BUREAU OF RECLAMATION

FY 2024 WaterSMART Aquatic Ecosystem Restoration Projects

California

California Department of Water Resources, Nigiri Managed Floodplain Habitat Project
Reclamation Funding: $2,000,000

The California Department of Water Resources will study and design a restoration project to benefit habitat in the Sacramento Valley of northern Yolo County. The historic footprint of the Colusa Basin Drain of the Sacramento River has been diminished by agricultural development, leaving rivers disconnected from their full floodplain extent, and resulting in a loss of floodplain habitat, including critical spawning habitat for the Central Valley Chinook salmon. The department will conduct hydrodynamic modeling, data collection, and surveying to support the study and preliminary design of a restoration project. Ultimately, the restoration project will include perimeter berms and water control structures, allowing the area to be inundated by flows from the Colusa Basin Drain or the Sacramento River via the Fremont Weir, the Fremont Weir Fish Ladder, or the Yolo Bypass Salmonid Habitat Restoration and Fish Passage Project. The restored inundation flows will provide high-quality managed floodplain habitat, rich in food resources that support the full-lifecycle and survival of all runs of Chinook salmon and steelhead and allow for adaptive management during periods of prolonged drought.

California Trout Corp., Harvey Diversion Fish Passage Remediation Project
Reclamation Funding: $12,000,000

California Trout, in collaboration with the Harvey Diversion Joint Power Administration, will restore connectivity, re-establish stream function, and modernize failing infrastructure at the Harvey Diversion, located on the Santa Paula Creek in the southwestern corner of Ventura County. The Harvey Diversion is a 35-foot diversion dam that functions as a complete barrier for the upstream migration of native Southern steelhead and rainbow trout. The project involves the partial removal of the Harvey Diversion and intensive streambed stabilization through the installation of 25 grade control structures. These components will open access to 12-miles of optimal upstream habitat, restore channel stability, and reduce sediment export. Removal of the Harvey Diversion was identified as a critical recovery action for Southern steelhead in the National Marine Fisheries Service's 2012 Recovery Plan.

California Department of Fish and Wildlife, Salmon Conservation and Research Facility Water Supply Line
Reclamation Funding: $500,000
California Department of Fish and Wildlife will undertake an exploratory investigation to identify and design a solution to alleviate hatchery water supply limitations at the new San Joaquin Fish Hatchery and Salmon Conservation and Research Facility. The facility, located on the San Joaquin River approximately 1-mile downstream from Friant Dam, requires 55 cfs to raise and release spring-run Chinook salmon in support of the reintroduction efforts by the San Joaquin River Restoration Program. The Department has learned that they will not be able to receive the full amount of water needed at the hatchery, which had not been identified prior to beginning construction. The state has made significant investment into this over $44M facility that is essential for developing salmon stock and returning spring-run Chinook salmon to the San Joaquin River.

City of Sacramento, Programmatic Evaluation and Design of Juvenile Salmonid Rearing Habitat Restoration Sites on the American River Reclamation Funding: $650,000
The City of Sacramento will carry out a programmatic evaluation and produce restoration site designs for 30-acres of rearing habitat for juvenile salmonids on a 17-mile stretch of the lower American River in Sacramento. This reach of the American River has been impaired by historic river modifications for urban and industrial development, resulting in lowered streambed elevations, reduced fish spawning habitat, fish passage obstruction, and overall habitat degradation. The City plans to create optimal salmonid rearing habitat and restore natural riparian conditions by conducting a baseline assessment of the area and carrying-out wetland delineation, to inform the development of a holistic 60% design package for 30 acres of high-quality habitat across 10 sites. Potential projects include creating a rearing and migratory corridor, lowering the floodplain, and establishing native plant species. The project design will take an ecosystems-approach to restoring habitat across the river corridor, and plans will be driven by stakeholder and data-identified priorities developed in a 2020 Salmonid Rearing Concept Report.

