

COASTAL CONSERVANCY

Staff Recommendation
May 24, 2018

**MATTOLE HEADWATERS GROUNDWATER, STREAMFLOW
AND HABITAT ENHANCEMENT**

Project No. 18-007-01
Project Manager: Su Corbaley

RECOMMENDED ACTION: Authorization to disburse up to \$412,770 to Sanctuary Forest, Inc. to implement two habitat restoration projects, located in Baker Creek and Lost River, for the purpose of improving salmonid habitat in these two tributaries to the headwaters of the Mattole River, Humboldt County.

LOCATION: Headwaters of the Mattole River, Humboldt County

PROGRAM CATEGORY: Integrated Coastal and Marine Resources Protection

EXHIBITS

- Exhibit 1: [Project Location](#)
- Exhibit 2: [Summary of Anticipated Water Supply Benefits](#)
- Exhibit 3: [Baker Creek Upslope Groundwater Recharge Project Design and Site Photos](#)
- Exhibit 4: [Lost River Groundwater and Streamflow Enhancement Project Design and Site Photo](#)
- Exhibit 5: [Project Letters](#)

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 the disbursement of an amount not to exceed four hundred twelve thousand, seven hundred-seventy dollars (\$412,770) to Sanctuary Forest, Inc. (SFI), to implement two restoration projects to improve anadromous salmonid habitat within the headwaters of the Mattole River. The two projects are: (a) the Baker Creek Upslope Groundwater Recharge Project, including construction of three ponds, planting of riparian vegetation, and post-project adaptive management; and (b) the Lost River Groundwater and Streamflow Enhancement Project, including site preparation, installation of instream structures, and construction of a pond. This authorization is subject to the following conditions:

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1. Prior to commencement of each project, the grantee shall provide:
 - a. Evidence that all permits and approvals required to implement the project have been obtained.
 - b. A detailed work program that includes a scope, schedule, budget and a plan for acknowledging Conservancy funding and Proposition 1 as the source of that funding.
 - c. The names and qualifications of any contractors to be used for the project.

2. SFI shall submit for review and approval by the Executive Officer, and shall subsequently enter into and record, an agreement or agreements for that project sufficient to enable the grantee to implement, operate and maintain the project and sufficient to protect the public interest in the project improvements, pursuant to Public Resources Code Section 31116(c). For the Baker Creek project, the required agreement(s) shall include an agreement with the owner of the project site, U.S. Department of the Interior, Bureau of Land Management.”

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 projects.
2. The proposed project is consistent with the current Conservancy Project Selection Criteria and Guidelines.
3. Sanctuary Forest, Inc. 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:

Staff recommends the disbursement of up to \$412,770 to Sanctuary Forest, Inc. (SFI) to implement two habitat restoration projects within Baker Creek and Lost River, two important coho habitat tributaries to the headwaters of the Mattole River (Exhibit 1). The proposed projects aim to improve coho spawning habitat and water supply conditions by restoring consistent summertime flows, enhancing riparian cover, and supporting groundwater recharge to result in beneficial floodplain habitat and flow regime in the upper Mattole. The projects have been designed specifically to address conditions that limit spawning for the Mattole coho salmon population, which is critically endangered. In addition, the projects will also provide direct benefits to Mattole Chinook and steelhead trout populations, both regionally threatened, as well as to water supplies for human consumption.

Coho salmon have experienced precipitous declines in abundance and are currently on the verge of extirpation from the Mattole River watershed. Numerous factors are responsible for the decline in coho salmon abundance, and many of the conditions that limit coho spawning are also

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impacting Chinook salmon and steelhead trout, which are also severely depressed in abundance in the Mattole Watershed relative to historic estimates. Land use practices, including logging and development of road systems, have greatly decreased groundwater storage capacity resulting in higher winter runoff rates and lower summer stream flows. Widespread removal of large wood from streams has also decreased groundwater storage through channel incision and loss of floodplain connectivity and has resulted in fewer and shallower instream pools that are of insufficient size to withstand drought. Industrial logging practices combined with fire suppression have resulted in overly dense even-aged forests with higher evapotranspiration rates which significantly contribute to lower dry season flows. In the drought years of the last decade, both Baker Creek and Lost River stopped flowing, breaking into disconnected pools with pools drying up altogether in mid-September to mid-October before the winter rains returned.

