

COASTAL CONSERVANCY

Staff Recommendation

March 22, 2018

**Muir Woods National Monument Salmon Habitat Restoration**

Project No. 17-043-01

Project Manager: Michael Bowen

**RECOMMENDED ACTION:** Authorization to disburse up to \$155,000 to the Golden Gate National Parks Conservancy to restore coho salmon habitat in Redwood Creek at Muir Woods National Monument, Marin County.

**LOCATION:** Muir Woods National Monument, Marin County

**PROGRAM CATEGORY:** Resource Enhancement

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**EXHIBITS**

Exhibit 1: [Project Location and Graphics](#)

Exhibit 2: Project Letters

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**RESOLUTION AND FINDINGS:**

Staff recommends that the State Coastal Conservancy adopt the following resolution pursuant to Sections 31251-31270 of the Public Resources Code:

“The State Coastal Conservancy hereby authorizes the disbursement of an amount not to exceed one hundred fifty-five thousand dollars (\$155,000) to the Golden Gate National Parks Conservancy (“GGNPC”) to restore salmon habitat in Redwood Creek at the Muir Woods National Monument (Exhibit 1).

This authorization is subject to the following conditions:

1. Prior to the disbursement of funds, GGNPC shall submit for the review and approval of the Conservancy’s Executive Officer:
  - a. A work program, including names and qualifications of any contractors to be retained and the schedule and budget, for the project.
  - b. A plan for acknowledging Conservancy funding.
2. Conservancy funding shall be acknowledged by erecting and maintaining a sign or signs on or adjacent to the project area, the design and placement of which has been reviewed and approved by the Executive Officer, or by some other alternative form of acknowledgement, appropriate to the project and approved by the Executive Officer.

3. GGNPC shall monitor and ensure compliance with any permit or approval for the project. ”

Staff further recommends that the Conservancy adopt the following findings:

“Based on the accompanying staff report and attached exhibits, the State Coastal Conservancy hereby finds that:

1. The proposed authorization is consistent with Chapter 6 of Division 21 of the Public Resources Code, regarding Coastal Resource Enhancement.
2. The proposed project is consistent with the current Conservancy Project Selection Criteria and Guidelines.
3. The GGNPC is a nonprofit organization existing under Section 501 (c)(3) of the U.S Internal Revenue Code and whose purposes are consistent with Division 21 of the Public Resources Code.”

**PROJECT SUMMARY:**

Golden Gate National Parks Conservancy (“GGNPC”) will restore and enhance in-stream and floodplain habitat for coho salmon and other species in Redwood Creek at the Muir Woods National Monument in Marin County (Exhibit 1). Project components include the removal of rock walls installed in the 1930s to confine the channel, and restoring floodplain function to this reach of Redwood Creek. The project will remedy the lack of juvenile habitat through the enhancement of pool habitat and provision of cover and reduced velocities in the stream, where fish can withstand peak winter flows. While there are many difficult issues affecting coho populations, the survival of fry and juveniles can be increased in Redwood Creek by the proposed project.

GGNPC has collected habitat and population data near the site for 15-years. The data show that although the largest percentage of coho *salmon* (*Onchorynchus kisutch*) spawn in the one-mile reach through Muir Woods, fry and juveniles have the lowest survival rates in that reach. In other local channels, biologists find a high number of juveniles close to the spawning areas, but not in the Muir Woods reach.

The lower fry and juvenile coho survival rate in Muir Woods is correlated to the current habitat conditions. There is a low volume of wood, a low rate of pools, and 60% of banks are hardened by riprap installed by the Civilian Conservation Corps during the 1930s. The rate of pools in the Muir Woods reach averages 32%, compared to 55% in the five other monitoring reaches. Flows are shallow in summer and rapid in winter, with few areas for juvenile salmon to escape adverse conditions. Some segments of this reach are highly incised and disconnected from the floodplain.

The GGNPC and its contractors will achieve habitat benefits by conducting the following activities:

- **Riprap:** Remove 1,100 LF of riprap out of a total 1,700 LF of riprap in the Phase 1 reach (in about half of the Muir Woods reach, or 2300 LF). This is an estimated 650 CY of riprap to remove, or about 1,500 tons.
- **Trails:** Remove about 330 LF of asphalt trail on the top of the bank at Cathedral Grove, and remove about 300 LF of old base rock from another former trail at the top of bank.

