



# Dutch Charlie Creek Instream Habitat Enhancement Project – Phase 1 *(amended)*

Recipient: Trout Unlimited, Inc.

Project Period: 04/01/2020 – 4/30/2022

Award Amount: \$93,049.77

Total Project Costs: \$89,680.30

Project Number: #8006.20.067441

## Summary of Accomplishments

The purpose of this Project was to enhance instream habitat for Coho Salmon and Steelhead Trout. Using 119 pieces of large wood, twenty structures were constructed along a 0.46-mile reach of Dutch Charlie Creek. This restoration was intended to be the first phase of implementation of a larger project that installed 95 structures, including 265 pieces of large wood through 2.17 miles of Dutch Charlie Creek. This restoration occurred over two seasonal work periods during the summers of 2020 and 2021. All disturbed, bare soil surfaces on the streambanks and associated floodplain areas were mulched using local vegetation to maximize erosion control and to limit contamination from non-native vegetation or seed sources. To aid in future monitoring, all project structures were documented with before-and-after upstream, downstream, and/or bank view photos taken from documented photo points and as-built diagrams, wood inventories were conducted, and longitudinal stream profile surveys occurred. Other project accomplishments included securing access, executing contracts, conducting CEQA botanical and cultural resource surveys, and permitting the project.

## Project Activities & Outcomes

The specific objective of this project was to improve spawning and rearing requirements for salmonids and address riparian dysfunction, habitat complexity, and water quality impairments. Large wood structures increase pool frequency and depth, sort, and store stream sediments, and decrease water velocities. The installation of large wood features also increases the availability of over-summer and over-winter juvenile rearing habitats and increases the frequency and duration of flood plain inundation during moderate and high flow events

To accomplish this objective, Trout Unlimited in partnership with the National Fish and Wildlife Foundation, the California Department of Fish and Wildlife (CDFW) Office of Spill Prevention and Response and the Fisheries Restoration Grants Program as well as the National Oceanic & Atmospheric Administration's Restoration Center (NOAA), the California Conservation Corps (CCC), and the landowner Lyme Redwood Forest Company (LRFC), implemented an instream habitat

enhancement project throughout 2.17 miles of Dutch Charlie Creek, an important salmonid tributary to the South Fork Eel River. This restoration occurred during two seasonal work periods (August 1-October 31) in 2020 and 2021.

The entire 2.17-mile project area was restored using two different methods of wood placement, complex log jams constructed with an excavator and the Accelerated Recruitment method which relies on chainsaws and rubber-tired equipment. Phase 1 (this Project) constructed 20 complex large wood jams (structures) within a 0.46-mile reach of the project area. Pacific Watershed Associates (PWA) designed the wood structures and LRFC contracted to Emerald Coast Earthmoving to install them using 119 pieces of LWD (117 key logs) at 20 locations. Hard anchoring of log material was not needed, as all key log material used was at least 1.5 times bankfull width with a rootwad and logs without rootwads were at least 2 times bankfull width. Logs that did not meet key log criteria were wedged into existing live trees or within the key logs at the features. CCC crews staged small wood debris at specific structures and covered soils disturbed by with native mulch or straw before the onset of seasonal rains.

Using leveraged funds, Trout Unlimited executed a Landowner Access Agreement with LRFC in early July 2020. All project subcontracts were secured by July 30, 2020. TU coordinated with PWA and LRFC to initiate California Environmental Quality Act (CEQA) compliance surveys of the project area. PWA secured the services of DZC Archaeology to conduct the cultural resources investigation. PWA staff also completed a paleontological site assessment on July 27, 2020. Botanical, avian, and cultural resource investigations of the project area were completed between June-July 2020.

This project was permitted under FRGP's programmatic coverage (includes 401 and 404 authorizations) and included in the program's CEQA Mitigated Negative Declaration document. A CDFW 1600 Lake and Streambed Alteration Agreement permit was issued for this project on July 31, 2020. CDFW issued a Final Notice to Proceed with construction on August 4, 2020, and implementation began on the same day. One Phase I site, a complex "spider jam", was installed in 2020. Nearly all project wood was generated from onsite standing trees located near the project stream but outside of the riparian zone. Existing down large wood of adequate size from outside the channel zone was also evaluated for potential instream benefit. All 2020 construction work was completed by September 29, 2020. Any bare soils disturbed during construction activities were covered with native mulch or straw.

Before the start of the 2021 construction season, TU continued environmental compliance coordination with LRFC. TU requested survey data for Northern Spotted Owls and the TU Project Manager, Elise Ferrarese, conducted a breeding bird survey on June 9. A seasonal Notice to Proceed was issued by CDFW on June 14, 2021.

