

COASTAL CONSERVANCY

Staff Recommendation  
January 21, 2021

**MARSHALL RANCH – SOUTH FORK EEL RIVER FLOW ENHANCEMENT PLANNING**

Project No. 20-042-01  
Project Manager: Lisa Ames

**RECOMMENDED ACTION:** Authorization to disburse up to \$245,000 to the Salmonid Restoration Federation to prepare design and environmental compliance documents for an off-stream water storage pond and associated infrastructure on Marshall Ranch to enhance summer flows to benefit salmonids in the Redwood Creek watershed, a tributary to the South Fork Eel River in Humboldt County.

**LOCATION:** Briceland, Humboldt County

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EXHIBITS

- Exhibit 1: [Project Location and Site Maps](#)  
Exhibit 2: [Project 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 Section 31220 of the Public Resources Code:

“The State Coastal Conservancy hereby authorizes a grant of an amount not to exceed two hundred forty-five thousand dollars (\$245,000) to the Salmonid Restoration Federation (“the grantee”) to collect data and prepare designs, environmental compliance documents, and an operations plan for an off-stream water storage pond and associated infrastructure on the Marshall Ranch in Humboldt 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 5.5 of Division 21 of the Public Resources Code, regarding integrated coastal and marine resources protection.
  2. The proposed project is consistent with the current Conservancy Project Selection Criteria and Guidelines.
  3. The Salmonid Restoration Federation 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 the Conservancy authorize a grant of \$245,000 to the Salmonid Restoration Federation (SRF) to collect data, prepare designs and environmental compliance documents, and prepare an operations plan for development of an off-channel water storage pond and associated infrastructure on the Marshall Ranch in the Redwood Creek watershed, a significant tributary of the South Fork Eel River (SFE). The Marshall Ranch is located seven miles west of Garberville in the disadvantaged community of Briceland (see Exhibit 1). The purpose of the proposed project is to enhance threatened anadromous fish habitat in Redwood Creek by designing a sustainable water source to augment critically low flows during the dry season when juvenile salmonids are most vulnerable to lethal water temperatures and lack of habitat. Funding to cover initial project design and permitting was secured through the Wildlife Conservation Board (WCB) in 2018. During the initial phase, additional tasks were identified as necessary to complete environmental review and permitting. This project will gather additional technical information and revise designs to incorporate the new information for purposes of completing the CEQA documentation.

The SFE River and its tributaries that include Redwood Creek provide habitat for state and federally threatened coho salmon and for steelhead trout, a federally threatened and CA Department of Fish and Wildlife (CDFW) species of special concern. Since 1999, the SFE River has been designated as an impaired water body by the North Coast Regional Water Quality Control Board (NCRWQCB) due to excessive sediment and high water temperatures, conditions that have led to a precipitous decline in the river’s cold water fish populations. Today, remnant fish populations survive in Redwood Creek, but despite considerable expenditures on habitat restoration projects (i.e., sediment reduction and placement of large in-stream wood habitat structures), many stream reaches do not have sufficient flow to maintain the diminishing populations. Redwood Creek was selected as one of seven “priority sub-watersheds” of the SFE by the Salmon Habitat and Restoration Prioritization process led by NOAA Fisheries and CDFW in 2017. The group ranked dry-season low flow as the single largest threat to coho salmon recovery within the sub-watershed. The proposed project will address this key limiting factor by

planning for storing runoff during the wet season and strategically releasing the stored water to enhance flows in a critical reach of Redwood Creek during the dry season.

Since 2013, SRF has been actively engaged in low flow monitoring and planning in the Redwood Creek tributary of the SFE River, including providing technical assistance and conducting targeted water conservation outreach to the community. In 2015, with support from the NCRWQCB 319h Program, SRF was able to add data loggers to the monitoring efforts, create a Technical Advisory Committee and a Quality Assurance Program Plan, hire a consulting hydrologist, and produce a preliminary hydrology report for Redwood Creek. Subsequently, CDFW funded a flow enhancement feasibility study for a portion of Redwood Creek which included a preliminary water availability analysis and assessment of high priority flow enhancement actions. For the feasibility study, SRF teamed up with Stillwater Sciences, a consulting firm, to prepare conceptual designs for off-channel rainwater catchment ponds that could improve water security for individual parcels but would require wide and coordinated participation in order to measurably improve flows. After significant research and reconnaissance, the SRF and Stillwater project team - with input from agency staff - determined that the greatest opportunity to improve stream flows in Redwood Creek was a large off-stream pond on the Marshall Ranch. CDFW conducted surveys between 2010 and 2018 that showed coho redd (spawning sites) density occurred in the ~1.5 miles of Redwood Creek mainstem downstream from the project site and that spawning also occurred immediately upstream from the proposed project site. It is expected that flow augmentation would allow fish to move downstream to find habitat during the dry season. (See Exhibit 2: Photos)