Dry Creek Rancheria Band of Pomo Indians, Rancheria Creek Flow Enhancement and Restoration Project
Reclamation Funding: $3,243,632
The Dry Creek Rancheria Band of Pomo Indians will restore stream habitat to support endangered and threatened salmonids around the confluence of Rancheria Creek and the Russian River in Sonoma County. Rancheria Creek, once a perennial tributary providing salmon for the tribe, has become intermittent due to spring diversions and sedimentation. This project will help mitigate the impacts of agricultural land use on the vineyard reach of Rancheria Creek and open additional habitat by enabling fish passage where current barriers exist. The project

will include planting of a native riparian buffer, installation of boulder step-pool weirs to reestablish channel grade, replacement of two culverts that function as full fish passage barriers, and expansion of an existing stormwater detention pond to remove accumulated sediment and expand storage capacity. These actions will improve degraded salmonid habitat and eliminate fish passage barriers for ESA-listed Steelhead and Chinook salmon. The project will enhance resiliency of the river system by bolstering flow and insulating against the impacts of prolonged drought. The project aligns with the Tribe's Dry Creek Rancheria Climate Adaptation Plan.

Quartz Valley Indian Reservation, French Creek Restoration Design
Reclamation Funding: $3,500,000
The Quartz Valley Indian Reservation, in partnership with the Scott River Watershed Council, will complete design and permitting for the restoration of approximately 2.2 miles of French Creek and 65 acres of floodplain to create a dynamic, naturally sustaining Coho salmon spawning and rearing refuge. The design will comprise the relocation of incised stream reaches, restoring the stream channel, adding fish habitat, and revegetating the riparian corridor. The project includes the development of a 100% design set and the completion of environmental compliance for two properties on French Creek, a critically important reach for ESA-listed Coho salmon spawning and rearing.

United Water Conservation District, Freeman Diversion Fish Passage Rehabilitation Project
Reclamation Funding: $20,000,000
United Water Conservation District will construct new fish passage and monitoring facilities at the Freeman Diversion on the lower Santa Clara River, in southwestern Ventura County. The current fish passage structure is not operational at most flow levels and impedes up-and-down-stream passage of Pacific Lamprey and ESA-listed Southern California Steelhead Trout. The project will include the construction of a 480-foot long hardened ramp fish passage facility, that will replace a section of the existing diversion structure and function as a high gradient channel. The installation will also include a rock-lined ramp designed to pass sediment and debris while enabling fish passage at river discharges between 45 and 6,000 cubic feet per second. Once installed, the modification will allow for simultaneous water diversion and fish passage, enabling salmonids access to high-quality upstream watersheds and allowing for monitoring, sorting, and removal of invasive fish species. The Project was prioritized and designed in coordination with the National Marine Fisheries Service and the California Department of Fish and Wildlife.

Yurok Tribe, Weaver Creek Habitat Restoration Implementation
Reclamation Funding: $3,016,943
The Yurok Tribe Fisheries Department will create instream habitat and new floodplain areas along a 1-mile section of Weaver Creek, a tributary of the Trinity River in Weaverville. Weaver Creek has been identified by the State of California and National Marine Fisheries Service recovery plans as providing critical habitat for the ESA-listed Coho salmon. The project will include the construction of numerous habitat features including over 5 new acres of floodplain habitat and nearly one acre of constructed riffle and incorporate beneficial channel fill and low flow channel modification. The project elements will ensure a single threaded wet channel is present during summertime baseflow conditions, enabling water to remain instream instead of evaporating or retreating subsurface, and providing a better chance of salmonid survival. The project will also improve riparian habitat, control invasive plant species, and reduce fine sedimentation from past urbanization and land use changes.