Water sustainability for the local community is also a critical issue. There is no municipal water system in the Mattole headwaters and residents must provide for their water needs. Water diversions for human use during the dry season also impact stream flows, using between 20 and 100 percent of the flow in severe drought years. SFI and collaborators, including the Conservancy, have partially addressed the problem of water diversion impacts to streamflow and water security for the community through a water storage and forbearance program along with water conservation outreach and education. Since 2005, 28 low-flow season forbearance agreements have been executed and associated development of 1.7 million gallons of water storage has occurred, and another estimated 22 families are forbearing without formal agreements. While these efforts have measurably improved dry season flows, during the extreme drought years of 2014 and 2016, stream flows at a monitoring site located downstream of the mainstem headwaters dropped to 13 gpm and 9 gpm, respectively. To compare to human use, these flows are approximately equal to one pump diverting at 10 gpm from the stream. Another factor when considering increased aboveground storage is the lack of sustainability inherent in the water storage tanks. The tanks typically need to be replaced within 40 years, and since each is lined with plastic, they become plastic waste which persists in the environment.

Water storage in the Mattole is found almost exclusively in the form of groundwater. SFI has been monitoring ten shallow test wells and four deeper ones and has found there is a strong correlation between the presence of summer groundwater and summer stream flows. In areas where groundwater is still present in the summer time, there is consistent stream flow, whereas in areas where groundwater is absent, stream flow is also absent. Evaluation of groundwater and streamflow levels indicate that groundwater storage is only sufficient for a 3.5-month dry season, yet all the extreme low flow years of the last decade have experienced significantly longer dry seasons. Therefore, managing for groundwater infiltration and recharge, especially in the headwaters, is critical to maintaining spawning habitat and providing for residential water supplies.

The proposed grant will enable SFI to complete two pilot projects - the Baker Creek Upslope Groundwater Recharge Project (Baker Creek Project) and the Lost River Groundwater and Streamflow Enhancement Project (Lost River Project) - to test methodologies for increasing groundwater storage capacity and monitor outcomes for enhanced surface flows. Exhibit 2 summarizes estimated quantitative benefits from the two projects. Due to the size of these pilot projects, streamflow responses are expected to be localized, and will not have the same effect that a larger, scaled-up version of the same project will have. The information gained from

implementing these pilot projects will guide the development of large-scale projects in the Mattole headwaters.

Baker Creek Upslope Groundwater Recharge Project

SFI initiated the Baker Creek Project in 2017 in collaboration with the Wildlife Conservation Board's (WCB) Streamflow Enhancement Program to enhance habitat and stream function on property owned by Bureau of Land Management (BLM). The project involves the restoration of remnant wetlands in a terrace swale and construction of earthen berms to form 5 ponds within the natural upslope topography on a 1600 ft. reach of Baker Creek on property owned by BLM (see Exhibit 3 for design plan and site photos). The project components completed in year one with WCB funds included project planning and design, pre-project monitoring, agency permitting and consultations, site clearing for all 5 ponds (the ponds have dimensions ranging from 60 ft. by 275 ft. to 100 ft. by 180 ft.), and completion of the 2 largest ponds, installation of spillways and erosion proofing.