- **Large Woody Debris:** Relocate about 25 fallen trees from the forest floor to the creek. Place large logs on top of smaller trunks and branches to create dense cover.
- **Mainstem Grade Control:** Install “beaver-analogue” debris structures to trap sediment and reconnect the floodplain, eventually causing groundwater levels to rise. GGNPC will modify and add to the structures annually for several years.
- **Tributary Grade Control:** Add grade control and vegetative debris to at least two drainages to trap sediment and raise groundwater levels. GGNPC will modify and add to the structures annually.
- **Revegetation:** Plant native riparian understory where riprap is removed.
- In total, restoration activities will be limited to a project area less than five acres in size.

GGNPC has administered numerous grants from the Conservancy, many of which were for enhancement projects in the Redwood Creek watershed. GGNPC is the most accomplished national park partner in the nation, having completed major park building and restoration projects in partnership with the National Park Service across the 84,000-acre Golden Gate National Recreation Area (GGNRA), hosting award-winning public programs at the Crissy Field Center, and providing more than \$400 million in support to the parks.

**Site Description:** The project site is within Muir Woods National Monument, a 554-acre old growth redwood forest about 15 miles north of San Francisco, managed by the National Park Service (NPS). About 18% of Redwood Creek is located in Muir Woods. The high rate of public visitation at Muir Woods provides an unrivaled platform to demonstrate good creek management techniques, the value of wood in creeks for providing safety for juvenile salmon, and the need to protect coho salmon in California.

Detailed stream maps reveal only two substantial wood jams in the mile-long reach in Muir Woods. Detailed mapping shows that reach includes 32% pool habitat in degraded condition. Most of the pools in this reach lack the cover, low velocity refuge and depth necessary to provide adequate habitat for juvenile coho salmon. Conversely, this reach sustains flows year round, and water temperatures are hospitable for salmon, provided the other lacking conditions can be restored.

**Project History:** Created in 1908 as the 7<sup>th</sup> National Monument in the nation, Muir Woods National Monument establishment saved Redwood Creek from proposed damming and water development. Since its creation as a 295-acre ancient redwood sanctuary, and the first national monument created by the donation of land from a private individual, it has since expanded to its full 554-acres encompassing much of Redwood Creek. Since then, the Conservancy has supported a number of enhancement projects at Redwood Creek to restore salmon habitat and general ecosystem function.

The Coastal Conservancy authorized a Hands-On grant of \$120,000 to the GGNPC, a portion of which was designated to accomplish revegetation, erosion control, and exotic vegetation management along 3,800 linear feet of Redwood Creek. The GGNPC accomplished the effort through community stewardship, in which volunteers worked under the supervision of a nursery manager. The project’s close proximity to Muir Woods and the Redwood Creek Native Plant Nursery provided highly-visible educational opportunities for students, volunteers and park visitors.

The Coastal Conservancy authorized a grant of \$1,000,000 in 2010, as well as the acceptance and disbursement of a \$1,000,000 U.S. Fish and Wildlife Service National Coastal Wetlands Conservation grant to the GGNPC to help restore natural function to 2,500 linear feet of Redwood Creek and 31 acres of adjacent floodplain at Muir Beach. A suite of associated actions were implemented. The quality of habitat in the intermittent tidal lagoon for salmonid summer habitat was improved and the Green Gulch tributary was reconnected to the mainstem. GGNPC also installed large wood in and near the estuary as part of this project.

The existing riprap in the channel is identified as an historic resource because it was installed in the 1930's New Deal era by the Civilian Conservation Corps. However, the new General Management Plan (2014) for the Golden Gate National Recreation Area provided approval for targeted riprap removal and trail adjustments to benefit the creek. The current project represents NPS and GGNPC's collective effort to restore habitat and hydraulic function in an as-yet untreated and unremediated section of stream.

