

Pacific Coast Fish, Wildlife & Wetlands Restoration Association



NEWSLETTER 2022 SUMMER

PACIFIC COAST FISH, WILDLIFE AND WETLANDS RESTORATION ASSOCIATION (PCFWWRA) is a 501(c)(3) non-profit organization with the mission to restore, enhance, and protect the fish, wildlife and wetland resources of the Pacific coast region. In collaboration with multiple partners, we have restored over 150 miles and prescribed treatments for 500 square miles of salmonid habitat since 1991. Additionally, since 2016, we have been providing botanical and Geographic Information System (GIS) services under the direction of our Plant Ecologist, Annie Eicher. Our botanical services include vegetation inventory and mapping, sensitive plant surveys, invasive species management, wetland delineation, California Rapid Assessment Method (CRAM) wetland assessment, and habitat restoration monitoring.

California's Chinook, coho, and steelhead were once abundant but have been experiencing a rapid decline due to habitat degradation and a changing climate. PCFWWRA aims to address these challenges and restore these fish to their native homes. In this edition of our newsletter, we highlight our recently completed, current, and future projects.

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Lindsay Creek Coho Habitat Restoration Design Project Completed



Bridge over Lindsay Creek

PCFWWRA is proud to announce the completion of Lindsay Creek Instream Coho Habitat Improvement Design Project, the purpose of which was to develop 100% engineered designs to improve habitat conditions for threatened salmon and trout in Lindsay Creek, a significant tributary to Mad River in Humboldt County. Specifically, subcontractor Pacific Watershed Associates (PWA) performed site characterizations and developed designs to increase side channel habitat, install large wood habitat structures, decrease roadway water inundation, reduce flooding threats to infrastructure, and restore riparian vegetation. The designs were vetted by a stakeholder and technical advisory committee, consisting of landowners, and staff of PCFWWRA, California Department of Fish and Wildlife (CDFW), and NOAA Restoration Center. Funding for the project was provided by the CDFW's Fisheries Restoration Grant Program (FRGP).

Between the early 1940s and 1980s, instream habitat within Lindsay Creek became significantly degraded primarily and as a result of unrestricted logging and land conversion, road and railroad construction practices, and other floodplain development. Many local streams were filled with logging debris and sediment in flood events following the first and second cycles of logging, the remnants of which can still be observed today. In the 1970s these watersheds were further subjected to stream clearing due to removal of significant volumes of large woody debris, which resulted in simplified channel geomorphology, reduction of stream sinuosity, and further channel incision.



PWA instream gage January 8, 2021.

Pacific Watershed Associates (PWA) surveyed and analyzed existing hydrological, biological, geological, and topographical conditions within the project area. PWA engineers and scientists, with input and oversight from the stakeholder and technical advisory committee, identified the constraints and design options available to improve instream salmonid rearing and spawning habitat while reducing threats to infrastructure. They determined the beneficial location and amount of instream wood habitat structures, and how to restore channel complexity and sinuosity, increase salmonid

accessibility to existing off-channel floodplain rearing habitat, and increase juvenile salmonid access to low flow areas during high flow events.

The 100% design plans produced by this iterative, collaborative design process are ready for implementation and have been submitted as a proposal for funding consideration to CDFW's Fisheries Restoration Grant Program.



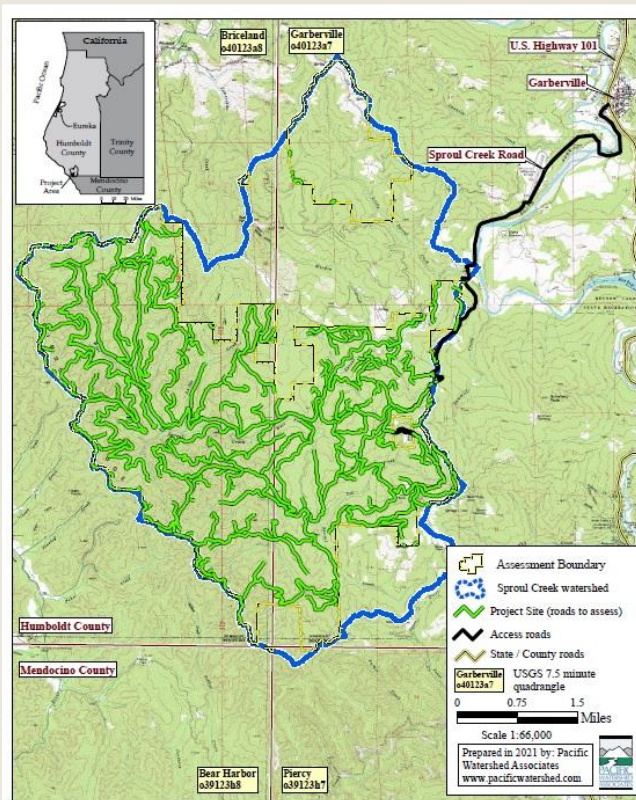
Image of typical stream reach in the project area, with suboptimal salmonid habitat due to an artificially simplified and straightened channel, devoid of large woody debris.

