

COASTAL CONSERVANCY

Staff Recommendation
February 6, 2020

CORTE MADERA CREEK SALMONID FISH PASSAGE PROJECT

Project No. 19-047-01
Project Manager: Shalini Kannan

RECOMMENDED ACTION: Authorization to disburse up to \$239,719 to Friends of Corte Madera Creek Watershed to prepare design criteria, alternatives, and 35% design drawings for channel modifications to improve salmonid fish passage in a 3,100-foot long reach of concrete channel in the Corte Madera Creek in Marin County.

LOCATION: Channel of Corte Madera Creek, Marin County

PROGRAM CATEGORY: San Francisco Bay Area Conservancy Program

EXHIBITS

- Exhibit 1: [Project Location Map](#)
Exhibit 2: [Project Site Map & Photos](#)
Exhibit 3: [Project Letters](#)
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RESOLUTION AND FINDINGS:

Staff recommends that the State Coastal Conservancy adopt the following resolution pursuant to Sections 31160-31165 of the Public Resources Code:

“The State Coastal Conservancy hereby authorizes the disbursement of an amount not to exceed two hundred thirty-nine thousand seven hundred and nineteen dollars (\$239,719) to the Friends of Corte Madera Creek Watershed (“the grantee”) to prepare design criteria, alternatives, and 35% design drawings, and prepare a Basis of Design Report for channel modifications to improve fish passage for adult steelhead and coho salmon in a 3,100-foot long channelized portion of the Corte Madera Creek in Marin County.

Prior to commencement of the project, the grantee shall submit for the review and written approval of the Executive Officer of the Conservancy (Executive Officer) the following:

1. A detailed work program, schedule, and budget.

2. Names and qualifications of any contractors to be retained in carrying out the project.
3. A plan for acknowledgement of Conservancy funding and Proposition 1 as the source of that funding.”

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 4.5 of Division 21 of the Public Resources Code, Sections 31160-31165, regarding the San Francisco Bay Area Conservancy Program.
 2. The proposed project is consistent with the current Conservancy Project Selection Criteria and Guidelines.
 3. The Friends of Corte Madera Creek Watershed is a nonprofit organization organized under section 501(c)(3) of the U.S. Internal Revenue Code.”
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PROJECT SUMMARY:

Staff recommends disbursement of up to \$239,719 to Friends of Corte Madera Creek Watershed to prepare design criteria and alternatives, develop 35% design drawings, and prepare a Basis of Design Report to encourage salmonid fish passage in a 3,100-foot long reach of concrete channel in the Corte Madera Creek in Marin County (the “Project”). See Exhibit 1 for location. The proposed Project represents the fish passage portion of a larger effort by the Marin County Water Conservation and Flood Control District (FCD) to reduce flooding and restore the creek’s natural functions, called the “Corte Madera Creek Flood Risk Management Project.”

Corte Madera Creek watershed supports populations of steelhead trout (*Oncorhynchus mykiss*), listed as threatened under the Federal Endangered Species Act, and has been identified as one of eight “anchor watersheds” in the San Francisco Bay Area having the highest restoration potential for steelhead (Center for Ecosystem Management and Restoration). Although the creek also historically supported runs of coho salmon (*Oncorhynchus kisutch*), observed in the watershed until the early 1980s, they are considered extirpated from the watershed, likely due in part to a concrete channel designed and built by the US Army Corps of Engineers (USACE) in the 1960s. This channel is a barrier to fish passage, is damaging to all creek functions, and also fails to reduce the risk of flooding in some of its reaches.

Rapid, high flows through this channel during rain events cause flooding in some reaches of the channel and inhibit anadromous fish passage upstream. A Fish Passage Assessment and Alternatives Analysis prepared for the grantee in 2007 documented that this channel is a velocity barrier for salmonids. Another barrier to salmonid migration is a wooden Denil fish ladder (a type of fish ladder that uses a series of sloped channels and wooden baffles) at the upstream transition of the concrete flood control channel to a natural channel. Constructed in

late 1969, it was intended to provide temporary passage over a grade control structure when construction of the concrete channel was halted for the winter. Due to numerous complications, it is still in place 50 years later. It does not provide suitable fish passage conditions because of the ladder's inadequate hydraulic capacity combined with adverse hydraulic conditions at the ladder entrance.

Upstream of the Project reach, several areas present suitable spawning gravels and rearing habitat. At the lower end of this reach, tidal action allows spawning salmonids to pass through the concrete channel. However, when tides lower or the fish continue upstream, there is no place for them to rest. The proposed Project would address fish passage in this reach that currently limits anadromy and fish access to upstream habitats. Exhibit 2 shows a map of this reach and photos of its existing channelized condition.