All required permits are in place for construction and special status species consultation with federal agencies is complete with (United States Fish and Wildlife Service (USFWS), National Oceanic and Atmospheric Administration (NOAA), and the Army Corps of Engineers (COE) finding the project will have no significant impact to species or their habitat. Conservancy funding will enable SFI to complete the project in 2018 and will provide for construction of the 3 remaining ponds, planting of native vegetation and post project monitoring. Construction will include removal of topsoil from the pond areas. The topsoil will be saved and spread around the pond area along with mulch after construction. Disturbed areas outside the ponds and berms will be planted with native grasses, shrubs and deciduous trees in the winter following pond construction. The ponds will be formed by excavating down to the natural clay layer and building an earthen berm at the low end. Bentonite or imported clay will be used on the inside of the pond to partially seal the berm. The design for the ponds include directing the overflow from each pond so that it helps fill the next pond downstream. The spillways will be engineered for 100-year storm events and armored with rock cobble or other non-erodible materials. The Baker Creek project area (including work performed in year one) encompasses 4.74 acres.

The Baker Creek Project has been designed to address the need for additional groundwater storage following results of an earlier 2012 SFI - BLM collaboration to install log structures and connect the creek to historic side channels on the BLM property. The goal then was to slow water and gravel transport to elevate streambed surface and groundwater levels, increase summer flows, reconnect the stream to its floodplain and create winter and summer habitat for coho. The habitat elements of the project have been a huge success. Where no juvenile coho had been observed for more than three years, in summer 2013, 1,300 juvenile coho were counted. However, the groundwater and streamflow benefits were lower than expected and could not withstand the severe droughts in 2014 and 2015. This appears to be directly related to the bedrock dominated entrenchment and a corresponding decrease in available streambank storage. The Baker Creek Project aims to develop groundwater storage and increase wetland complex function upslope from the creek away from bedrock entrenchment. The goal is to increase groundwater storage by approximately 7 million gallons.

Lost River Groundwater and Streamflow Enhancement Project

The Lost River Project is partly funded by foundations and community fundraisers which have enabled completion of planning, design and pre-project monitoring. SFI is in the process of securing the permits needed to complete the project. SFI has conducted surveys of the project area to assess impacts to endangered species and have found that the project at Lost River will not have significant impacts to endangered species. Annual surveys for the Northern Spotted owl have shown that, similar to the Baker Creek project area, Northern Spotted owl is not nesting in the Lost River project area. The forest at Lost River is suitable Northern Spotted owl forage habitat. Construction activities and noise may have an impact on the owl. However, due to available suitable forage habitat located nearby, the impact will not be significant. Marbled murrelets nesting habitat is old growth stands of redwood, like that which is found approximately one mile upstream at the Lost River headwaters. However, no nest sites or nesting behavior has been observed. Therefore, the project will not have an impact to the marbled murrelet or its habitat.

The proposed Conservancy funds will provide for project implementation, post-project monitoring and adaptive management. This project involves installing large complex wood structures along a 1200 ft. reach in Lost River (see Exhibit 4 for design plan and site photo), with the goals of increasing streamflow and groundwater storage, and extending pool connectivity to maintain water supplies for fish and human populations duration in times of drought. The structures will retain sediment and water, provide instream pool habitat and promote localized aggradation, and to reconnect historic wetlands and side channels. The design incorporates fish passage utilizing a step pool design that mimics beaver dams to create stream meander and floodplain complexity, also supporting wintertime rearing populations. The project reach was selected for implementation for several reasons. The entrenchment is less deep (3 ft. here as compared to 8 ft. in Baker Creek) making it possible to fully reconnect most of the inset floodplains in the first post-project winter, and the streambed and banks are predominantly alluvium, with the capacity to store significantly more groundwater than the impervious bedrock streambed at Baker Creek.