### PROJECT FINANCING

|                            |                  |
|----------------------------|------------------|
| <b>Coastal Conservancy</b> | \$155,000        |
| National Park Service      | \$744,920        |
| <b>Project Total</b>       | <b>\$899,920</b> |

The anticipated source of funding for this project is the fiscal year 2017 appropriation from the Water Quality, Supply, and Infrastructure Improvement Act of 2014 (Proposition 1, Water Code § 79700 et seq.). Funds appropriated to the Conservancy derive from Chapter 6 (commencing with § 79730) and may be used “for multi-benefit water quality, water supply, and watershed protection and restoration projects for the watersheds of the state” (Section 79731). Section 79732(a) states more specifically that these funds may be used to “protect and restore aquatic, wetland, and migratory bird ecosystems including fish and wildlife corridors” and to “assist in the recovery of endangered, threatened, or migratory species by improving watershed health...or other means.” Consistent with these provisions, the project will enhance and restore aquatic ecosystems providing habitat for threatened species of anadromous fish.

As required by Proposition 1, the proposed project provides multiple benefits. By restoring winter refuge and summer rearing habitat in Redwood Creek, the project will benefit depleted native fish populations and other aquatic species that utilize the creek. This project will also reduce erosion by reducing velocities, restoring floodplain connections and revegetation, thereby protecting against further channel incision, thus improving water quality.

In accordance with Section 79707(b) which requires agencies to prioritize “projects that leverage private, federal, or local funding or produce the greatest public benefit”, this project leverages significant federal funding and local in-kind contributions as discussed below.

The project was reviewed and subsequently recommended for funding through a competitive grant process under the Conservancy's *Proposition 1 Grant Program Guidelines* adopted in June 2015 (“Prop 1 Guidelines”). (See § 79706(a)). The proposed project meets each of the evaluation criteria in the Prop 1 Guidelines as described in further detail in this “Project

Financing” section, the “Project Summary” section and in the “Consistency with Conservancy’s Project Selection Criteria & Guidelines” section of this report.

The GGNPC will provide significant in-kind contributions, valued at \$29,100. This contribution consists of grade control structure installation and revegetation costs.

In addition, the project leverages National Park Services funding of \$744,920 that will fund the rip-rap and abandoned paved trail removal.

**CONSISTENCY WITH CONSERVANCY’S ENABLING LEGISLATION:**

The proposed project is undertaken pursuant to Chapter 6 of Division 21 of the Public Resources Code (§§ 31251-31270), as follows:

Pursuant to Section 31251, the Conservancy may award grants to public agencies for the purpose of enhancement of coastal resources that have suffered loss of natural values because of human-induced events. Consistent with this section, the proposed authorization provides funds to the GGNPC to enhance natural values in the project area that have suffered because of well-intentioned but inappropriate development activities such as rip-rap installation that channelizes the stream.

Pursuant to Section 31252, all areas proposed for resource enhancement should be identified in a certified local coastal plan or program as requiring public action to resolve existing or potential resource problems. Redwood Creek, a coastal stream, is identified in Unit I of the Marin County Local Coastal Program (“LCP”) and is therefore subject to the protections, goals, and objectives afforded by the LCP, as discussed in the “Consistency with Local Coastal Program Policies” section below. The LCP states:

The section of stream, through Muir Woods National Monument represents the stream's best spawning substrate and riffle system but provides the least shelter and pool habitat. This has been a result of past bank stabilization and removal of fallen trees and branches. This results in a reduction in the number of juvenile salmonids the stream is able to support. Downstream from Muir Woods, the frequency of 1 and 2 year old salmonids increases markedly where the banks have not been riprapped and where fallen vegetation is not removed.

The LCP then states:

The National Park Service should be encouraged to investigate the possibility of creating artificial pools through Muir Woods National Monument to increase the streams carrying capacity of one and two year old salmonids. This would increase the number of salmonids spawning within the boundaries of the National Monument, and provide a better opportunity for the public to view salmonid reproductive behavior. (Marin County, Local Coastal Plan, Unit I (April 1, 1980) at p. 20-21).

Pursuant to Section 31253, “[the] Conservancy may provide up to the total of the cost of any coastal resource enhancement project, including the state or local share of federally supported projects....” after an assessment of funding generally available for coastal resource enhancement projects, the fiscal resources of the applicant and the urgency of the project relative to other eligible coastal resource enhancement projects and other factors prescribed by the Conservancy. The proposed contribution by the Conservancy was determined based on application of priority

criteria, as discussed below, and after taking into account other available resources and the matching contributions to the project by other funding sources.