Recently Awarded Habitat Restoration and Assessment Projects

The Ryan Creek Off-Channel Coho Habitat Implementation Project was awarded funding by FRGP this spring. It is on a tributary to Humboldt Bay. When constructed, this project will improve connectivity to, and enhance an existing 0.5 acre perennial pond on a tributary to Ryan Creek and construct a large off-channel alcove, thereby providing approximately 40,000 square feet of non-natal winter high-flow refugia and rearing habitat for coho salmon. We will also construct approximately 18 instream wood habitat structures along 1,600 feet of main-stem Ryan Creek with the support of the landowner, Green Diamond Resource Company.



Existing off-channel pond to be enhanced for salmon access and rearing in the Ryan Creek watershed.



Topographic map of the Sproul Creek erosion and fish barrier assessment and planning area

hydrologic connection, and fish crossing barriers in the Sproul Creek watershed; and 2) to develop cost-effective treatment prescriptions, prepare cost estimates, and prioritize proposed treatments to eliminate, minimize or mitigate these pollutant sources and fish barriers within the watershed's stream system. PWA is the geologic and engineering subcontractor for both new projects.

The Sproul Creek Road Erosion and Fish Passage Barrier Assessment and Implementation Planning Project has been awarded funding by CDFW's North Coast Recovery Summer 2021 Solicitation. This grant source is supported by The North Coast Salmon Project / Prop 1 Cutting the Green Tape Initiative. Our project will inventory and assess current and potential erosion sources and road crossing fish barriers along approximately 117 miles of roads on the property of Green Diamond Resource Company and Lost Coast Forestlands. The 15,348-acre Sproul Creek watershed drains into the South Fork Eel River approximately 38 miles upstream from the South Fork Eel River/Mainstem Eel River confluence, in Humboldt County, California. Sproul Creek is one of the highest ranked tributaries in the Eel River under the multi-agency Salmonid Habitat Restoration Priority Program (SHaRP). The goals of the project are twofold: 1) to identify, inventory and quantify existing and future sources of road-related sediment delivery, road-stream

Projects in Progress

Reconnecting a Tributary of Lower Little River

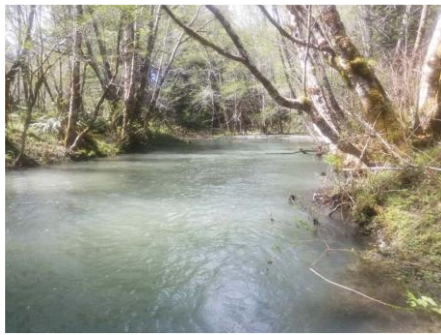
We are currently pursuing permitting for the Lower Little River Off-Channel Coho Habitat Improvement Project and expect to begin implementation in summer of 2023 with supervision and expertise of the geologic and engineering subcontractor PWA. This exciting project, located southeast of Moonstone Beach, will significantly improve habitat for all four native salmonids and other species by increasing the area of high value connected floodplain and estuary through the removal of



Aerial view of the Little River project area

of an existing tide gate and the construction of off-channel pond, channel, and riparian habitat. It will restore approximately 26 acres of floodplain, estuarine, and off-channel habitat, as well as reduce pasture flooding. Specifically, it will restore about 1,500 ft of perennial channel (currently configured as a linear ditch) that drains directly to the left bank of Little River estuary and in the process will create approximately 9 acres of year-round off-channel rearing habitat for coho salmon. In addition, about 0.28 miles of riparian habitat will be restored through comprehensive revegetation. Finally, fish passage will be restored to the area by completely removing the tide gate at the confluence with lower Little River and replacing it with an open stream channel mouth. This project is funded by FRGP and located on private ranchlands.

