

## COASTAL CONSERVANCY

Staff Recommendation  
December 6, 2018

### **PESCADERO MARSH RESTORATION AND RESILIENCY**

Project No. 18-035-01  
Project Manager: Tom Gandesbery

**RECOMMENDED ACTION:** Authorization to disburse up to \$202,785 to the Resource Conservation District of San Mateo County to undertake preliminary planning for the Pescadero Marsh Restoration and Resiliency Project in San Mateo County.

**LOCATION:** Pescadero, San Mateo County (Exhibit 1)

**PROGRAM CATEGORY:** Integrated Coastal and Marine Resources Protection

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#### **EXHIBITS**

Exhibit 1: [Project Location](#)

Exhibit 2: [Site Maps](#)

Exhibit 3: [Photos](#)

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#### **RESOLUTION AND FINDINGS:**

Staff recommends that the State Coastal Conservancy adopt the following resolution pursuant to Public Resources Code Section 31220:

“The State Coastal Conservancy hereby authorizes disbursement of up to two hundred and two thousand seven hundred and eighty-five dollars (\$202,785) to the San Mateo Resource Conservation District (RCD) to create ecological response models; conduct a Sea-Level Rise and Climate Vulnerability Assessment; prepare engineering designs for the North Marsh and Pond Complex and draft an Implementation and Monitoring Plan for enhancement of Pescadero Marsh. This authorization is subject to the condition that prior to the disbursement of funds, the RCD shall submit for the review and approval of the Conservancy’s Executive Officer a work plan, schedule and budget, and the names and qualifications of any contractors.”

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 the purposes and objectives of 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 Project Selection Criteria and Guidelines.”
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**PROJECT SUMMARY:**

Staff recommends granting up to \$202,785 to the San Mateo Resource Conservation District (RCD) to undertake preliminary planning for the enhancement of Pescadero Marsh in southern San Mateo County. The marsh is an ecological reserve managed by the California Department of Parks and Recreation (State Parks). The marsh suffers from poor water quality, which harms fish and other biota, and this grant would provide conceptual designs to remedy this problem.

Pescadero Marsh is the most significant outer-coast estuary between Elkhorn Slough and Tomales Bay. The marsh is a “bar-built estuary”, formed by the seasonal creation of a sandbar that blocks creek outflow. This sandbar turns the marsh into a lagoon in the summer and fall. Like similar coastal estuaries, Pescadero Marsh has complex hydrodynamic and biotic functions that are the subject of vigorous scientific inquiry. Also, like other west coast estuaries, the marsh was negatively impacted by excess sediment washing down its two tributaries creeks, Pescadero and Butano Creeks, from decades of logging, agriculture, road building and other development. Pescadero Marsh refers generally to the large marine-freshwater wetland and riparian area that extends from the ocean eastward to the community of Pescadero (Exhibit 2). It contains open water, the shallow North Pond, as well as mudflat and cattail-dominated marshes, referred to as North Marsh, Butano Marsh and East Delta Marsh (Exhibit 2). It is home to many state- and federally-listed threatened and endangered species.

The Marsh has been significantly altered due to land use changes in and around the Marsh and upper watershed. The Marsh’s hydrology and habitat quality continue to be impacted by a remnant levee system, episodic sediment deposition linked to past logging in the upper watershed, and upstream diversions from agricultural and residential development. Restoration work to address these issues was implemented by State Parks between 1993 and 1997 as part of the Pescadero Marsh Natural Preserve Hydrological Enhancement Project. Unfortunately, the project resulted in unexpected changes to the Marsh’s physical structure and ecological function, presenting a new set of challenges.

Specifically in the North Marsh and Pond area, the current system of levees, culverts and tide gates severely jeopardizes habitat for the listed California red-legged frog, San Francisco garter snake, tidewater goby, and other species. A public access trail along the top of the levee is also at risk of failure due to erosion. The poor water quality conditions in this area are a significant contributing factor to fish kills over the past two decades. (Report of Pescadero Lagoon Science Panel 2013).

Developing a sound restoration strategy is complicated from both an ecological and a regulatory standpoint. It requires not only an understanding of the complex physical and biological processes driving change in a naturally dynamic coastal ecosystem, but coordination among

numerous resource agencies with overlapping jurisdictions and potentially conflicting management mandates.

The proposed project focusses on the North Marsh and Pond, and the hydrology of Pescadero Creek, which drains into this area of the estuary. The project builds on previous work by state and federal agencies that have a responsibility for fish and wildlife protection. Staff from these agencies participate in a Technical Advisory Committee (TAC)<sup>1</sup> that meets periodically to discuss monitoring results and restoration options. The project follows the recommendations of the Report of the Pescadero Lagoon Science Panel (Largier, et.al), convened in 2013 by State Parks.