Idaho

The Henry's Fork Foundation Inc., Developing Infrastructure to Reduce Temperature and Turbidity in the Henrys Fork Snake River Watershed
Reclamation Funding: $1,073,524
The Henry's Fork Foundation will partner with Idaho Department of Fish and Game to develop a *Water Quality Basin Plan* across multiple subbasins of the Henrys Fork watershed in Idaho and Wyoming. Pervasive drought and climate change, coupled with rapidly aging infrastructure and a growing population, have increased average water temperatures, reduced spring-fed thermal refugia, and caused impairments including high dissolved oxygen concentrations and harmful algae blooms within the Island Park Reservoir and the Henry's Fork River. This overall poor water quality has harmed local fish and wildlife populations, aquatic macroinvertebrate community health, and the recreational fishing experience. The *Water Quality Basin Plan* will assess a suite of nature- and evidence-based project designs to restore water quality; build resilience to drought, climate change, aging infrastructure, and human population growth; and thereby protect regional fish, wildlife, and aquatic habitat and associated economic resources. The plan will inform the development of 60% project designs that address aging facilities with new or retrofit infrastructure in Island Park Reservoir, and restore degraded tributaries with watershed-scale, nature-based stream, wetland, and aquifer restoration projects.

BUREAU OF RECLAMATION

Nevada

Southern Nevada Water Authority, Design and Construction of Weir 3.5 in Lower Las Vegas Wash

Reclamation Funding: $20,000,000

The Southern Nevada Water Authority will design and construct an erosion control structure and create in-stream habitat in the Lower Las Vegas Wash within Lake Mead National Recreation Area in Clark County, Nevada. Serving as the crucial final link in the Valley's watershed, the Wash channels more than 200 million gallons of highly treated effluent, urban runoff, and shallow groundwater to Lake Mead each day, and carries stormwater to the lake during rain events. Wetlands in the Wash help to filter impurities from these flows and provide important animal habitat in the desert climate of Southern Nevada. Implementation of the structures will reduce sediment load, expand flow into adjacent wetlands, and create pool habitat. Additionally, the project will involve the removal of invasive tamarisk and revegetation with native shrubs, trees, and grasses. The project will improve habitat conditions for wildlife, including the federally endangered southwestern willow flycatcher and Yuma Ridgway's rail, and the threatened, yellow-billed cuckoo, and improve spawning habitat for the razorback sucker.

New Mexico

Pueblo of Nambe, Nambe Reservoir Sediment and Post-Wildfire Contamination Removal, Reduction and Watershed Restoration Project

Reclamation Funding: $1,030,000

The Pueblo of Nambe will complete planning and design activities for the restoration of the Rio Nambe and Nambe Reservoir that were impacted by wildfire in 2022. Restoration components include the removal and disposal of sediment and large woody debris in the reservoir delta, upstream river channel and existing upstream sediment traps; increasing the capacity of the existing sediment traps or constructing new sediment traps along the Rio Nambe; removal and disposal of dead and dying trees and vegetation in the delta area and along the Rio Nambe upstream of the reservoir; and the development of a revegetation plan for native species at key locations in the watershed to stabilize soils and hasten post-wildfire recovery. The project also includes the installation of aeration devices in the reservoir and monitoring the dissolved oxygen levels in the water. Improved water quality in the river and reservoir aquatic ecosystems will benefit the local aquatic life, reduce and/or prevent future fish kills, provide a cleaner and safer water source for the local wildlife, benefit the cultural, irrigation, and recreational uses by the Pueblo, as well as downstream water bodies and water users.

Pueblo of San Felipe, Bosque & Riverine Restoration Planning
Reclamation Funding: $411,638
The Pueblo of San Felipe will develop a comprehensive restoration plan for the Rio Grande and adjacent deciduous riparian forest called the bosque located within the Pueblo of San Felipe's boundaries. The bosque and riverine environment is an integral part of the Pueblo's cultural traditions and is relied upon ceremonially for harvesting of native plants with medicinal and cultural uses, and as a foundation for traditional practices. The river is a living body of vital cultural importance to the Pueblo and the bosque is a critical resource in preserving the indigenous knowledge, native subsistence and cultural traditions for the Tribe. The project includes scoping activities to identify restoration goals, locate existing resources, and identify critical cultural and historic resources, the development of a GIS database for the project area, floodplain and habitat mapping, hydraulic modeling, the development of conceptual restoration projects, and an implementation plan. The plan will also include an analysis of the environmental compliance required for implementation. The project will improve water quality, floodplain connectivity, and wildlife habitat for the Pueblo floodplain associated with approximately 10 river miles of the Rio Grande.

