

The Big Sur River Fish Passage Restoration Project – Riverside Campground Project

2015

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Introduction:

The Big Sur River in coastal Monterey County is part of the Big Sur Coast Biogeographical Population Group (BPG) as noted in the South-Central California Steelhead Recovery Plan prepared by the National Marine Fishery Service in Dec. 2013 (Recovery Plan) and is identified as a “Core 1” system. The Recovery Plan shows that Culverts and Road Crossings (passage barriers) are characterized in “red” – very high threat. The same plan states “Critical recovery actions for Core 1 populations within the Big Sur Coast BPG”, the following is noted for the Big Sur River: “Remove or modify instream fish passage barriers to allow steelhead natural rates of migration to upstream spawning and rearing habitat, and passage of smolts and kelts downstream to the estuary and ocean.”

The Big Sur River Fish Passage Restoration Project – Riverside Campground Project will facilitate the removal of a low flow concrete ford crossing and install a clear span bridge. This will provide the landowner with safe and reliable access across the river, while also allowing for unimpeded fish passage for all life history stages of the threatened native steelhead population. The project specifically addresses the concrete ford noted in the Steelhead Restoration and Management Plan for California document under Task SCC-02-313-02 (concrete ford upstream of Andrew Molera State Park) along the main-stem of the Big Sur River in Monterey County. The existing structure resulted in unacceptable depth and velocity conditions over the full range of fish passage flows. The concrete slab downstream of the crossing violates depth criteria at low flows. As flows increase enough to meet depth requirements, velocity barriers form within the culverts. The barrier assessment of current conditions demonstrates challenging conditions for both adult winter migrations as well as challenging or absent juvenile migration both up and downstream. The hydraulic conditions at the existing ford create a combination of depths, velocities, and hydraulic drops that exceed thresholds for fish biomechanics. At higher flows the conditions are more amenable to fish passage, so this structure is identified as a partial barrier. Because adult migration and juvenile out-migration is present at some high flows, this barrier is characterized as a “partial” or temporal barrier (grey).

Permit Disclosure: The Grantee shall not proceed with on-the-ground implementation until all necessary permits, consultations, and/or Notice to Proceed are secure.

Objective(s):

The specific objective of this project is to improve fish passage for all life history stages by removing a low flow concrete ford crossing and installing a clear span bridge. Fish passage conditions were assessed and analyzed as part of the design stage of this project under existing conditions and compared to NMFS and DFW

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guidelines for minimum water depths and maximum velocities for fish passage.

This project's design provides a restored channel beneath the proposed free span bridge structures which is designed based on the "Stream Simulation" design method, as outlined in the "Guidelines for Salmonid Passage at Stream Crossings", and the "Stream Simulation" design approach outlined in the "California Salmonid Stream Habitat Restoration Manual". The Stream Simulation design method is intended to mimic natural stream characteristics for not only fish passage considerations, but also for sediment transport and flood and debris conveyance. During various flows, existing conditions partially impede passage for all life history stages of steelhead in the Big Sur River. Removing the concrete ford and replacing it with a clear span bridge will provide complete, unimpeded passage at all flows for both adult and juvenile steelhead and other anadromous species.

Project Description:

Location:

The Big Sur River is approximately 26 miles south of Carmel by the Sea along Highway 1 in Monterey County, California. The project site is a low flow concrete crossing at approximately River Mile 4.5 in the Big Sur River, at the "Riverside Campground and Cabins."

The location of the low flow crossing is at 36.26597000 west longitude and - 121.80391400 north latitude.

Project Set Up:

The Grantee, with assistance from the Trout Unlimited Conservation Grants Assistant, will coordinate the project through securing bids, hiring of a contractor, coordinating project related meetings and communication, compiling project status reports, grant management, and oversight of the project implementation. The Grantee will be involved in the day to day construction management in coordination with the onsite construction manager, implementation of the restoration plan, and maintenance and monitoring of the restoration site following construction.

