this project.

M-1 Road Fish Passage Improvement Project

Project Lead: Trout Unlimited

Project Description: This project intends to remove and replace one stream crossing along the California State Parks, Big River Unit, M-1 Road. The crossing, a corrugated metal culvert, is a partial barrier to spawning and rearing salmonids attempting to migrate into No-Name Gulch, a tributary to Big River. The project is located in a NOAA Core Recovery area for Central California Coast (CCC) Coho salmon, and No-Name Gulch is identified by NOAA as a stream that historically provided good habitat. Although the watershed is relatively small, it has ~0.8-acre freshwater marsh near the Big River confluence which may provide important rearing habitat to juvenile salmonids. The successful completion of this project will provide access to 1,100 feet (0.21 miles) of salmonid spawning and rearing habitat in the lower Big River basin.

Seiad Creek Off-Channel Connection Project

Project Lead: Mid Klamath Watershed Council

Project Description: This project seeks to ensure connection to three high value off-channel habitats along Seiad Creek. These three off-channel ponds are part of a larger project along Seiad Creek to increase the amount of available off-channel habitat for ESA threatened Coho salmon. Numerous studies of the Klamath Watershed Coho salmon populations point to off-channel rearing habitat, specifically winter habitat, as a limiting factor in Coho populations. The ponds targeted for this project are previously contracted ponds built by the Mid Klamath Watershed Council (MKWC) and the Karuk Tribal Fisheries Program. The Alexander and Stender Ponds were constructed in 2011 and the Durazo Ponds was built in 2014. These three habitats offer a total of 19,000 ft² of vital off-channel rearing habitat. With Seiad Creek containing one of the few stable Coho populations in the Mid Klamath subbasin, ensuring these important slow water habitats are available is crucial to survival of the population.

Upper Noyo River – Skunk Train

Project Lead: Trout Unlimited

Project Description: The objective of this project is to restore access to 1.15 miles of steelhead and salmon habitat upstream of the upper Noyo River railway crossing and to reduce the risk of sediment delivery from fill failure while providing a safe railway. This will be accomplished by replacing the current barrier with a new structure that meets fish passage requirements defined by CDFW and NMFS (based on current design standards), and can convey a 100-yr flood event with associated sediment and large wood.

With the Forum's support, this project is fully funded, but may need additional funds for environmental compliance (NSO or FYLF surveys). Project partners include WCB, Michael Love & Associates, AECOM, NOAA, and the Skunk Train.

Lamprey Passage Design for Priority Obstacles in the Sacramento Basin

Project Lead: Western Fishes

Project Description: Obstructed passage is the primary threat to anadromous Pacific Lamprey in California, as determined by the Pacific Lamprey Conservation Initiative (PLCI) threat assessment and regional implementation plans. Recent projects supported by the California Fish Passage Forum have included:

- Revision of the First Pass Barrier Assessment to include Pacific Lamprey needs
- Development of Historical and Current Distribution GIS layer for the CDFW Biogeographic Information and Observation System (BIOS)

- Development of and recommendations for Pacific Lamprey - specific fields in the Passage Assessment Database (PAD).

The proposed lamprey passage design project builds on these recent products, strategically applying them as management tools for barrier assessment and optimization of remediation strategies for Pacific Lamprey, using 3rd order and higher streams in the Sacramento Basin (upstream of Delta & below large impassable dams) as a test case. This project will result in five passage project conceptual designs for top priority barriers and will pave the way to help reconnect Pacific Lamprey with their historical habitats in California.