For the proposed project, the RCD will convene state and federal agencies, along with technical experts, to evaluate restoration options for the North Marsh and Pond complex. This will include preparing hydrologic and sediment dynamic modeling, assessing sea level rise and climate vulnerability, and other technical studies to inform the planning effort. The primary goal of the project is to provide guidance to State Parks on implementing sustainable restoration and adaptive management actions to improve habitat and ensure that public access is compatible with the ecological function of the marsh and lagoon.

The San Mateo RCD will act as lead facilitator of the TAC that will advise and review subject work. The RCD will convene four TAC workshops; quantify current conditions and processes and create ecological response models; conduct a Sea-Level Rise and Climate Vulnerability Assessment; prepare engineering designs for the North Marsh and Pond Complex to the 60% level of completion, and draft an Implementation and Monitoring Plan.

**Site Description:** Pescadero Marsh is a 340-acre coastal wetland formed at the confluence of Pescadero Creek and Butano Creek in San Mateo County, California. It is located 12 miles south of the City of Half Moon Bay, at the intersection of State Highway 1 and Pescadero Road. Pescadero Marsh includes a bar-built seasonal freshwater lagoon as a key ecological feature. Pescadero and Butano Creeks drain into the marsh from a combined watershed area that drains approximately 81 square miles and has headwaters in the Santa Cruz Mountains. The Marsh is within Pescadero State Beach and is owned and managed by State Parks. A 225-acre section of the Marsh is classified as the Pescadero Marsh Natural Preserve. (Exhibits 2 and 3)

Of particular importance is the Marsh's estuary/seasonal lagoon. Coastal lagoons are regarded as some of Earth's most biologically productive ecosystems. The Marsh's seasonal lagoon provides critical breeding and nursery areas for numerous species of fish, including the federally threatened steelhead trout (*Oncorhynchus mykiss*). Adjacent freshwater, brackish, and saltwater marshes, riparian vegetation, and upland areas provide essential habitat for a diverse assemblage of fish and wildlife, including multiple species of concern.

As the name implies, the North Marsh & Pond Complex is located in the northern portion of Pescadero Marsh. A system of levees (natural and human-made) separate the North Marsh from North Pond, and separate both from the main body of Pescadero Marsh. The levees are pierced by six large culverts and tide gates put in as part of a restoration project in the 1990s, but these failed almost immediately due to the poor material quality and the gates became rusted in a

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<sup>1</sup> Specifically, US Fish and Wildlife Service; NOAA National Marine Fisheries Service; California State Department of Fish and Wildlife; Regional Water Quality Control Board-Region 2; State Department of Parks and Recreation comprise the technical advisory committee.

partially open position. The culverts and levees have suffered significant deterioration, which also threatens a hiking trail (the Sequoia Audubon Trail) that runs along the top of the levee and over the culverts.

Reduced freshwater inflow and increased tidal circulation have converted the freshwater and brackish habitat favored by the California red-legged frog and San Francisco garter snake into an inhospitable environment in which the water column regularly stratifies into a lower high-saline layer that becomes anoxic and produces hydrogen sulfide. This toxic water is released into the coho and steelhead rearing habitat of the estuary and lagoon when the sand bar breaches and the waters are mixed, a leading contributor to the salmonid mortality events. A similar process has been documented in the Butano Marsh on the southern side of the system and will be subject to a major RCD-led restoration project, slated to go to construction next year.

**Grantee Qualifications:** The San Mateo RCD has been a leader in efforts to restore Pescadero Marsh and the Butano and Pescadero watersheds. They are involved with numerous efforts in the area. The RCD has taken a leadership role resolve conflicts between stakeholders and identify mutually supported projects. The RCD has been critical to the progress made in the watershed in the past few years and is the ideal organization to lead this planning effort.

**Project History:** The Pescadero Lagoon and Marsh complex has been the focus of scientific study for decades. Since the 1970s fisherman and naturalists have noticed a significant decline in salmon migration and changes in wildlife. Most alarming to the public are the fish kills that occur almost every year and correspond to the rapid emptying of the lagoon when the coastal sand bar is breached. The California Department of Fish and Wildlife (CDFW) has been monitoring fish kills and has documented that a majority of fish are adult and juvenile steelhead, as well as other estuarine fishes such as tidewater goby and starry flounder. While fish die-offs are considered a natural phenomenon, the frequency and severity of these events in Pescadero are far more extreme than what would occur in a “healthy” system and have been getting worse in recent years. As discussed above, in response to the decline in water quality and habitat, the Department installed the aforementioned tide gates to manage water from the north marsh area (Exhibit 2). The gates were operated for only a short time due to maintenance problems and it appears that conditions in the marsh worsened as a result.