While removal of the concrete channel is not feasible due to adjacent development and flood control benefits the channel provides to some of these communities, the Project would analyze design criteria and alternatives, and develop 35% design drawings to modify the channel and the fish ladder to improve passage conditions for adult steelhead and coho salmon as they move upstream to reach spawning habitat. Alternatives developed in 2007 will be used as the starting point to develop design alternatives that would enable the channel to accommodate increased flows and more intense winter storms caused by climate change. The design will also be integrated into the Corte Madera Creek Flood Risk Management Project to ensure the fish passage design does not adversely affect flood risk management in the watershed. The grantee will coordinate with NOAA National Marine Fisheries Service (NMFS) and California Department of Fish and Wildlife (CDFW) to develop the design criteria and the range of alternatives. The Project will also include preparation of a Basis of Design Report—a detailed project description, and information sufficient to communicate the project's design intent and anticipated performance to stakeholders.

It is anticipated that a voter-approved stormwater fee for the Ross Valley Watershed Program might support future Project needs, including preparation of 100% design drawings for the "Corte Madera Creek Salmonid Fish Passage Project" and environmental review for the "Corte Madera Creek Flood Risk Management Project."

Site Description:

The Project Reach is approximately 3,100 feet of concrete channel from the Math-Science-Nursing (MSN) Bridge on the College of Marin (COM) campus to the fish ladder. During storm events, this channel and many low elevation communities in the Ross Valley Watershed are prone to flooding. The FCD either owns or has easements over the entire concrete channel. The easements include permanent access for maintenance, repair, and modification of the concrete channel and public access to a multi-use path along the left bank of the creek throughout the project area.

Corte Madera Creek is designated critical habitat for Central California Coast steelhead, Central California Coast coho salmon and Central California Coast coho salmon. There is poor wildlife and aquatic habitat in the concrete channel, although common water birds use it at low flows and the creek continues to provide migration corridor elements for waterfowl and fish.

Urban/developed habitat adjacent to the channel includes both landscape vegetation and infrastructure (buildings, roads, trails, etc.). Some trees, present intermittently along the top of the vertical concrete channel walls, provide shade to the creek and may serve as limited aquatic food web support.

A multi-use path connecting communities in the upper watershed to the lower watershed follows the right bank of the creek (looking downstream) throughout the Project reach; it is expected to be retained and refurbished if this Project is implemented.

Grantee Qualifications: Founded in 1995, Friends of Corte Madera Creek Watershed has a record of successfully implementing habitat restoration projects and of obtaining funding for assessing barriers to passage, designing treatment, and implementing construction projects. In collaboration with local governmental agencies, the grantee constructed a retrofit of a culvert on San Anselmo Creek and replaced an under-sized culvert in the tidal reach of Corte Madera Creek. The grantee leverages partnerships with the FCD and Ross Valley Sanitary District (RVSD) for this project, adding further expertise to the project team.

Project History:

Between 1914 and 1969, communities within the Corte Madera Creek basin suffered major flood damage at least nine times. In the late 1960s, the USACE began construction on the concrete flood control channel originally intended to extend 6.5 miles through Larkspur, Kentfield, Ross, San Anselmo and Fairfax. Due to community opposition over environmental impacts, extensions further upstream were halted in 1972 with only a portion of the project completed to this day. A wooden Denil fish ladder was built in 1969 as a temporary implement during construction, but it remains in place today and marks the upstream boundary of the proposed Project. In 1982, up to five feet of water caused considerable damage in San Anselmo, Ross, Kentfield and Larkspur, and the third largest flood on record in the basin occurred the following year. On New Year's Day 2006, flooding caused over \$70 million in damage when the creek overtopped the banks and destroyed property in San Anselmo and nearby communities.

In response to the floods of early 2006, the County of Marin authorized the Public Works Department to develop a flood management program to address flood and environmental issues in Corte Madera Creek. After major flooding in 2005, voters approved a stormwater fee funding the Ross Valley Watershed Program to reduce the risk of flooding and enhance habitat. Implementation of this Program is underway for many projects throughout the watershed, and past and proposed Conservancy funding falls under these actions. In 2006, the Conservancy funded a study of Corte Madera Creek that aided in developing the hydraulic watershed model used to evaluate projects throughout the Ross Valley watershed. In 2007 the Conservancy supported preparation of the San Francisco Estuary Watershed Evaluation (Center for Ecosystem Management and Restoration 2007), which identified Corte Madera Creek Watershed as an anchor watershed for steelhead restoration.

In 2018, the USACE prepared a draft EIS/EIR for a project to reduce flood risk in the Ross and Kentfield area. However, the local community did not accept this project, and the document did not adequately meet requirements of the California Environmental Quality Act or acknowledge

fish passage issues per NMFS and CDFW review. The USACE stopped work because it lacked funding to respond to the deficiencies of the draft EIS/EIR. Accordingly, the FCD, the local sponsor, suspended its agreement to work with the USACE and began pursuing a local project without USACE participation. This new effort is the aforementioned “Corte Madera Creek Flood Risk Management Project.”