Implementation at the 3.2 acre Lost River site will include site preparation, materials procurement, installation of instream structures, and construction of a small terrace pond. A total of 30 instream structures will be installed, including 16 instream, channel spanning post-assisted check dams, 4 instream, non-channel spanning structures, 3 log and boulder weir structures, and 7 adaptive management structures (the type of which - either channel spanning or non-channel spanning - will be determined at time of installation). Short stretches of old logging roads will be reopened for access and materials delivery at three locations. Heavy equipment will be used to open and close up to three temporary access roads (one of which will underlie the location of the terrace pond to be constructed as part of the project) and remove associated minor vegetation, install three log and boulder weirs and construct the 0.28 acre terrace pond and its earthen berm. Except for the log and boulder weirs, the structures will be constructed by hand crews, including California Conservation Corps crew. The post assisted structures will consist of 4-inch diameter posts installed with a hand-held hydraulic post pounder to form two rows across the channel. Logs are installed between the two rows such that the posts hold the logs in place. No trenching or additional anchoring is required. Willow stems or other locally sourced brush is generally woven into the post line to create a semipermeable structure. In addition to weaving willow, the structures will be reinforced by placing cobble, gravel, and fine sediment at the base of the

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structure. The terrace pond will include excavation and construction of an earthen berm and spillway built into the natural topography. Quantifiable long-term outcomes include increased groundwater storage and summer streamflow, improved in-channel pool quality and frequency, and improved floodplain connectivity and connection to side channels.

Site Description: Baker Creek and Lost River are both low gradient tributaries in the very upper reach of the Mattole River headwaters (Exhibit 1). The headwaters of Baker Creek and Lost River both are characterized by entrenched channels, reduced groundwater storage, low summer flows, and lack of pool habitat. The Baker Creek project is located on BLM-owned land (acquired with a 2002 grant from the Conservancy and transferred to BLM in 2005). It is adjoined by State Parks on the downstream end and by a private timber company at the upstream end. There is no residential development in Baker Creek and BLM is managing its Baker Creek property for recovery of critical juvenile salmon habitat. The Lost River project is located on land conserved through a WCB grant and owned and actively stewarded by SFI since 2007. The Lost River originates in an old growth Redwood forest approximately 1 mile from the project location, the entire watershed is conserved, and there are no water diversions.

Grantee Qualifications: SFI is a 501(c)(3) nonprofit organization, working for more than 30 years to conserve property and undertake restoration activities for the recovery of salmonids populations in the Mattole River. SFI is a member of the collaborative Mattole River and Range Partnership, an alliance of local nonprofit organizations working together to carry out enhancement activities in the Mattole watershed. As discussed in the Project Description section, above, SFI has carried out habitat enhancement projects on Baker Creek, including year one of the proposed Baker Creek Project. SFI owns the Lost River Project property and has completed several enhancement projects including sediment reduction, fish passage, and forest thinning projects to reduce fuels and fire risk and increase forest health.

Project History: In 2010, SFI convened a technical team to study streamflow monitoring data and develop strategies to address streamflow constraints for coho recovery within the Mattole. In 2012, SFI completed the initial instream restoration project on BLM property, which serves as the basis for, and from which outcome information has been applied to, the Baker Creek and Lost River projects. The proposed projects are related to previous Coastal Conservancy funded projects as follows. 1) The Baker Creek Project is located on BLM property that was conserved in 2002 with a Coastal Conservancy grant. 2) The Coastal Conservancy funded the first hydrology assessment of low flows in the Mattole River. The assessment culminated in the report “Options and Obstacles, Living with Low Water Flows in the Mattole River Headwaters” (2004). The report is still relevant today and includes instream ponds as one of the options to be explored. 3) The Conservancy has contributed funding to storage and forbearance projects that are related to the project as a necessary streamflow enhancement strategy where water diversions are impacting streamflow. These projects include SFI’s first storage and forbearance project implemented in 2007. The project was the first of its kind in the state of California and forged a new restoration strategy for improving streamflow as well as water security for local communities, and a storage and forbearance project implemented in collaboration with Trout Unlimited in 2013.