Specifically, the project includes preparation of designs and environmental compliance documents for construction of a 15.3 million gallon off-stream pond that will provide an augmentation of 50 gallons per minute (gpm) of cool water to Redwood Creek during the dry season. In addition to the pond, designs will include the following components: 1) an on-demand water chiller to reduce temperatures in the reservoir outflow as needed, 2) diversion infrastructure to capture wet season runoff, 3) large wood and boulder habitat enhancement features, 4) gully stabilization treatments, 5) 7.5 Kilowatt solar array to generate enough electricity to maintain the project, 6) access road improvements, and 7) data collectors and network to monitor post project conditions of the pond, groundwater, and streamflow. As part of preparation of the operations plan, a water trust organization will be created to manage the project and ensure that the flow enhancement is delivered to Redwood Creek for a minimum of 30 years. Additionally, it is anticipated that the water trust, working in parallel with the project team and local agency staff, will support other flow enhancement activities in Redwood Creek and work with the downstream community to protect the augmented flows from diversion.

Multiple assessments have been conducted at the project site including geomorphic and geotechnical investigations, a cultural resources evaluation, and a biological resources assessment. These studies have concluded that the site is suitable for the proposed off-stream pond. The project is designed to cause minimal disturbance to biological resources because most of the project footprint is positioned within upland areas covered by non-native grasses. The riparian and instream treatments that are being designed are intended to reduce erosion and improve aquatic habitat.

**Site Description:** The 2,942-acre Marshall Ranch is adjacent to Redwood Creek, a significant tributary to the SFE in Humboldt County. It is in Briceland, a disadvantaged community seven miles west of Garberville. The area is comprised of a patchwork of 400 private parcels with Marshall Ranch being a rare example of a large contiguous land area under one ownership in the Redwood Creek watershed. The ranch has been managed sustainably for timber production and livestock since the 1880s, while also providing habitat for fish and wildlife. In 2019, the California Rangeland Trust acquired a conservation easement covering the entire Marshall Ranch. CalFire, California Department of Fish and Wildlife (CDFW), and the California Department of Conservation funded the conservation easement which prevents the subdivision and development of 34 parcels on the ranch and restricts usage to agriculture and habitat protection.

The SFE and its tributaries including Redwood Creek provide habitat for Southern Oregon/Northern California coho salmon (*Oncorhynchus kisutch*) which are designated as state and federally threatened, and for Northern California steelhead (*Oncorhynchus mykiss*), a federally threatened and also CDFW species of special concern. CDFW considers the SFE coho population significant because it has little hatchery influence and thus is important for the genetic integrity of the stock. Historically, the forested Redwood Creek watershed provided refugia habitat for thriving populations of juvenile salmonids, but the cumulative impacts of legacy logging and unregulated water diversions and the resulting lack of dry season flows have degraded this rearing habitat and dramatically reduced fish populations. Remnant fish populations survive in Redwood Creek (NMFS 2014), yet despite considerable expenditures on habitat restoration projects (i.e. sediment reduction and in-stream placement of large wood habitat structures), many stream reaches do not have sufficient flow to maintain the diminishing populations.

The project's off-channel pond will be sited: 1) in a broad area with gentle topography; 2) outside the Redwood Creek floodplain and channel migration corridor; 3) in an area with no watercourses, wetlands, trees or other sensitive plant species; and 4) at an elevation with enough pressure head to deliver the entire pond volume to Redwood Creek by gravity.

**Grantee Qualifications:** The Salmonid Restoration Federation (SRF) was formed in 1986 to help stream restoration practitioners advance the art and science of watershed restoration. SRF promotes restoration, stewardship, and recovery of California native salmon, steelhead, and trout populations through education, collaboration, and watershed capacity building. SRF has been actively engaged in low flow monitoring, planning, and water conservation outreach in the Redwood Creek tributaries of the South Fork Eel River for over seven years including providing technical education and assistance, conducting targeted education and outreach, low flow monitoring, and producing a feasibility study and target flow memo with the proposed project team including the technical lead for the project, Stillwater Sciences.

Stillwater Sciences specializes in restoration design, hydrology, geomorphology, fisheries, wildlife biology, water quality, and regulatory compliance. Stillwater routinely works with multi-stakeholder teams to implement complex scientific studies, develop engineered designs, and comply with regulatory guidelines. Stillwater's past projects related to flow enhancement include: Redwood Creek Flow Enhancement, Mattole Headwaters Flow Enhancement, Regional

Instream Flow Assessment, San Luis Obispo County, and SF Eel River TMDL development support.

SRF is uniquely qualified to perform the proposed work based on its successful history of providing technical education and planning within the proposed watershed, its strong working relationships with landowners, stakeholders and the regulatory agencies focused on this important watershed, and the qualifications of the proposed technical lead for the project, Stillwater Sciences.