Planning and Design to Improve Salmonid Habitat in the Little River Basin



View from within the assessment area of Little River, note that the channel and banks are simplified and devoid of wood structures.

Little River has just over ten miles of the mainstem and fifteen miles of tributary habitat in this underappreciated stream system that is heavily utilized by all four of California's native anadromous salmonids: Chinook salmon, coho salmon, steelhead, and coastal cutthroat trout. Unfortunately, as in other watersheds in Northern California, the quality of salmonid habitat in Little River suffers from the legacy of early (pre-forest practice rules) logging and road building followed by the widespread removal of Large Woody Debris (LWD) from the channels by public agencies in the 1970's. LWD frequency is one of the primary factors classified as "poor" in NOAA's Coastal Multispecies Recovery Plan (Volume II, Northern California Steelhead) for the Little River watershed for

most channel width and conservation target categories. In the 2014 Southern Oregon and Northern California Coast Coho Salmon Recovery Plan, one of the highest priority recovery action items identified was to increase large woody debris, boulders, and other instream structures. To help resolve these issues, we are continuing to work on the Little River Basin-wide Instream and Riparian Habitat Improvement Design Project, from 2020 to 2024. Funded by FRGP, this project involves a field investigation of 26,000 acres to identify and prioritize promising locations for the future creation of instream LWD habitat features, floodplain connection to off-channel habitats, and future LWD recruitment from the riparian zone. The top 10 highest priority stream reaches have been identified through the field investigation and PWA is currently developing 100% design plans for these. Not to be waiting for the final report, PCFWWRA submitted a wood loading implementation proposal based on this project to FRGP's 2022 Solicitation.

Enhancing Salmonid Habitat by Adding Log Habitat Structures in Cañon Creek This Summer

Speaking of LWD, Cañon Creek, within the Mad River watershed, has also been determined to be lacking in it. Insufficient large wood densities lead to an excess of homogenous stream habitats that lack sufficient complexity and refuge for salmonids. This summer, we seek to help remedy that and accelerate fisheries recovery by implementing the Cañon Creek Instream Habitat Improvement Project. It will use a combination of heavy equipment and hand labor to install up to 58 large wood structures with approximately 221 pieces of wood (including many whole trees in the 24” to 36” diameter class) along 2.25 miles of stream. This project will increase habitat complexity and restore geomorphic function in the project area by increasing pool frequency and depth, increasing velocity and temperature refugia, and sorting instream suspended sediments. PWA will oversee the project, which will be conducted on GDRC lands and funded by FRGP.



Current stream conditions at a site where LWD will be placed in Cañon Creek are typical of the rest of the project area, lacking in complexity and habitat structures.

Elk River Estuary Enhancement Project



Seacoast angelica on the south bank of the Elk River (July, 2019)

Restoration work at the Elk River Estuary Enhancement Project broke ground on June 15. The City of Eureka is restoring the 114-acre site located near the mouth of Elk River in Eureka to historical tidal marsh conditions. Work includes removal of tidegates and levees to increase tidal prism, eradication of an invasive salt marsh cordgrass (*Spartina densiflora*), and construction of a one-mile extension of the California Coastal Trail. We have been assisting the City since 2019 during design and permitting phases and we are continuing to provide support through construction. We prepared a rare plant monitoring and mitigation plan, a landscape plan, and a non-tidal invasive plant species control plan. We conducted baseline vegetation monitoring and we will monitor post-restoration vegetation conditions for five years.

To learn more about our projects or organization, or to contact us, visit www.pcfwwra.org by clicking below.

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PCFWWRA receives public agency funding for the bulk of the direct costs associated with design and implementation projects. However this funding does not cover all the actual costs associated with delivering habitat restoration projects as a nonprofit organization, such as the costs of running an office, maintaining liability insurance and even vehicle expenses. If you wish to securely donate to PCFWWRA in meeting this yearly challenge, go to <http://www.pcfwwra.org/donate> or click below.

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