In 2008, the Conservancy funded a facilitated process among state and federal resource agency staff to develop a consensus on problems and possible solutions with the Lagoon. Significant disagreement existed among the agencies as to the ecological dynamics of the lagoon, desired outcomes of future restoration, and next steps. The process culminated with a workshop for state and federal resource agency staff, conservation organizations, local residents and other stakeholders. The workshop was an effort to summarize the available information and reach consensus on next steps; however, there was not sufficient information to create a list of tasks for implementation. In recent years, the RCD and TAC member agencies have made significant progress toward the goal of setting remediation targets for the marsh. The RCD has also used a grant from the Santa Cruz RCD, part of the 2018 IWRP grant from the Conservancy<sup>2</sup> to help manage this project (noted in table below). The RCD then applied to the Conservancy for funding to bring this project to fruition.

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<sup>2</sup> The Conservancy staff recommendation is available at [http://scc.ca.gov/webmaster/ftp/pdf/sccbb/2018/1803/20180322Board11\\_%20IWRP\\_Phase\\_5.pdf](http://scc.ca.gov/webmaster/ftp/pdf/sccbb/2018/1803/20180322Board11_%20IWRP_Phase_5.pdf).

**PROJECT FINANCING**

Coastal Conservancy (this authorization)	\$202,785
Santa Cruz IWRP (Conservancy’s March 2018 Authorization)	\$12,000
NOAA Coastal Resilience Program	\$28,000
USFWS Sport Fish Restoration Account	\$48,000
USFWS Coastal Program	\$36,000
County of San Mateo Office of Sustainability	\$231,200
Regional Water Quality Control Board	\$120,000
<b>Total Project Cost</b>	<b>\$677,985</b>

The anticipated source of funding for this project is an 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 identifies specific purposes of Chapter 6. The proposed project will achieve several of these purposes, including the following: protect and restore aquatic, wetland, and migratory bird ecosystems (§ 79732 (a)(4)); protect and restore coastal watersheds, including, but not limited to, bays, marine estuaries, and nearshore ecosystems (§ 79732 (a)(10)); assist in the recovery of endangered, threatened, or migratory species by improving watershed health and coastal wetland restoration (§ 79732 (a)(12)). The proposed project will develop plans to facilitate enhancement of the ecosystem function of Pescadero Marsh consistent with these purposes.

As required by Proposition 1, the proposed project provides multiple benefits. The project will enable the improvement of water quality, enhancement of habitat for threatened and endangered species, and protection of public access.

Section 79707(b), which requires agencies to prioritize “projects that leverage private, federal, or local funding or produce the greatest public benefit”. As shown above, this project leverages both federal and local funding, as well as additional state funding. In addition, substantial in-kind contributions of staff time are expected including \$52,000 from the RWQCB plus another \$35,000 from the other agency partners: State Parks, CDFW, U.S. Fish and Wildlife Service, National Marine Fisheries Service, and NOAA’s Restoration Center.

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 Water Code § 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.

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

This project would be undertaken pursuant to Chapter 5.5 (Section 31220) of the Conservancy's enabling legislation, Division 21 of the Public Resources Code, regarding Integrated Coastal and Marine Resources Protection. Section 31220(a) authorizes the Conservancy to undertake projects that improve and protect coastal marine water quality and habitats, and Section 31220(b) authorizes the Conservancy to award grants to projects that meet one or more of the criteria with that section.

The proposed project will help achieve the objectives of the following Section 31220(b) subsections: (b)(2) protect and restore fish and wildlife habitat within a coastal watershed; (b)(3) reduces threats to coastal and marine fish and wildlife; and (b)(6) acquires, protects, and restores coastal wetlands, riparian areas, floodplains, and other sensitive watershed lands. The proposed project will help achieve these objectives by planning and designing modifications to improve ecological function in Pescadero Marsh and Lagoon.

Consistent with §31220(a), staff has consulted with State Water Resources Control Board (SWRCB) in the development of the project to ensure consistency with the Clean Beaches Program, Chapter 3 (commencing with §30915) of Division 20.4 of the Public Resources Code.

Consistent with §31220(c), the project is consistent with local watershed management plans. (See "Consistency with Local Watershed Management Plan/State Water Quality Control Plan," section below).