### **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 below.
2. **Consistency with purposes of the funding source:** See the "Project Financing" section below.
3. **Promotion and implementation of state plans and policies:** The proposed project is consistent with the following state plans and policies:
  - California Wildlife Action Plan (2016). The South Fork Eel River (SFE) is one of five priority watersheds designated for flow enhancement projects by the CWAP because of its importance as a salmonid stream. The CWAP states that for regional North Coast or Klamath systems where insufficient or altered flow regimes limit salmon and steelhead populations, stakeholders should work to increase instream flows and replicate natural flow regimes as the project proposes.
  - California Water Action Plan (2014). This project will advance the following goals of the Plan: Goal #4, Protect and restore important ecosystems - the project seeks to develop a plan to restore floodplain connectivity and the diverse array of riparian and aquatic species it supports; and Goal #5, Manage and prepare for dry period - the project seeks to plan large-scale stormwater storage to address dry season streamflow impairments to benefit threatened anadromous fish.
  - Final Southern Oregon/Northern California Coast Coho Salmon Recovery Plan (NOAA Fisheries, 2014). The proposed project includes planning to implement the Recovery Plan's "Associated Actions SONCC-SFER 3.1.7.1": Hydrology task to improve instream flow timing and volume by developing an off-stream water storage pond that will augment low summer flows by 50 gpm, a critical volume for juvenile salmonids.
4. **Support of the public:** Public agencies that have supported the project through funding or technical expertise include: CDFW, WCB, North Coast Regional Water Quality Control Board, and NOAA Fisheries. Private foundations that provided initial seed money include Humboldt Area Foundation, Bella Vista Foundation, and the Humboldt Fish and Game Commission.

Non-profit organizations that have provided valuable in-kind support include Trout Unlimited and Sanctuary Forest. Humboldt County Board of Supervisor, Estelle Fennel, the Briceland Fire Department and Briceland Community Services District all support the project. (See Exhibit 3)

5. **Location:** See the "Site Description".
6. **Need:** If funds from the Conservancy are not available, progress on designs, CEQA completion and implementation will be postponed. SRF will likely be delayed in applying for WCB's next Streamflow Enhancement solicitation for implementation funding, further delaying enhancement of the aquatic habitat for the critically threatened anadromous fish in the watershed.
7. **Greater-than-local interest:** Coastal salmon resources support sport, commercial and tribal fisheries, and are therefore of importance to the entire State.
8. **Sea level rise vulnerability:** This project is located in the South Fork Eel watershed, not near to the shoreline, and is therefore not vulnerable to sea level rise.

#### **Additional Criteria**

9. **Urgency:** Delay in enhancing degraded aquatic habitats in Redwood Creek will further endanger the critically threatened anadromous fish species in the South Fork Eel watershed.
10. **Leverage:** See the "Project Financing" section below.
11. **Innovation:** This project will utilize innovative streamflow enhancement techniques, drawing from similar efforts in the Russian River that have proven successful over the past five years. The project includes an off-channel reservoir dedicated specifically to enhancing dry-season flows. Water will be drawn from the bottom of the pond and a cooling unit will ensure that water is delivered to the stream with low temperature to provide optimal aquatic habitat. Extensive monitoring equipment built into the project will allow for adjustments to operations based on performance of the project and varied climatic conditions.
12. **Readiness:** The grantee has been working on planning for the project since 2018 and is fully ready to complete the project as proposed and scheduled.
13. **Cooperation:** The landowner of Marshall Ranch along with regulatory water and fisheries agencies have been actively engaged in the development of the project.
14. **Vulnerability from climate change impacts other than sea level rise:** This project is intended to provide climate change resiliency by capturing wet season runoff and storing the water in an off-stream reservoir. Current trends in climate change in north coastal CA are pointing strongly toward a longer dry season becoming the new normal. By storing wet season runoff and releasing the runoff during the peak of the dry season, the project will greatly improve conditions for vulnerable salmonids and other aquatic species. Additionally, the project is intended to function in drought years as well, with multiple sources used to fill the reservoir even when significantly below-average precipitation is achieved during a given season. Finally, climate change is leading to significantly higher risk of catastrophic fires -

this project will provide a key local water source to combat catastrophic wildfires within the Redwood Creek watershed and adjacent communities.

15. **Minimization of greenhouse gas emissions:** The proposed project involves design and environmental review preparation, which in and of itself will not result in significant greenhouse gas emissions. When the project moves into the construction, it will produce greenhouse gas emissions. However, the project design includes several key components to offset the greenhouse gas emissions. First, the project operation involves a solar energy generation component which is a non-greenhouse gas emitting energy source. Second, the project has a fire suppression component which is expected to greatly reduce the risk of catastrophic wildfires within the project vicinity. Catastrophic wildfires are a significant source of carbon emissions that are expected to be reduced because of this project.