Science and Data

JUVENILE FISH PASSAGE CRITERIA ASSESMENT INFORMS NMFS GUIDELINES

In September 2019, the National Marine Fisheries Service (NMFS), Southwest Region reissued the *Guidelines for Salmonid Passage at Stream Crossings*, originally issued September 2001. While there has been extensive research done on the leaping abilities of adult salmonids, there is little information on the leaping abilities of juveniles. This lack of understanding has resulted in inconsistent state and federal guidelines regarding jump heights at juvenile fish passage facilities in California. To better inform, and increase operational and regulatory efficiency at dams and diversions, in 2016 the Forum used NFHP funds to support the [Juvenile Fish Passage Criteria Assessment Project](#). The findings of this project informed some of the updates in the [2019 Addendum of the NMFS Guidelines](#), which included two adjustments to the design criteria, and recommendations for intended application for projects in California. These changes have helped streamline federal guidelines regarding jump heights at juvenile fish passage facilities in California, which will save taxpayers and practitioners millions of dollars in the future.

FIRST PASS INCIDENTAL REPORTING FORM

The Forum conducted its annual review and update of the [Fish Passage Incidental Report](#) designed to be used for rapid barrier inventorying and data collection. The Forum also developed a beta mobile app of this form that would enable field practitioners to update the form in the field without needing the printed paper version. Members of the Forum's Science & Data Committee have been testing a beta mobile app version of this form, and hope to release it publicly in 2020.

FISHPASS – A FISH PASSAGE OPTIMIZATION TOOL

In 2019, the Forum continued to work with Ecotrust to refine the user-interface and beta test FISHPass internally, with Forum partners, and fellow fish habitat partnerships (FHPs) that had also developed barrier prioritization tools (Southeast Aquatic Resource Partnership). Other FHPs were interested in finding ways to develop similar tools for their region (Midwest Glacial Lakes Partnership). The Forum previewed FISHPass during the poster session at the 37th Annual Salmon Restoration Conference in Santa Rosa, California in April 2019.

The Forum also continued to refine the input data (including cost data, PAD updates, baseline fish habitat, and barrier tracing) for FISHPass. The Science and Data Committee formed the FISHPass Working Group to focus explicitly on finalizing the input data and user manual for FISHPass in preparation for its Phase 1 release which included a presentation at the American Fisheries Society national meeting September 30-October 3, 2019 in Reno, NV. The Forum also hosted an [introductory FISHPass Webinar](#) on October 24, 2019 and posted the recording on the Forum's website.

While not included in the Phase 1 rollout of FISHPass, habitat quality was recognized early on in the development of the tool as an important component. The Forum previously supported the

development of important resources (e.g. the NorWeST Stream Temperature Database in 2015) needed to help develop this input. In 2019 Forum members from USFWS and the Pacific States Marine Fisheries Commission (PSMFC) identified possible approaches and datasets aimed at incorporating a habitat quality layer into Phase 2 of the tool.

BARRIERS TO TIDAL CONNECTIVITY

In 2019, the Forum received Multi-State Conservation Grant (MSCG) program funding to implement the Barriers to Tidal Connectivity project in collaboration with the Pacific Marine and Estuarine Fish Habitat Partnership (PMEP), and the Pacific Lamprey Conservation Initiative (PLCI). This project:

- Identifies documented restrictions to tidal connectivity in U.S. West Coast estuaries;
- Provides data mining to build data management relationships across the region and compiles a list of data sources that identify locations of passage/connectivity sites;
- Conducts a data gap analysis by identifying locations where data and information are lacking;
- Explores spatial analysis methods to improve identification of inland areas behind identified barriers, structures and passage restrictions;
- Hosts a summit to identify gaps and technical (science and data) information needed to address ways to reduce passage restrictions as well as share tools and products developed.

The Forum coordinator worked with the coordinators of the two other FHPs to establish an inter-FHP working group to help guide this project, consisting of representatives from all three partnerships. Works to compile existing data on tidal connectivity issues also began by PSMFC and USFWS. This project will continue into 2020.

PASSAGE ASSESSMENT DATABASE (PAD)

The Science and Data Committee continued to supported quality control and updating of data included in the PAD (which is also an important input to *FISHPass*). In 2019 this included completing a data gap analysis to determine future assessment needs, integrating lamprey assessment database changes and creating a comprehensive assessment form, as well as a review of various regional recovery plans for barriers that may be missing or misrepresented in the PAD. The information received was included in updates to the PAD.

