



The Los Angeles River Fish Passage & Habitat Structures Design Project Q&A Fact Sheet

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MAIN FUNDER

State of California Wildlife Conservation Board

PROJECT LEADS

Council for Watershed Health
City of Los Angeles
Stillwater Sciences

PARTNERS & COORDINATING AGENCIES

Southern California Coastal Water Research
Project
Arroyo Seco Foundation
Friends of the Los Angeles River
National Marine Fisheries Service
County of Los Angeles
U.S. Army Corps of Engineers
Bureau of Reclamation
California Department of Fish & Wildlife
U.S. Fish & Wildlife Service

Q: WHY ARE WE DOING THIS PROJECT?

A: The Council for Watershed Health, the City of Los Angeles, and Stillwater Sciences are leading the L.A. River Fish Passage and Habitat Structures Design (LAR FPHS) project in partnership with the U.S. Bureau of Reclamation, Southern California Coastal Water Research Project (SCCWRP), National Marine Fisheries Service (NMFS), U.S. Army Corps of Engineers (USACE), County of Los Angeles, California Department of Fish and Wildlife, U.S. Fish and Wildlife Service, Regional Water Quality Control Board (RWQCB), Arroyo Seco Foundation (ASF), and Friends of the Los Angeles River (FoLAR). The city has adopted sustainability and biodiversity plans to bring back native species, including steelhead trout (*Oncorhynchus mykiss*) among many other fish species, with an ultimate goal of improving connections between people and nature.

This project is intended to create steelhead fish passage in the L.A. River as a migration corridor to the upper tributaries of the L.A. River Watershed spawning grounds, and is a pilot project that can be replicated in other concrete-lined channels to provide fish passage and habitat structures for migrating fish. Watershed scientists are working to address study questions focused on watershed-wide limiting factors to steelhead recovery. This project provides an opportunity to align with related USACE, City and County restoration projects, scientific studies, and ongoing watershed and L.A. River monitoring plans and efforts.

These include, but are not limited to, the following project objectives:

- 1.** To implement key features of the Congressional Authorization of the L.A. River Ecosystem Restoration Project, Alternative 20 Integrated Feasibility Report.
- 2.** To implement conceptual USACE Arroyo Seco Ecosystem Restoration Watershed Study recommendations of fish passage, barrier removal, stream naturalization, and fish habitat improvements to support multiple life stages of rainbow and steelhead trout and re-establishment of resident trout populations.
- 3.** To improve conditions for other native fish in the L.A. River Watershed and upper tributaries, including Santa Ana sucker, Arroyo chub, speckled dace, unarmored three-spined stickleback, Pacific lamprey, and other aquatic species and wildlife.
- 4.** To implement adopted plans, policies, and recommendations of federal, state, regional, and local agencies, including NMFS Southern Steelhead Recovery Plan, City of L.A.'s L.A. River Revitalization Master Plan, Greater L.A. River Integrated Regional Water Management Plan, County L.A. River Master Plan, L.A. Mayor's Sustainability Plan, L.A. Biodiversity Plan, and others.
- 5.** To enhance ecological connectivity between in- and off-channel areas to maximize the urban biodiversity and ecosystem benefits (environmental and socio-economic) of the project.

Significant funding in recent years has been earmarked for improving ecosystem benefits and recreation opportunities in the L.A. River and supporting the recovery of steelhead, while maintaining existing levels of flood risk management.



Left: Adult steelhead trout (*Oncorhynchus mykiss*). Middle: Channelized section of the Los Angeles River. Right: Juvenile steelhead.

Q: WILL WE REALLY SEE STEELHEAD IN THE L.A. RIVER AGAIN?