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PROJECT FINANCING

Coastal Conservancy	\$412,770
Wildlife Conservation Board (Streamflow Enhancement)	\$77,445
Bureau of Land Management	\$36,005
Sanctuary Forest, Inc.	\$14,800
Grace Us Foundation	\$15,000
Firedoll Foundation	\$14,120
California Conservation Corps	\$13,012
Bella Vista Foundation	\$2,308
In-kind (see below)	\$24,139
Project Total	\$609,599

The expected source of Conservancy funds for the proposed authorization is the Water Quality, Supply, and Infrastructure Improvement Act of 2014 (Proposition 1, Water Code § 79700 et seq.). Proposition 1 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) identifies specific purposes of Chapter 6. The proposed projects each will achieve several of these purposes, including the following: (1) protect and increase the economic benefits arising from healthy watersheds, fishery resources and in-stream flow; (2) implement watershed adaptation projects; (9) protect and restore rural and urban watershed health to improve watershed storage capacity, forest health, protection of life and property, storm water resource management, and greenhouse gas reduction; (10) protect and restore coastal watersheds including but not limited to, bays, marine estuaries, and near shore ecosystems; and (12) assist in the recovery of endangered, threatened, or migratory species by improving watershed health, in-stream flows, fish passage, coastal or inland wetland restoration, or other means, such as natural community conservation plan and habitat conservation plan implementation.

As required by Proposition 1 and consistent with Section 79732(a), the proposed projects provide multiple benefits. The projects collectively will: restore natural processes and reconnect the creek channel with a restored flood plain; provide habitat for rearing juvenile salmonids; assist in the restoration of a coastal watershed; continue to foster collaboration between agencies and the communities; and provide resilience against climate change-induced loss of anadromous fish rearing habitat. Finally, the projects advance previous Conservancy-funded planning efforts to restore anadromous habitats in the Mattole River watershed.

In accordance with Section 79707(b) that requires agencies to prioritize “projects that leverage private, federal, or local funding or produce the greatest public benefit”, the projects leverage the private and federal funds listed above. In addition to cash contributions, several private and federal organizations have committed in-kind contributions. SFI will provide staff services and materials valued at \$14,549 and federal in-kind staff time will come from National Oceanic and Atmospheric Association (\$1,500) and US Fish and Wildlife Service (\$1,500). Further, community members will volunteer time valued at \$6,600. BLM brings technical expertise to both projects with a staff geologist and a fisheries biologist and assists with project permitting.

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Finally, BLM will contribute funding for all of the Baker Creek project phases including monitoring and adaptive management.

The projects were 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 projects meet several 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 staff recommendation.

CONSISTENCY WITH CONSERVANCY'S ENABLING LEGISLATION:

This project is undertaken under Chapter 5.5 of Division 21 of the Public Resources Code regarding integrated coastal and marine resource protection. The Conservancy may award grants for coastal watershed restoration projects that meet one or more of the objectives specified in Section 31220(b). Consistent with Section 31220(b), the proposed project will (1) enhance streamflow, thereby restoring fish habitat within coastal waters and coastal watersheds (Section 31220(b)(2)); (2) reduce threats to coastal and marine fish by enhancing habitat that will foster population successes (Section 31220(b)(3)); and (3) increase stream function (reduce sediment, increase water supplies and enhance riparian and wetland systems) of coastal watersheds (Section 31220(b)(4)).

Consistent with section 31220(a), the Conservancy consulted with the State Water Resources Control Board in the development of this grant to ensure consistency with Chapter 3 (commencing with Section 30915) of Division 20.4 of the Public Resources Code pertaining to its Clean Beaches Program. As required by section 31220(c), the project will include a monitoring and evaluation component through post-project erosion monitoring and reporting. As required by Section 31220(c), the project is consistent with state and regional watershed planning, as discussed in section 2.3.3 of the *North Coast Regional Water Quality Control Board Watershed Management Initiative, Watershed Planning Chapter* (2005) and described below under under Consistency with Local Watershed Management Plan/State Water Quality Control Plan section.

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

Consistent with **Goal 6, Objective 6D** of the Conservancy's 2018-2022 Strategic Plan, the proposed project will implement two projects that preserve and enhance coastal watersheds and floodplains.