Resource Conservation District of Monterey County (RCD) will assist in the procurement of all necessary permits (not provided by the Fisheries Restoration Grant Program) prior to construction. Additionally, RCD staff will monitor and report on permit condition compliance.

Alnus Ecological will be contracted to conduct and oversee biological services such as site de-watering and diversion, sensitive species surveys, fish relocation, and re-watering of stream.

Waterways Consulting Inc. will be contracted to provide construction support

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services including assistance with contractor bid process, on site construction observation and oversight, and As-Built drawings.

Project construction will be implemented by a licensed contractor with experience working on stream restoration projects. The project engineer will be onsite during construction activities to ensure the project is implemented according to the designs.

Materials:

The materials used for this project will include the following items:

Bridge, Abutments and Approaches material includes

- Engineered Fill
- Rock Slope Protection Fill
- Rock Slope Protection Fabric
- Concrete Asphalt
- Culvert
- Bridge Abutments including Wingwall Concrete
- Modular Steel Bridge
- Lumber for Bridge Railings

Tasks:

Task 1: Project Management and Final Work Plan

Under this task the Grantee will provide project management, which includes prepare and submit invoices and progress reports; prepare Annual Reports; develop and manage subcontracts; meet reporting and performance requirements; convene project team meetings; develop project information; coordinate with funders and partners; coordinate with neighboring landowners during the project; and disseminate project materials and results. The Grantee shall and submit a final landowner access agreement prior to the commencement of work. In addition, the Grantee will prepare and submit the draft final report, final report, and any data generated as a result of this project.

Task 2: Project Pre-construction Activities and Surveys (Season 1)

- **Permit Acquisition:** The Grantee will secure all necessary permits, not provided by FRGP, DFW 1600 Lake and Streambed Alteration Agreement (LSA) and any other permit or authorization required for capturing and handling steelhead and California red-legged frogs. A hard copy of all permits and resolution obtained for the project will be submitted to the Grant Manager prior to the commencement of construction.
- **Submission of Plans and Work Schedule:** Submit a hard and electronic copy of Final Engineered plans and specifications for the

project within two (2) weeks after execution of the grant, to Grant Manager and Grantor Engineer. The plans will include details of construction, scaled drawings of the site plan and construction, water diversion and fish and frog relocation (if necessary), and riparian re-vegetation.

- California Red-legged Frog and Steelhead Trout Surveys: Conduct pre-construction surveys for following US Fish and Wildlife guidance protocol (2005) Surveys will be conducted by a qualified biologist (one holding appropriate permit) at least two weeks but before the onset of construction activities. If needed, California Red-legged Frog and Steelhead Trout will be moved from the construction area and relocated to appropriate habitat. In addition, monitoring of the channel will be conducted by a qualified fisheries biologist, permitted to handle the species, during the installation of coffer dams (or other dewatering structures) and during construction.
- Staging and Mobilization: Conduct site preparatory surveys to inform on-site operations, for the safe movement of personnel, equipment, supplies, and incidentals to the work site; for the establishment of all offices and other facilities necessary for work on the project; and for all other work and operations which must be performed to complete the tasks.
- Photo points will be established and used throughout the project to document work site conditions.

Task 3: Construction (Season 1)

- All construction will be done according to the accepted project specifications and accepted Final Engineered Plans.
- The Grantee will hold a pre-construction meeting with the Grant Manager, Grantor Engineer, and sub-contractor representatives to establish roles and responsibilities and set expectations for record-keeping, scheduling, monitoring, and safety.
- The Grantee will notify the Grant Manager a minimum of two weeks prior to the start of construction to enable the Grant Manager to begin monitoring of the project.
- Once each week during construction, the Grantee shall electronically submit to the Grant Manger and the Grantor Engineer a Fish Passage Construction Inspection Checklist and required photos.