Oregon

Lake County Umbrella Watershed Council, Upper Chewaucan Watershed Restoration Project
Reclamation Funding: $623,526
The Lake County Umbrella Watershed Council will develop restoration project designs to benefit the native Chewaucan redband trout across 13 tributaries of the Upper Chewaucan River, near the town of Paisley. Ecological processes in the Chewaucan watershed have been harmed by persistent drought, historic grazing practices, road and irrigation infrastructure, and catastrophic fires, which have burned over sixty percent of the watershed since 2018. The endemic Chewaucan redband trout has been especially devastated by these challenges. Due to the presence of barriers, they are excluded from seventy one percent of their historic range in the Northern Great Basin and Columbia Plateau. To address these concerns and open additional cold-water habitat to the trout, the Council will complete design and engineering for actions to replace fish passage barrier culverts, modify irrigation diversions for fish passage, increase aquatic and riparian habitat complexity, enhance rangeland, and restore burned uplands. Through this multi-tiered approach, the Council will accelerate aquatic habitat recovery from recent fires and increase redband trout population resilience.

The Freshwater Trust, Middle Bear Creek Habitat and Infrastructure Enhancement Project

Reclamation Funding: $622,001

The Freshwater Trust will complete the design and engineering of a project to restore aquatic habitat along a 2.5 mile high-priority reach of the Bear Creek, along the Bear Creek Greenway trail, near the city of Phoenix, Oregon. The Bear Creek watershed supports ESA-listed salmonids, but the project location has been degraded through a combination of urbanization, a severe wildfire in 2020, increased water scarcity, and pressure from invasive weeds. This project will study and design a holistic combination of ecological enhancement treatments to reconnect floodplain, improve fish passage, improve cold water thermal refugia, while protecting and maintaining critical water delivery infrastructure. Together, these actions will contribute to restoring high-functioning, resilient habitat for native salmon and steelhead populations, while also improving water delivery infrastructure for 1,600 agricultural uses. The project will support community post-fire recovery in accordance with local plans, and benefit area residents by enhancing recreational opportunity and improving water quality.

The Oregon Department of Fish and Wildlife, Keno Dam Fish Passage Project

Reclamation Funding: $4,500,000

The Oregon Department of Fish and Wildlife will construct fish passage improvements to the Keno Dam, located on the Klamath River. The Keno Dam will be a major impediment to fish passage on the Klamath River following removal of the lower 4 dams. The fish ladder at Keno Dam was constructed in 1968, and no upgrades have been made since its construction. In addition, the fish ladder was not designed to meet multiple species passage, including ESA-listed salmon and suckers. Oregon Department of Fish and Wildlife and Reclamation have convened a multi-agency and stakeholder working group to assess biological investigations and evaluations and have developed a prioritized list of improvements and upgrades to provide fish passage for several species.

The Oregon Department of Fish and Wildlife, Keno Impoundment Fish Screens

Reclamation Funding: $7,000,000

The Oregon Department of Wildlife will study, design, manufacture, and install fish screens at unscreened diversion points along the Klamath River for the protection of ESA-listed species. The removal of the lower four dams will enable anadromous fish to occupy historic Klamath River habitats, however this area has numerous unscreened Klamath Project diversions. The Department and Reclamation have convened a multi-agency and stakeholder working group to assess biological investigations and evaluations to prioritize and select the best screening alternatives for each site. The screens will prevent juvenile and adult fish from entering the canals and will be designed to protect ESA-listed salmon and suckers. The Department will finalize designs and complete environmental compliance for 5 fish screens currently in the planning phase, construct/install the fish screens and monitor their effectiveness, finalize

negotiations and designs for the next set of high priority fish screens, and evaluate fish protection devices for the larger diversions with complex screening issues.