The Conservancy is currently supporting a companion project via its October 2019 grant to Friends of Corte Madera Creek Watershed to prepare 65% designs for the removal of part of the same concrete channel downstream of the proposed project (in partnership with the Marin Community Foundation’s “Advancing Nature-Based Adaptation Solutions in Marin County” program).

PROJECT FINANCING

Coastal Conservancy	\$239,719
Project Total	\$239,719

The source of Conservancy funds for this project is the fiscal year 19/20 appropriation to the Conservancy 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.” (Water Code § 79731.). This project addresses several of the specific purposes of Chapter 6, listed in Section 79732, of which the following pertain to this project: remove barriers to fish passage (subsection (a)(6)), protect and restore coastal watersheds (subsection (a)(10)); and assist in the recovery of endangered species by improving watershed health, instream flows, and fish passage (subsection (a)(12)).

As required by Proposition 1, the proposed project provides multiple benefits. Designs developed will aid in the recovery of endangered species while also balancing flood control and public access features. The proposed project was selected through a competitive grant process under the Conservancy’s Proposition 1 Grant Program Guidelines (See § 79706). The proposed project meets each of the evaluation criteria in the Prop 1 Guidelines as described in further detail in this Project Financing section and in the “Project Summary” and “Consistency with Conservancy’s Project Selection Criteria & Guidelines” sections of this staff recommendation.

The grantee and project partners will provide in-kind services in the form of staff or volunteer time with contributions estimated as follows: \$19,100 from the grantee, \$50,000 from the FCD, and \$10,900 from COM and the Ross Valley Sanitary District (RVSD). The FCD will be intimately involved because, as the holder of the right-of-way for the creek, it will likely bid and oversee any construction contract. COM, as an adjacent land owner also keen on restoring the creek and reducing flooding on its campus, needs to review the Project and collaborate on the development of educational programs for students related to the creek restoration. The Ross Valley Sanitary District (RVSD), whose sewer trunkline is adjacent to the concrete channel,

would also be involved to ensure that the trunkline would not be compromised by any of the alternatives.

CONSISTENCY WITH CONSERVANCY'S ENABLING LEGISLATION:

The proposed project would be undertaken pursuant to Chapter 4.5 of the Conservancy's enabling legislation, Public Resource Code (PRC) Sections 31160-31165, which establish that the Conservancy may award grants in the nine-county San Francisco Bay Area towards the resource and recreational goals of the San Francisco Bay Area Conservancy Program, and pursuant to Section 31111.

Under Section 31162(b), the Conservancy may act to protect, restore, and enhance natural habitats, connecting corridors, and watersheds of regional significance. The proposed project will assist in the enhancement of an anchor watershed for steelhead trout in Marin County in the Bay Area.

The proposed project satisfies all of the criteria for determining project priority under 31163(c), since the project: 1) is supported by adopted regional plans including the Final Coastal Multispecies Recovery Plan for California Coastal Chinook Salmon, Northern California Steelhead and Central California Coast Steelhead (NOAA National Marine Fisheries Service, 2016), the Marin County Stream Crossing Inventory and Fish Passage Evaluation (2003), and Historical Distribution and Current Status of Steelhead/ Rainbow Trout in Streams of the San Francisco Estuary, California (Center for Ecosystem Management and Restoration); 2) is multijurisdictional in that it spans the jurisdictions of Ross and Kentfield, and serves a regional constituency by creating access to habitat for steelhead trout, a special status species; 3) can be implemented in a timely manner; 4) provides benefits to anadromous fish that will be lost if the project is not quickly implemented; and 5) will leverage in-kind match from several project partners.

The Conservancy is authorized under Section 31111 of the Public Resources Code to fund and undertake plans and feasibility studies and award grants to nonprofit organizations, like Friends of Corte Madera Creek Watershed, for these purposes.

CONSISTENCY WITH CONSERVANCY'S [2018-2022 STRATEGIC PLAN](#) GOAL(S) & OBJECTIVE(S): Consistent with **Goal 12, Objective E** of the Conservancy's 2018-2022 Strategic Plan, the proposed project will develop plans for enhancement of riverine habitat and watershed functions for the benefit of wildlife, including removal of barriers to fish passage.