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- Conduct clearing and grubbing of vegetation and removal of debris from the construction site. All material removed shall be disposed of in accordance with all local regulations. Vegetation located beyond the limits for clearing and grubbing that are not removed, shall be protected from damage.
- The demolition of structures will be done in accordance with all local regulations. Sub-contractor will completely remove the downstream apron and foundations while leaving the concrete ford in place to be used by campground users. (Approximately 2,200 cubic feet of concrete.)
- Bridge abutments will be built, including formwork and reinforced steel as shown on the engineering drawings, and as otherwise directed by the engineer.
- Upon completion of the first season construction period, the fall/winter erosion control measures will to be installed.

Task 4: Construction Site Winter Monitoring

Visual inspection of site and stability of project will be conducted after storm events.

Task 5: Project Pre-construction Activities and Surveys (Season 2)

- California Red-legged Frog (CRLF) and Steelhead trout (SHT) Surveys: Conduct pre-construction surveys for CRLF and STH following US Fish and Wildlife guidance protocol (2005) Surveys will be conducted by a qualified biologist at least two weeks before the onset of construction activities. Prior to dewatering, CRLF and SHT will be moved from the construction area and relocated to appropriate habitat by a qualified biologist permitted to handle the species. In addition, monitoring of the channel will be conducted by a qualified biologist during the installation of coffer dams (or other dewatering structures) and during construction.
- Staging and Mobilization: Conduct site preparatory surveys to inform on site operations, for the safe movement of personnel, equipment, supplies, and incidentals to the work site; for the establishment of all offices and other facilities necessary for work on the project; and for all other work and operations which must be performed to complete the tasks.

Task 6: Construction (Season 2)

- All construction will be done according to the accepted project

specifications and Final Engineered Plan.

- The Grantee will hold a pre-construction meeting with the Grant Manager, Grantor Engineer, and sub-contractor representatives to establish roles and responsibilities and set expectations for record-keeping, scheduling, monitoring, and safety.
- The Grantee will notify the Grant Manager a minimum of two weeks prior to the start of construction to enable the Grant Manager to begin monitoring of the project.
- Once each week during construction, the Grantee shall electronically submit to the Grant Manger and the Grantor Engineer a Fish Passage Construction Inspection Checklist and required photos.
- Submit a dewatering plan, at least one month before the commencement to dewatering, to the Grant Manager for review and acceptance. All materials used for dewatering shall be removed at the completion of the project.
- The pre-constructed bridge deck will be placed onto the foundation footings.
- Complete the bridge assembly including break-away railing system to allow access to the campground.
- Demolition of concrete ford crossing will be done in accordance with all local regulations. Sub-contractor will completely remove the concrete ford including any foundation and dispose the material off site in accordance with all local regulations. (Approximately 2,250 cubic feet of concrete)
- Restore approximately 520 feet of channel by grading to a stable profile that conforms to adjacent undisturbed areas.
- Install vegetated rock slope protection to stabilize the banks and provide protection for the newly installed structure.

Task 7: Post Construction Riparian Restoration and Monitoring:

- Upon completion of construction during the following fall and winter, restoration of disturbed riparian habitat (e.g. stream banks in the vicinity of the bridge) will include installation of erosion control fabric, and revegetation with native seeding and plants (~100 - 1 gallon) and live stakes (i.e. willow and sycamore) and be maintained to a

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minimum of eighty-five percent (85%) coverage of the seeded area three years after the revegetation is complete.

- Photo points, established during Pre-construction Activities for Season 1 should be used throughout the project to document work site conditions. Visual inspection of site and stability of project will be conducted after storm events.

Deliverables:

Task 1: Project Management

Invoices, progress reports, annual progress reports, copies of subcontractor contracts, and final landowner access agreement, prior to the commencement of work. In addition, the Grantee will prepare and submit the draft final report, final report, and any data generated as a result of this project.

Task 2: Project Pre-construction Activities and Surveys (Season 1)

Copies of all permits secured by the grantee, Final 100% complete construction plans, and Steelhead and Red-legged Frog survey results

Task 3: Construction (Season 1)

Notification of the construction start date, construction inspection checklist and photos, and new bridge abutments.