DATA REPORTING

The Forum coordinated with the NFHP Science and Data Committee to provide relevant datasets to NFHP, including habitat assessments, completed habitat improvement projects, and other datasets as requested.

The Forum's strategic framework was updated to incorporate the latest data and information from PAD, including the current map of barriers to anadromous fish in California.

Finances

The Forum provided 2019 NFHP and US Fish and Wildlife funds to support the following projects:

Iron Horse Vineyards Dam Removal Project - \$20,039

Lamprey Passage at Rowdy Creek - \$19,500 (directly through USFWS)

M-1 Road Fish Passage Improvement Project - \$81,857

Seiad Creek Off-Channel Connection Project - \$28,856

Upper Noyo – River Skunk Train - \$15,000

Lamprey Passage Design for Priority Obstacles in Sacramento Basin - \$34,853 (directly through USFWS)

Forum Coordination - \$60,000

Outreach and Education

10 WATERS TO WATCH

The Forum nominated Upper Green Valley Creek was selected to [NFHP's 2019 10 Waters to Watch](#), and worked with NFHP, as well as Forum members USFWS Southwest Pacific Region and CalTrout, to amplify the announcement. This continued the Forum's strong tradition of having projects selected to this annual list. Of the 74 projects selected as Waters to Watch over the years, eight have been nominated by the Forum.

The Upper Green Valley Creek Fish Passage Project, led by the Gold Ridge Resource Conservation District (GRRCD), and funded in part by the Forum, restored fish passage and stabilized the grade through a 600-ft stream reach of Upper Green Valley Creek (a tributary to the Russian River), resulting in passage for juvenile and adult Coho salmon to an additional 4,810 ft of spawning and rearing habitat.

Project partners included GRRCD, Stetson Engineers, McCullough Construction, Point Blue Conservation Science with funding from California Department of Fish & Wildlife's Fisheries Restoration Grant Program (FRGP) and the California Fish Passage Forum.

NEW FORUM FACTSHEET & YOUTH FOCUSED OUTREACH TOOLS

The Forum created a [new factsheet](#) in 2019 highlighting the goals, mission, and accomplishments of the partnership to use at conferences, workshops, and other events as an outreach tool.

Additionally, the Forum's Education & Outreach Committee supported the development of outreach materials by USFWS specifically geared towards youth, that were first used at the annual Return of Salmon Festival at the Coleman National Fish Hatchery.

SALMONID RESTORATION FEDERATION 2019 WORKSHOP

The Forum presented a poster and held a preview of *FISHPass* at the 2019 Salmon Restoration Federation Conference April 23-26, 2019 in Santa Rosa, California where attendees learned about the *FISHPass* tool for optimizing the selection of fish passage barriers for remediation.

FORUM WEBSITE

In addition to regular maintenance of the Forum's public website, the Forum placed an emphasis on internal communications and outreach in 2019 to help sustain and enhance collaboration amongst Forum members. A new intranet site was developed to serve as a document repository and sharing space accessible to all Forum Steering Committee members.

FISH HABITAT PARTNERSHIPS

The Forum coordinator participated in NFHP bi-monthly conference calls, staffed the NFHP booth and represented the Forum at the North American attended the NFHP Board meetings virtually throughout the year.

FORUM MEETINGS & FIELD TOURS

The Forum held two in-person Steering Committee meetings in 2019 – in Sacramento and San Diego. In conjunction with its meeting in San Diego, the Forum hosted a full-day field tour of fish passage projects and vulnerable habitat in Southern California. This tour was organized and led by Forum signatory CalTrout, and provided an important educational and networking opportunity for Forum members and partners attending the meeting.

ADMINISTRATIVE DOCUMENTS

In 2019, the Forum conducted an annual review of the strategic framework, and updated its bylaws to allow for representatives from non-Forum signatory agencies to participate in Forum committees.