Consistent with **Goal 6, Objective 6E** of the Conservancy's 2018-2022 Strategic Plan, the proposed project will implement two projects to restore fish habitat including projects to improve fish passage, ensure sufficient instream flow, and provide in stream habitat and favorable water temperatures.

Consistent with **Goal 6, Objective 6G** of the Conservancy's 2018-2022 Strategic Plan, the proposed project will implement two projects to improve water quality to benefit coastal and ocean resources.

**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:** The proposed projects to be implemented under this authorization are consistent with several state plans and policies, as follows.
 - ***California Water Action Plan*** (California Natural Resources Agency, 2016). The projects will promote and implement all three of the broader Plan goals: 1) more reliable water supplies that would result from reconnected flood plain recharging groundwater; 2) the restoration of important species and habitat; and 3) a more resilient, sustainably managed water resource system (water supply, water quality, flood protection, and environment) that can better withstand inevitable and unforeseen pressures in the coming decades. The project also supports the following actions: 1) Restoration of degraded stream ecosystems to assist in natural water management and improved habitat; 2) Enhancement of water flows in stream systems statewide; 3) Expansion of water storage capacity and improvement of groundwater management; and 4) Management and preparation for dry periods.
 - ***California @ 50 Million: The Environmental Goals and Policy Report*** (Governor's Office of Planning and Research, 2015). The projects further one of the key principles identified in the report as necessary to achieving the state's long-term goals: steward and protect natural and working landscapes.
 - ***CA Wildlife Action Plan*** (CDFW, 2015). The projects benefit coho salmon, Chinook salmon, and steelhead, which are identified by the plan as "focal species of conservation strategies developed for conservation targets in the North Coast."
 - ***California Essential Habitat Connectivity Strategy for Conserving a Connected California*** (CDFW, 2010). The projects will restore ecosystem function, including anadromous habitat connectivity, which the report identifies as a primary focus for this planning area.
 - ***Final Recovery Plan for the Southern Oregon/Northern California Coast Evolutionarily Significant Unit of Coho Salmon (*Oncorhynchus kisutch*)*** (NMFS, 2014). The projects will restore stream function and habitat quality of the Mattole River to provide connectivity to floodplain habitat, improve riparian habitat, increase channel complexity and increase water retention in streams.
 - Low summertime flows have been recognized as among the most acute threats to the survival of listed salmonids by a series of reports over the past decade. The projects

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directly address low flows in critical spawning habitat and, thus, are consistent with the *Mattole River Watershed Assessment Report* (CDFG 2003), and the *Mattole Watershed Plan* (Mattole River and Range Partnership, 2010). The projects are also consistent with the *Mattole Coho Recovery Strategy* (Mattole River and Range Partnership, 2011) which identifies groundwater recharge as a tier 1 strategy (necessary to prevent extirpation) in the watershed.

4. **Support of the public:** The project is supported by federal partner agencies who collaborate on the projects, and local community members who have contributed to fundraising and volunteering. State and local representatives also support the projects (Exhibit 5).
5. **Location:** The project is located outside of the coastal zone in two tributaries to the Mattole River. Efforts to improve riparian habitat, reduce sedimentation, and increase summer water flows in the upper watershed(s) of the Mattole River will translate to benefits to coastal zone resources such as water quality at the interface of the mouth of the river and the ocean and improved habitat for anadromous fish.
6. **Need:** Without Conservancy funding both projects would be delayed indefinitely.
7. **Greater-than-local interest:** Efforts to restore and increase salmonid habitat have statewide significance. The restored stream flows will result in restored historic coho spawning habitat and provided needed flows to sustain cool water to the system. Salmon is an anchor commercial, and recreational, industry for the state of California. People have come from far and wide to fish the Lost Coast area of California and the Mattole, which experienced historic fish runs in the thousands. Restoring habitat in the Mattole will increase salmon populations along the coast, preserve the natural resources that draw people to visit this region of the state, and benefit the overall economic condition of the state of California.
8. **Sea level rise vulnerability:** The project is located in the headwaters of the Mattole Watershed and thus is not vulnerable to sea level rise.