Washington

Chelan County Natural Resource Department, Chiwawa Instream Complexity and Floodplain Reconnection Design Project

Reclamation Funding: $806,511

The Chelan County Natural Resources Department, in partnership with the Yakama Nation, will complete designs for a floodplain restoration project on the lower 13-miles of the Chiwawa River and the lower 0.2 miles of Big Meadow Creek, in Chelan County. The lower Chiwawa project area is afflicted by low baseflows, homogeneous, plane-bed habitat with limited large wood, and high stream temperatures. The area was identified in the Upper Columbia Salmon Recovery Plan as a Tier 1 restoration priority for ESA-listed species recovery. The project is a multi-phase, collaborative, and data driven effort to identify specific solutions that address these limiting factors, restore habitat and support ESA-listed persistence in this critical Wenatchee Basin stronghold. The project will advance existing conceptual designs to 60% for seven discrete project areas, targeting the root causes of limited baseflows by increasing floodplain connection and storage potential. Design plans for the project area include process-based restoration techniques such as wood loading and side-channel creation, specifically chosen to reform pool-riffle habitat, trigger lateral channel movement, and result in substantial increases in habitat diversity and sub-surface water storage to support baseflows, wetlands, and riparian habitat.

Yakima County, Cowiche Creek Confluence, Phase 2

Reclamation Funding: $1,002,149

Yakima County, in collaboration with the City of Yakima and the Washington State Department of Transportation, will complete the study and design of a flood reduction and floodplain restoration project near the confluence of Naches River and Cowiche Creek, located near the western limits of the City of Yakima. The Cowiche Creek confluence is debilitated by recurring flooding, and the once-productive floodplain no longer provides optimal spawning habitat for native populations of Steelhead trout and Coho salmon. The County aims to address these floodplain issues before the area becomes further urbanized and constrained by infrastructure. The County will complete the 60% design of multiple project elements, including designs to replace an undersized bridge, remove obsolete irrigation infrastructure, regrade disturbed areas to mimic natural floodplain topography, and replant with native riparian vegetation. This study and design project will also include an administrative effort to reorganize lands, easements, and covenants held by the County to facilitate Park development, and development of plans for a future park. When implemented, these project elements will reduce flood potential across 136-acres of floodplain, improve fish passage and riparian habitat in over two river miles of the confluence area, and create a park that will provide recreational opportunity to the rapidly growing community. The project involves numerous stakeholders and builds upon the signing of an Interlocal Agreement between The City of Yakima, WSDOT, and the County for cooperation

towards the objectives developed in the Cowiche Fish Habitat Management Plan.

Yakima County, Cowiche Creek Confluence, Phase I
Reclamation Funding: $9,976,792
Yakima County, in cooperation with the City of Yakima Water and Irrigation Division will implement Phase I of the Cowiche Confluence Project in Yakima County, Washington. The project area has been of concern to the County and regional stakeholders due to recurring hazardous flooding, development encroaching upon the critical floodplain, and degradation of once-optimal spawning habitat and fish passage. The County will construct a new irrigation delivery pipeline to connect to existing surface water irrigation delivery systems on the Naches River to the City of Yakima, remove surface irrigation diversion facilities including dam, fish screen and bypass facilities to allow restoration of the lower Cowiche Creek to a more natural alignment, and restoration of adjacent floodplains and riparian zones on property owned by the Flood Control Zone District. This project also involves construction of approximately 800-feet of side channel habitat fed by existing cold-water springs in the project area, and conversion of approximately 67-acres of current and former orchard into native floodplain vegetation. The County will also reconfigure existing flood control levees and design a wider Powerhouse Road bridge over Cowiche Creek to further expand the floodplain of Cowiche Creek.