Task 4: Construction Site Winter Monitoring

Placement of erosion control measures

Task 5: Project Pre-construction Activities and Surveys (Season 2)

Steelhead and Red-legged Frog survey results

Task 6: Construction (Season 2)

Notification of the construction start date, construction inspection checklist and photos, and new bridge installed.

Task 7: Post Construction Clean-up and Monitoring

Submittal of the re-vegetation plans, re-vegetation of the construction site and staging area

Timelines:

Task 1: Project Management and Final Work Plan

- Secure construction sub-contracts due July, 1 2015
- Obtain Land owner access agreement(s) July 1, 2015

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- Draft final report due February 1, 2018
- Final report due March 1, 2018
- Invoice and Progress reports due July 1, 2015 – February 1, 2018

Task 2: Project Pre-construction Activities and Surveys (Season 1)

- Copies of all permits secured by the grantee due April 1, 2016
- Copy of final 100% complete construction plan due July 1, 2015
- Copies of steelhead and red-legged frog survey results due June 1, 2016

Task 3: Construction (Season 1)

- Intent to start work letter due June 1, 2016
- Construction Inspection Checklist due weekly starting June 1, 2016
- Construction of bridge foundation and associated walls due September 1, 2016

Task 4: Construction Site Winter Monitoring

- Erosion control material installed due November 1, 2016

Task 5: Project Pre-construction Activities and Surveys (Season 2)

- Copies of steelhead and red-legged frog survey results due June 1, 2017

Task 6: Construction (Season 2)

- The season work window for work in the stream is June 15–October 31, 2015
- Intent to start work letter due June 1, 2017
- Dewatering and fish/frog removal and relocation conducted July 1, 2017
- Construction Inspection Checklist due weekly starting June 1, 2017
- New bridge installed due September 1, 2017
- Destruction and removal of the concrete ford crossing due October 15, 2017

Task 7: Post Construction Clean-up and Monitoring

- Submit revegetation plan due October 1, 2017
- Revegetation completed November 1, 2017

Additional Requirements:

1. The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. Work in flowing streams is restricted per the Army Corp of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the

California Department of Fish and Wildlife.

2. The Grantee shall notify the Grantor Project Manager a minimum of five working days before the project site is de-watered and the stream flow diverted. The notification will provide a reasonable time for Grantor personnel to oversee the implementation of the water diversion plan and the safe removal and relocation of salmonids and other fish life from the project area. If the project requires dewatering of the site, and the relocation of salmonids, the Grantee will implement the following measures to minimize harm and mortality to listed salmonids:
 - Fish relocation and dewatering activities shall only occur between June 15 and October 31 of each year.
 - The Grantee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible.
 - All electrofishing shall be performed by a qualified fisheries biologist and conducted according to the National Marine Fisheries Service, Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act, June 2000.
 - The Grantee will provide fish relocation data to the Grantor Project Manager on a form provided by the Grantor.
 - Additional measures to minimize injury and mortality of salmonids during fish relocation and dewatering activities shall be implemented as described in Part IX, pages 52 and 53 of the *California Salmonid Stream Habitat Restoration Manual*.
3. The bridge design and installation will meet flow carrying capacity required for a 100-year flood event as identified by specifications determined by National Oceanic and Atmospheric Administration (NOAA) Fisheries and the California Department of Fish and Wildlife (CDFW), for adult and juvenile salmonid fish passage. The project will follow the National Marine Fisheries Service (NMFS 2001) Guidelines for Salmonid Passage at Stream Crossings and criteria for fish passage as described in Volume II, Part IX, of the *California Salmonid Stream Habitat Restoration Manual*. The engineered plans for the bridge (culvert) installation shall be visually reviewed and authorized by NOAA Fisheries or California Department of Fish and Wildlife engineers prior to commencement of work.
4. All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual*, Volume I, and Volume II Part

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- XI and Part XII. The Grantee/landowner will maintain the new crossing, inspect the crossing in a timely manner and remove debris as necessary during the storm season.
5. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.