**PROJECT FINANCING**

|                             |                  |
|-----------------------------|------------------|
| <b>Coastal Conservancy</b>  | <b>\$245,000</b> |
| Wildlife Conservation Board | \$257,460        |
| <b>Project Total</b>        | <b>\$502,460</b> |

The expected source of Conservancy funds for this project is an 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. . .” (Section 79731). Section 79732 identifies specific purposes of Chapter 6. The proposed project will achieve several of these purposes, including: (subsection(a)(4)) - protect and restore aquatic, wetland and migratory bird ecosystems including fish and wildlife corridors, (subsection(a)(10))-protect and restore coastal watersheds, and (subsection(a)(12) - assist in the recovery of endangered, threatened or migratory species by improving watershed health, instream flows, fish passage and coastal or inland wetland restoration. The proposed project will lead to the restoration of stream function benefitting each of these goals.

As required by Proposition 1, the proposed project provides multiple benefits. By preparing to restore habitat complexity and restore hydrologic connectivity between the river and its floodplain, the project, when implemented, will restore historic access to juvenile salmonid rearing habitat, promote groundwater recharge and help restore a healthy riparian corridor that benefits many aquatic and terrestrial species. The project would also improve water quality in a coastal watershed by creating the important shading and filtering function that healthy riparian zones provide.

The proposed project was selected through a competitive grant process under the Conservancy’s “Proposition 1 Grant Program Guidelines” adopted in June 2015. (See § 79706(a)). The proposed project meets each of the evaluation criteria in the Proposition 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.

In addition, Stillwater Sciences expects to contribute \$13,080 in staff time to the project.

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

The project will be undertaken pursuant to Chapter 5.5 of the Conservancy’s enabling legislation, Public Resource Code section 31220, as follows: Pursuant to section 31220(b), the Conservancy may award grants to nonprofit organizations in order to improve and protect coastal watershed and marine water quality and habitat, including projects that restore fish habitat within coastal watersheds (§ 31220(b)(2)), and projects that protect and restore floodplains and other sensitive watershed lands, especially watershed lands draining to sensitive coastal or marine areas (§ 31220(b)(6)). As discussed above, the project will benefit anadromous salmonids and enhance coastal watershed habitat.

As required by Section 31220(a), staff has consulted with the North Coast Regional Water Quality Control Board about the project and established that the project will help enhance the beneficial uses, such as cold-water fisheries, identified in the basin plan for the South Fork Eel River. Finally, consistent with section 31220(c), the plans produced under the proposed project will identify criteria to be used to monitor and evaluate the restoration, once implemented.

**CONSISTENCY WITH CONSERVANCY’S [2018-2022 STRATEGIC PLAN](#) GOAL(S) & OBJECTIVE(S):**

Consistent with **Goal 6, Objective C** of the Conservancy’s 2018-2022 Strategic Plan, the proposed project will complete a plan to preserve and enhance coastal watersheds and floodplains, including plans to improve fish passage, notably for anadromous fish species that depend on suitable water temperatures, water volumes and habitat complexity to survive.

Consistent with **Goal 6, Objective F**, the proposed project will complete a plan to improve water quality to benefit ocean and coastal resources, notably for anadromous fish species.

Consistent with **Goal 16, Objective A**, the proposed project will support a plan that when implemented will benefit the disadvantaged community of Briceland.

**CONSISTENCY WITH LOCAL WATERSHED MANAGEMENT PLAN/STATE WATER QUALITY CONTROL PLAN:**

The project is consistent with the North Coast Regional Water Quality Control Board, Action Plan to Implement Water Quality Objectives for Temperature in the Mattole, Navarro, and Eel River Watersheds as follows:

Associated actions include the following water quality objectives for temperature: 5.3.5 Address Temperature Concerns Using Other Tools, 5.3.6 Address Temperature Concerns Through Support of Restoration, 5.3.7, 5.3.8 Coordinate with the Division of Water Rights in the Development of Instream Flow Studies and Flow Objectives, and 6.5.9: Water Use, “to support



efforts to develop off stream water storage for diverters that currently divert surface water during the dry season.”

**CEQA COMPLIANCE:**

The project involves information collection and resource evaluation for possible future action. The project will not result in disturbance to an environmental resource. Therefore, the project is categorically exempt from California Environmental Quality Act (CEQA) under 14 Cal. Code of Regulations Section 15306. The project is also statutorily exempt from preparation of a CEQA document under section 15262, which exempts feasibility and planning studies, because it involves preparation of the project designs and environmental review documents for a restoration project that the Conservancy has not approved, adopted, or funded and will include consideration of environmental factors.

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