PWA with Emerald Coast Earthmoving engaged in construction activities from October 13, 2021, to October 21, 2021. The *Dutch Charlie Creek Sediment Reduction and Fisheries Recovery Project* (funded under CDFW's FRGP) was implemented concurrently with this project and included road opening and stockpiling of LWD material to be available to this project. Access roads were winterized along Dutch Charlie Creek from October 13-21, 2021. Post-construction photo documentation, wood inventories, documentation of as-built conditions, and post project longitudinal profile surveys were completed in the fall and winter of 2021. This project has been completed and the primary objectives

have been accomplished.

The original proposal for the Phase I project stated that TU and its partners would, “restore approximately 0.8 miles of high-priority salmonid recovery habitat in Dutch Charlie Creek by installing 59 pieces of large wood at 16 distinct structure sites.” The actual project implementation included 119 pieces of large wood used to construct 20 structures along a 0.46-mile reach. The difference between the proposed and actual implementation metrics occurred because the scheduling and sequence of the two project phases did not occur as planned due to subcontractor availability. Emerald Coast Earthmoving, a subcontractor to Lyme Redwood Forest Co., was also the lead subcontractor on an adjacent TU sediment reduction project in Dutch Charlie Creek. Due to unforeseen complexities associated with implementing specific treatments, and the expiration the project’s funding source, it was necessary for the equipment crew to prioritize completion of the sediment reduction project before constructing the Phase I instream structures. This resulted in only one structure being constructed in 2020. However, also during this time, and using leveraged funds, the Phase II Accelerated Recruitment work could occur because it did not rely on tracked heavy equipment to stockpile or place wood. This resulted in a greater linear extent of the Accelerated Recruitment treatment area and a reduced linear extent for the complex log jams placed with tracked equipment. This also resulted in approximately half of the Phase II work occurring in 2020 and the majority of the Phase I work occurring in 2021.

Although the sequencing and application of the different large wood construction methods changed, the total amount of habitat that was proposed for both phases remained the same, and the amount of wood (pieces and structures) increased. The combined accomplishments of Phase I and Phase II include increasing the large wood density (per mile) to the Very Good category, as specified by Federal recovery plans. Increased wood density is related to increase shelter and enhanced instream geomorphic function. The project also resulted in the creation of 41 individual pools. The total amount of salmon habitat available in Dutch Charlie Creek is 2.8 miles. Future restoration could occur downstream on private land with landowner consent. TU staff have been in conversation with the downstream landowner about potential instream restoration and hope to develop a project there in the future.

## Lessons Learned

This project was originally planned to be completed during the 2020 implementation season; however, unexpected construction delays occurred due to subcontractor availability. Emerald Coast Earthmoving was the lead subcontractor for an adjacent TU sediment reduction project in Dutch Charlie Creek. This work took longer to complete than originally estimated due to unforeseen complexities associated with the treatment of specific sediment sites. Also, the sediment reduction project was in its final year of funding and needed to be prioritized. This resulted in a late seasonal start of the Phase I project work (in 2020) and some discrepancy between the proposed Phase 1 treatment area and the actual Phase 1 treatment area.

Although the project implementation did not occur exactly as planned, all implementation work was completed within budget and within the allotted grant term. By being flexible and adapting our approach we were able to accomplish our objectives. However, in the future TU may try to include more contingency timing when scheduling and phasing multiple restoration activities within a specific watershed area. We also learned the importance of frequent and clear communication between

multiple contractors that are working in the same area. Enhanced communication between the contractors may have avoided the discrepancy between the linear extent of each phase's treatment area before and after implementation.

## Dissemination

A [final project report](#) was also submitted to the CDFW Fisheries Restoration Grant Program for Phase 1 and Phase II activities and is available with monitoring data.

***POSTING OF FINAL REPORT:*** *This report and attached project documents may be shared by the Foundation and any Funding Source for the Project via their respective websites. In the event that the Recipient intends to claim that its final report or project documents contains material that does not have to be posted on such websites because it is protected from disclosure by statutory or regulatory provisions, the Recipient shall clearly mark all such potentially protected materials as "PROTECTED" and provide an explanation and complete citation to the statutory or regulatory source for such protection.*



## Project Photos



*Image 1: Project site 17+50 before (left) and after (right) implementation*



*Image 2: Project site 22+35 before (left) and after (right) implementation*





*Image 3: Project site 3100 before (left) and after (right) implementation*



*Image 4: Project site 3240 before (left) and after (right) implementation*