Additional Criteria

9. **Urgency:** In the climate of ever increasing and long sustained dry periods in the Mattole, which negatively affects stream flows and fish survivorship in the headwater tributaries, it is critical that the projects be completed as soon as possible to enhance habitat critical for fish spawning and rearing.
10. **Resolution of more than one issue:** The projects will result in increased and sustained water supplies for both fish and human populations in the Mattole watershed.
11. **Leverage:** See the “Project Financing” section above.
12. **Conflict resolution:** There exists an inherent conflict over water supplies between humans and beneficial uses for habitat. This project will enhance flows to benefit both human and habitat needs.
13. **Innovation:** The proposed projects will employ newly tested methods for a pilot study to reverse stream scour, restore streambed elevations to historic levels and reconnect floodplain function to increase groundwater storage capacity. While many of the methods proposed have been used for many years, the density of the methods within each project has not been attempted before.

14. **Readiness:** The Baker Creek project is underway and with Conservancy funding will be completed in 2018. Planning for the Lost River project is complete and permitting will be completed by July 2018. The project will be completed in 2019.
15. **Realization of prior Conservancy goals:** The projects advance previous Conservancy-funded planning efforts to restore anadromous habitats in the Mattole River watershed, as discussed in Project History section, above.
16. **Return to Conservancy:** See the “Project Financing” section above.
17. **Cooperation:** The projects are the result of several individuals, organizations and agencies cooperating to secure funding, develop plans and designs, provide technical input, implement the projects. Cooperating parties include SFI, BLM, Mattole Restoration Council, Mattole Salmon Group, NOAA and community members contributing to fundraising efforts. The Conservation Corps will assist with project implementation.
18. **Vulnerability from climate change impacts other than sea level rise:** The project will reduce the negative effects of climate change on fish and wildlife populations as well as downstream human community. A literature review by the US Forest Service (2011) determined the climate change is one of the most important long-term threats to fish habitat resilience and that “most climate change models project long-term increases in winter precipitation and decreases in summer precipitation.” The proposed projects will increase resilience to climate change by restoring hydrologic function with improved storm water infiltration and by providing habitat that can withstand the more severe winter and summer conditions predicted. The threats of fire, drought, species and habitat loss are addressed through the project objectives. Threat of fire is reduced through increasing the surface and groundwater levels in the streams along with increased wetland vegetation and development of a “wet” corridor.
19. **Minimization of greenhouse gas emissions:** The proposed projects will minimize greenhouse gas emissions from construction impacts and vehicle miles through the following measures. For both projects, materials and construction contractors are sourced locally to the extent feasible. Both projects are within 7 miles of the SFI offices resulting in minimal vehicle miles traveled by staff for project monitoring, planning and oversight. The Lost River project further minimizes greenhouse gas emissions because most of the structures will be installed with hand labor.

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

The projects are consistent with the *North Coast Integrated Regional Water Management Plan Phase III* (2014) Section 4, NCIRWMP Goals and Objectives: Conserve, enhance, and restore watersheds and aquatic ecosystems, including functions, habitats, and elements that support biological diversity (Goal 3: Objective 5); and enhance salmonid populations by conserving, enhancing, and restoring required habitats and watershed processes (Goal 3: Objective 6).

The project is also consistent with two goals of the North Coast Regional Water Quality Control Board Watershed Management Initiative, Watershed Planning Chapter (2005) Section 2.3.3 Mattole River Watershed Management Area: “Protect and enhance the salmonid resources” and “Protect[ing] other surface water uses”. The project will fund projects to reconnect (recharge)

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groundwater which will both increase surface water flow and help to establish riparian habitat. Restored stream flows will result in longer sustained summer flows that will result in enhanced summer rearing habitat for coho, as well as support downstream domestic water supply (thus decreasing downstream habitat stressors). Restored riparian canopy provides instream habitat complexity and helps to maintain cool surface water temperatures. Further, the projects are consistent with Sections 4.4 and 4.4.1 of the Mattole Integrated Coastal Watershed Management Plan (Mattole Restoration Council, 2009), developed to define strategies to achieve the goals from the Watershed Planning Chapter, above. Specifically, the projects will: increase ground water storage, wetlands and ponds as a means to enhance dry season in-stream flows and implement groundwater recharge and stream flow enhancement projects such as off-stream ponds and wetlands, in-stream enhanced wetlands and beaver scale ponds, infiltration swales and small check dams, and infiltration basins and fields.