**CONSISTENCY WITH CONSERVANCY'S 2018 STRATEGIC PLAN  
GOAL(S) & OBJECTIVE(S), AS REVISED NOVEMBER 30, 2018:**

Consistent with **Goal 6, Objective B** of the Conservancy's 2018 Strategic Plan, the proposed project will restore a stream corridor within Muir Woods, thereby improving fish habitat by providing instream habitat and favorable water temperatures.

Consistent with **Goal 6, Objective D** of the Conservancy's 2018 Strategic Plan, the proposed project will enhance floodplain habitat within an ancient redwood grove for the benefit of coho salmon.

Consistent with **Goal 6 Objective E** of the Conservancy's 2018 Strategic Plan, the proposed project will restore fish habitat by improving fish passage through a confined channel area and ensure favorable instream habitat and water temperatures in that reach.

**CONSISTENCY WITH CONSERVANCY'S  
PROJECT SELECTION CRITERIA & GUIDELINES:**

The proposed project is consistent with the Conservancy's Project Selection Criteria and Guidelines, last updated on October 2, 2014, in the following respects:

**Required Criteria**

1. **Promotion of the Conservancy's statutory programs and purposes:** See the "Consistency with Conservancy's Enabling Legislation" section above.
2. **Consistency with purposes of the funding source:** See the "Project Financing" section above.
3. **Promotion and implementation of state plans and policies:** By restoring and enhancing wetlands providing fish and wildlife habitat, the proposed project serves to promote and implement several state plans, including:
  - Priority Action 4 identified in the 2014 *California Water Action Plan*, prepared by CalEPA, the California Natural Resources Agency, and the California Department of Food and Agriculture), which provides: "Protect and Restore Important Ecosystems". The Project will implement this action by restoring instream habitat in a creek that supports important and threatened fish populations.
  - A Management Measure identified in the *California Nonpoint Source Pollution Control Program* prepared by the State Water Resources Control Board in 2000: MM6B- Restoration of Wetlands and Riparian Areas, which provides for the recovery of a range of wetland and riparian functions that existed previously by reestablishing hydrology, vegetation, and structure characteristics.

- *California Wildlife Action Plan*, prepared by the California Department of Fish and Wildlife (CDFW) in 2015. The project will help implement the following conservation strategy identified by the Wildlife Plan for anadromous salmonids statewide:
  - Enhance and protect key spawning and rearing habitat for each specific anadromous species (pg. 6-19)

The project would further this strategy by enhancing rearing habitat for coho salmon and steelhead in Redwood Creek.

- The following tasks identified in the *Recovery Strategy for California Coho Salmon*, prepared by CDFW in 2004:
    - Rangewide- Task XIII-C-02: Where appropriate and feasible, work with all parties, including landowners, to reconfigure levees and channelized streams to benefit coho salmon.
    - Rangewide- Task XV-B-01: Maintain or re-establish geographic distribution of coho salmon by continuing to allocate substantial improvement efforts towards identified key refugia with substantial coho salmon populations and/or otherwise suitable conditions.
    - Rangewide- Task XXII-A-04 Encourage restoration of LWD and shade by improvement of existing riparian zones through planting, release of conifers or other appropriate native species, and control of blackberries and other competitors.
4. **Support of the public:** The project enjoys broad public support. Supporters include the California Department of Parks and Recreation, the Marin Municipal Water District, Marin County Parks, the Marin Conservation League, Friends of Mt. Tam, the Salmon Protection and Watershed Network, and San Francisco Bay Joint Venture.
  5. **Location:** The portion of the Redwood Creek Watershed proposed for enhancement is within the coastal zone at Muir Woods, and provides critical habitat to maintain and restore salmon and steelhead populations.
  6. **Need:** The project would not occur without funding for implementation from the Conservancy.
  7. **Greater-than-local interest:** Highly visited Muir Woods presents many with their first introduction to redwood forests and biological resources therein. The proposed project presents an excellent opportunity for outdoor education within striking distance of the greater San Francisco Bay Area.
  8. **Sea level rise vulnerability:** The lowest elevations in the project area are well above sea level, and are therefore not directly vulnerable to sea level rise under current projections.

#### **Additional Criteria**

9. **Urgency:** Coho salmon are currently at 6 to 15% of their abundance during the 1940s. Given this decline, and in light of the State's primary objective of returning coho salmon to a level of sustained viability, while protecting their genetic integrity, enhancement projects with a high potential for recovering local populations of coho salmon are a high priority for the State.