A: Yes. If effective fish passage design and conditions are implemented, steelhead will be able to migrate to upper tributaries of the L.A. River Watershed and ultimately complete their life cycle. Steelhead thrive in cool, clean, well-oxygenated water. The L.A. River Watershed's water quality, temperature, vegetation (providing shade and natural cleansing of flows), and stream conditions (e.g., dissolved oxygen levels, velocity, sediment load, etc.) will need to improve to support total maximum daily loads (TMDLs), water quality thresholds set by the RWQCB under the Clean Water Act, as well as steelhead suitability requirements. A healthy ecological riverine and aquatic system in the L.A. River will address the needs of both fish populations and local communities. Many Angelenos have expressed interest in a clean L.A. River, with prospects of recreation, enjoyment, and fishing. But before fishing for endangered steelhead can be feasible, the species must first be delisted from the Endangered Species Act, in which the Steelhead Southern California distinct population segment (DPS) has been listed since 1997. By meeting the needs of native fish species in the L.A. River, this pilot project promotes species recovery as a first priority, with numerous multiple benefits for Angelenos in perpetuity.

COST

Q: How is the “project design” being funded?

A: The Wildlife Conservation Board has funded this project under a State of California Prop. 68 Fish Passage grant (WC-1922DC) in the amount of \$1.356M. The City and other partners, including Stillwater Sciences, SCCWRP, ASF, and FoLAR, are providing in-kind services as matching funds for the

project. Future phases of the project will include 100% final design, permitting, and construction.

Q: How will “implementation” of the project be funded?

A: The full cost to implement the project is currently unknown. The project proponents will work with the associated agencies and additional partners to identify funding to fully implement the project.

Q: Who is responsible for operations and maintenance?

A: The project is being designed to be self-cleaning by mimicking natural stream morphology, with natural flushing of sediment through pool-riffle-run sequences. Habitat structures would be anchored in place to maintain channel stability and protection of existing infrastructures. Flood-related requirements must be met in order for the project to be constructed. The City, County, and USACE are discussing operations and maintenance roles and responsibilities for the project. Maintenance responsibilities would be similar to what they are now, which is minimal in this concrete-lined reach of the channel. However, future project maintenance costs, if any, would be funded through a cooperative agreement with the project partners.

MONITORING

Q: What type of monitoring is required?

A: Monitoring includes assessment of structural stability of the structures, biological surveys (specific to steelhead and other native fish as well as invasive species), and physical habitat conditions.

WATER SUPPLY PRIORITIES

Q: Does the project impact water supplies?

A: No. The LAR FPHS project is consistent with the California State Water Resources Control Board (SWRCB)'s L.A. River Environmental Flows Study (EFS) that is currently underway. As project partner, SCCWRP is working on the modeling and steelhead/rainbow trout species criteria for the L.A. River in collaboration with Stillwater Sciences. Steelhead are one of many target species considered in SCCWRP's hydrologic and hydraulic modeling for the L.A. River. Since the LAR FPHS project is focused on migratory periods, meaning when steelhead move at the tail-end of a winter storm, no additional water is needed to support migration. L.A. Department of Water and Power, among other water utilities, is involved in the study to address integrated water management objectives (water quality, water reuse, recycling, and other water supply/management objectives). The design does include low-flow conditions for fish to move upstream and downstream. These flows are also consistent with the SWRCB L.A. River EFS.

Q: HOW FAST DO STEELHEAD SWIM?

A: Migration rates reported for adult steelhead in rivers are highly variable, ranging from less than 0.6 miles per day (mi/d) to more than 25 mi/d (Keefer et al. 2004, English et al. 2006, Salinger and Anderson 2006, Jepsen et al. 2012). In the absence of data on southern steelhead behavior, migration rates for steelhead in the LA River are assumed to be similar to those of steelhead migrating in naturally flowing rivers, like those measured in British Columbia, Canada (English et al. 2006). For such rivers, steelhead migration rate averaged 7.3 mi/d. Based on this average migration rate, when applied to adult steelhead in the L.A. River, it is expected that

adult steelhead would take 2.7 days on average to reach the LAR FPHS project reach 20 miles (mi) upstream from the ocean and four days to reach perennial habitat in the central Arroyo Seco 30.5 mi upstream from the ocean. According to steelhead migration rate data from English et al. (2006), steelhead would take a maximum of five days and a minimum of two days to reach the LAR FPHS project site. Similarly, steelhead would take a maximum of eight days and a minimum of three days to reach perennially-flowing, soft-bottom habitat in the central Arroyo Seco. It remains uncertain whether the duration of a typical storm flow event is long enough for steelhead to reach these locations in a single event, or if multiple storm events are needed.

REFERENCES

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