CEQA COMPLIANCE:

Staff has determined that the proposed projects are exempt from the California Environmental Quality Act (CEQA) under Title 14 of the California Code of Regulations, Section 15333.

The two proposed projects will include (a) implementation of the Baker Creek Upslope Groundwater Recharge Project including construction of three ponds, planting of riparian vegetation, and post project adaptive management, and (b) implementation of the Lost River Groundwater and Streamflow Enhancement Project, including site preparation, installation of instream structures, construction of a pond, and post-project adaptive management. Specifically, the proposed projects collectively will: restore habitat and improve existing habitat values, thereby benefiting species listed as threatened or endangered under the federal and state Endangered Species Acts; improve functions and values of existing stream habitats with beneficial effects on associated species; enhance functions and values of coastal stream and associated riparian floodplain with beneficial impacts on associated species; and enhance riparian woodland habitats.

Each of the proposed projects is categorically exempt under Section 15333, which exempts habitat-restoration projects not exceeding five acres in size, to assure the maintenance, restoration, enhancement, or protection of habitat for fish, plants, or wildlife.

The Baker Creek project will create three new surface water infiltration ponds and associated features. Heavy equipment will be used to construct the earthen ponds and berms. All work is upslope of the active stream; no work will occur in the stream. Permits are in place for the project and all special status species consultation has been completed with the agencies finding the project will not have significant impact to species or their habitat. The project will involve removal of topsoil from the pond areas. The topsoil will be saved and spread around the pond area along with mulch after construction. Disturbed areas outside the ponds and berms will be planted with native grasses, shrubs and deciduous trees in the winter following pond construction. The project will result in improved groundwater storage and summer streamflow and increased riparian vegetation and associated fish and wildlife benefits. Cumulatively the Baker Creek project area (discussed in the "Project Description" section, above) encompasses 4.74 acres and will increase groundwater storage by approximately 7 million gallons.

The Lost River project will include site preparation including minor vegetation clearing for site ingress and egress routes for heavy equipment to access the work site materials procurement,

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installation of instream structures and construction of a small terrace pond. A total of 30 instream structures will be installed, most by hand crews. Old logging roads will be reopened for access and materials delivery at three locations and then appropriately de-commissioned at project end. Heavy equipment work will be limited to opening and closing of access roads, installation of log and boulder weirs and construction of the terrace pond. The terrace pond will include excavation and construction of an earthen berm and spillway built into the natural topography. The majority of the structures will be constructed by hand crews. Posts will be installed with a hydraulic post pounder and logs will be held in place by the posts. No trenching or additional anchoring is required. The structures will be reinforced by willow woven into the post line and by placing cobble, gravel, and fine sediment at the base of the structure. The project will result in increased groundwater storage and corresponding instream flow, as well as much needed winter and summer rearing habitat for anadromous salmonids. The Lost River project area (discussed in the "Project Description" section, above) encompasses 3.20 acres.

As described in the Project Description section, above, both of these projects meet the additional conditions of this exemption, in that there would be no significant adverse impact on endangered, rare or threatened species or their habitat pursuant to Section 15065 (mandatory findings of significance); there are no hazardous materials at or around the site. As both the Baker Creek and Lost River projects are pilot projects, and are neither part of a larger project or informing another project in the future, they will not result in significant impacts when viewed in connection with the effects of past, present, or probable future projects. Upon Conservancy authorization for the projects, staff will file notices of determination.