10. **Resolution of more than one issue:** In addition to planning for the enhancement of riparian habitat for salmon, steelhead, and other native species, the project will also prevent loss of property due to bank erosion.
11. **Leverage:** See the “Project Financing” section above.
12. **Conflict Resolution:** While not a conflict, the proposed action does enable the NPS to address a long established County priority identified in the LCP.
13. **Innovation:** With the removal of historic stream structures intended for flood control, the grantee is conducting an innovative effort to improve overall stream condition within a National Park.
14. **Readiness:** The GGNPC and its partners are ready to proceed with project implementation as soon as funding is available.
15. **Realization of prior Conservancy goals:** See “Project History” above.
16. **Cooperation:** Project partners include GGNPC, CCC, CDFW, and SCC. This project would boost the CDFW Jumpstart Program, which is rearing Redwood Creek coho in captivity for reintroduction as adult spawners; but since so many spawn in the Muir Woods reach, the habitat there must be suitable for fry and juveniles for the Jumpstart program to be most effective.
17. **Vulnerability from climate change impacts other than sea level rise:** The project will help improve the resiliency of Redwood Creek and coho in the watershed to increased storm events by restoring floodplain connectivity for improved water temperatures and additional winter refugia for juvenile fish during high flow events.
18. **Minimization of greenhouse gas emissions:** The project was designed to include measures to avoid or minimize greenhouse gas emissions to the extent feasible and consistent with the project objectives, such as by requiring construction equipment to be tuned and maintained to minimize emissions.

**CONSISTENCY WITH LOCAL COASTAL PROGRAM POLICIES:**

Redwood Creek is identified in the Marin County LCP Unit I as having “special significance” due to the natural resource value it possesses, particularly its support of steelhead and “silver salmon” (coho) populations (LCP, Unit I at pg. 15). Furthermore, and as described under “Consistency with Conservancy’s Enabling Legislation,” above, the LCP specifically identifies the condition of Muir Woods as problematic for the survival of steelhead and coho.

By reversing the degradation quoted above from the LCP (LCP, Unit I at pg. 18), the project will directly result in enhancement of the wildlife habitat values of a significant portion of the Redwood Creek watershed.

The proposed project is also consistent with the Coastal Act, section 30231 which states “(t)he biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained, and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of groundwater supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that

protect riparian habitats, and minimizing alteration of natural streams.” (Pub. Res. Code § 30231). The project will enhance the aquatic and riparian habitat of Redwood creek for the benefit of federally listed salmonids. The proposed project is therefore consistent with this section.

Finally, the project occurs on federal parkland. Unit II of the Marin County LCP states that “(f)ederal projects which involve the modification or alteration of natural resources should be evaluated by the Coastal Commission through the consistency review process.” (LCP, Unit II at pg. 61).

#### **COMPLIANCE WITH CEQA:**

The National Park Service (NPS) completed an Environmental Assessment pursuant to the requirements of the National Environmental Policy Act (“NEPA”) entitled *Salmon Habitat Enhancement and Bridge Replacement Project* in December 2017 (“EA”). NPS conducted surveys of the project area to determine the presence of species listed as threatened or endangered under the federal Endangered Species Act in the project area. NPS staff determined that the proposed project would not adversely affect any species. Further, NPS did not find any special status plants within the project area. The EA also considered cumulative impacts of the project and determined that these impacts would be either insignificant or beneficial. NPS subsequently adopted a Finding of No Significant Impact for that project.

The San Francisco Bay Regional Water Quality Control Board (RWQCB) is issuing a §401 Water Quality Certification for this project. RWQCB staff reviewed the EA and determined that the project was a Class 33 Small Scale Habitat Restoration Project as defined under CEQA, and was therefore categorically exempt under 14 Cal. Code. Regs. § 15333.

Small scale habitat restoration projects are exempt from CEQA where (a) the restoration project will not exceed five acres, (b) there would be no significant adverse impact on endangered, rare or threatened species or their habitat; (c) there are no hazardous materials at or around the project site that may be disturbed or removed, and (d) the project will not result in significant adverse cumulative impacts. Conservancy staff has reviewed the EA and categorical exemption and find that the project satisfies the criteria for exemption under Section 15333. Conservancy staff will file a notice of exemption following project authorization.