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:**
 - *California Water Action Plan.* Consistent with Action 4 to Protect and Restore Important Ecosystems, the Project will make a plan to eliminate barriers to fish migration, involving culvert improvement to provide anadromous fish species access to historic spawning and rearing habitat.
 - *California State Wildlife Action Plan.* Steelhead Central California DPS is identified as a Species of Greatest Conservation Need (Table 5.3-3, pp. 5.3-16). This project directly addresses improving the habitat for steelhead by planning how to remove a major barrier to passage.
 - *Steelhead Restoration and Management Plan for California (California Department of Fish and Wildlife, 1996, Updated Statewide 2013 Task List).* The Project is consistent with tasks CC-04-211-01 to remediate prioritized steelhead migrational barriers, and CC-12-211-01 to design passage projects for prioritized steelhead migrational barriers (pp. 8-9)
4. **Support of the public:** The project is supported by Marin County Flood Control and Water Conservation District, Ross Valley Sanitary District, College of Marin, Marin County Parks, San Francisco Bay Conservation and Development Commission, and local representatives. Letters are attached as Exhibit 3.
5. **Location:** The Project is located in the unincorporated communities of Ross and Kentfield in Marin County, within the jurisdiction of the San Francisco Bay Area Conservancy Program.
6. **Need:** During the earlier aborted Corte Madera Creek flood control and restoration project led by the USACE (see the “Project History” section, above), the FCD sunk substantial funds into the effort which ultimately failed, leaving them with a reduced budget. The FCD needs this analysis completed as soon as possible so that permitting of the Phase 1 Corte Madera Flood Risk Management Project can continue as planned, and takes into account feasible fish passage measures. Further, securing these planning funds promptly might result in construction cost savings if this fish passage project could be constructed in concert with related projects, including the adjacent Allen Park Project or removal of the concrete wall at the downstream end of the channel.
7. **Greater-than-local interest:** Corte Madera Creek is identified as one of three eastern Marin County anchor watersheds for steelhead in the San Francisco Bay, and removing fish passage barriers in this Project’s reach will reconnect habitat for salmonids throughout the creek, across several jurisdictions. Additionally, the project would provide valuable information about how to reduce the damage done to anadromous fish populations by

concrete channels' fish passage limitation throughout the Bay Area. Specifically, Stevens Creek in Cupertino and Branciforte Creek and the San Lorenzo River in Santa Cruz are steelhead streams with flood control channel barriers to passage that could benefit from lessons learned.

8. **Sea level rise vulnerability:** The proposed Project is high enough in the system such that it will not be vulnerable to future sea level rise. Although the reaches downstream of the Project are affected by the tide (the higher the tide, the more easily steelhead can pass through the channel at a given flow), in this reach, all the flooding is riverine. Sea level rise will cause improvements in the lower section of the channel to be inundated more frequently, but would not affect fish passage in this Project reach.

Additional Criteria

9. **Leverage:** See the "Project Financing" section above.
10. **Innovation:** This project proposes to use and to advance the best scientific methods and information available. The selected project consultants have been working on cutting edge approaches to analyzing barriers to fish passage, including the swimming ability of fish; water velocity, turbulence, and depth; advanced 2-D and 3-D modeling; and analysis of how structures can be modified to eliminate barriers. This work began with analysis of culverts, the most common barrier. However, this project would advance the knowledge by expanding it to long concrete channels.
11. **Realization of prior Conservancy goals:** "See "Project History" above.
12. **Cooperation:** The Project demonstrates cooperation between the grantee, the FCD, COM, and RVSD; they all share an interest in restoring the Project reach, and have committed substantial in-kind resources.
13. **Vulnerability from climate change impacts other than sea level rise:** The viability of steelhead trout in many tributaries of San Francisco Bay in the future may be threatened by changes to the climate, including rising temperatures and changes in precipitation and hydrology; planning for habitat enhancement in this anchor watershed will improve overall species resilience in the Bay Area. In addition, the Project will consider increased flows and flood risk from more extreme storms caused by climate change when planning fish passage alternatives. The grantee anticipates that their project immediately upstream at Allen Park in the Town of Ross will include partial or total concrete channel removal, which would restore riparian vegetation and reconnect the creek to groundwater inputs, providing cooler water flows downstream, and maybe slightly higher base flows. If stakeholders agree to move forward with this concrete removal, both projects would be more resilient to conditions of heat and drought resulting from climate change.
14. **Minimization of greenhouse gas emissions:** The Project will include fish passage design that is a passive system. It does not require electricity for operation, and the grantee does not anticipate operation and maintenance work that would require greenhouse gas emission machinery.

CEQA COMPLIANCE:

The proposed Project consists of planning and design activities, including data collection and research to develop a Basis of Design Report and 35% designs, and as such is statutorily exempt from CEQA pursuant to 14 Cal. Code of Regulations Sections 15262 (feasibility or planning studies for possible future actions) and categorically exempt pursuant to Section 15306 (basic data collection, research, experimental management and resource evaluation activities which do not result in a serious or major disturbance to an environmental resource).

Upon Conservancy approval, staff will file a Notice of Exemption.