**CONSISTENCY WITH CONSERVANCY'S 2018 STRATEGIC PLAN GOAL(S) & OBJECTIVE(S):**

**Consistent with Goal 6, Objective A of the Conservancy's 2018-2022 Strategic Plan,** the proposed project will develop a plan for the restoration of coastal habitats, including coastal wetlands and intertidal areas, stream corridors, dunes, coastal terraces, coastal sage scrub, forests and coastal prairie.

**Consistent with Goal 6, Objective F of the Conservancy's 2013-2018 Strategic Plan,** the proposed project will complete a plan 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 4, 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 project serves to promote and implement several state plans, including:
  - *California Water Action Plan* (California Natural Resources Agency, California Environmental Protection Agency, and California Department of Food and Agriculture, 2014). which advances Goal #4, “Restore Coastal Watersheds” as it states “...the Department of Fish and Wildlife in coordination with other state resource agencies and other stakeholders, as appropriate, will ... implement at least 10 large-scale habitat projects along the California coast in strategic coastal estuaries to restore ecological health and natural system connectivity, which will benefit local water systems and help defend against sea level rise.
  - *California Nonpoint Source Pollution Control Program* (State Water Resources Control Board, 2000) which includes the goal 6B for restoration of wetlands and riparian Areas (6B). *California Wildlife Action Plan* (CDFW, 2007) goal for the Central Coast region including protecting sensitive species and important wildlife habitat and restoring anadromous fish populations.
  - Fishery Recovery Plans including the *Recovery Strategy for California Coho Salmon* (CDFW, 2004); the *Recovery Plan for Central California Coast Coho Salmon Evolutionarily Significant Unit* (National Marine Fisheries Service, 2012); the *South-Central California Coast Steelhead Recovery Plan* (National Marine Fisheries Service, 2013); and the *Steelhead Restoration and Management Plan* (CDFW, 1996). This project will implement a project that follows the recommendations contained within these plans, which include restoration of in-stream habitat.
4. **Support of the public:** This project is supported by State Senator Jerry Hill, Assembly-member Marc Berman, San Mateo County Supervisor Don Horsley. It also enjoys the support of the CDFW, State Parks, National Marine Fisheries Service, NOAA Restoration Center, the Monterey Bay National Marine Sanctuary and Trout Unlimited.
5. **Location:** This project is located in the Coastal Zone immediately west of the town of Pescadero, in coastal San Mateo County (Exhibit 1).
6. **Need:** Without Conservancy funding, the RCD will not be able to address all the remaining data gaps identified by the TAC and develop a plan to restore Pescadero Marsh.
7. **Greater-than-local interest:** By improving fish migration and survival, the project will benefit a number of threatened and endangered species, including steelhead trout, coho salmon, tidewater goby, and the California red legged frog. Successful restoration of the marsh will also serve as a model for those seeking to restore bar-built estuaries along other parts of the California Coast.
8. **Sea level rise vulnerability:** The project, which consists of planning and design work, is not vulnerable to sea level rise in itself; however, studying the impacts of sea-level rise on Pescadero Marsh is a component of the proposed project.

**Additional Criteria**

9. **Urgency:** The precipitous decline in salmonid populations in this region (see “Site Description” section above) make restoration actions all the more urgent. Decades of logging, agricultural and other development in the Pescadero and Butano Creek watersheds have delivered sediment far in excess of natural levels to this fragile fishery habitat and more recently three years of drought have pushed species already in a precarious state, to the edge of extinction. Many endangered species, coho salmon for example, are nearly extinct because of a lack of habitat, including lack of suitable estuarine habitat.
10. **Resolution of more than one issue:** The project will resolve habitat loss and water quality issues by restoration designs for projects within the marsh while at the same time protecting existing habitat that supports sensitive species, for example the red-legged frog.
11. **Leverage:** The RCD has been successful at leveraging the Conservancy’s investment and in this case is matching it by about 3 times with other federal and local funding and in-kind work.
14. **Readiness:** The RCD has been coordinating work by the TAC for several years and studies associated with the propose project are already underway.
15. **Realization of prior Conservancy goals:** See “Project History” section, above.
16. **Cooperation:** This project is partially a product of the Pescadero Lagoon TAC, which is staffed by representatives of federal and state resource and regulatory agencies, State Parks and the RCD. Recently, the County of San Mateo has added a representative to the TAC related to flooding in and near the town of Pescadero.
17. **Vulnerability from climate change impacts other than sea level rise:** The Lagoon supports a number of threatened and endangered species, which will most likely be further stressed by changes in climate. Restoration of the Lagoon would likely improve prospects for such species in the face of climate change.
18. **Minimization of greenhouse gas emissions:** This project consists of planning work and will not directly result in any physical changes to the environment, including any significant GHG emissions. However, one outcome may be that the RCD or State Parks may elect to implement future projects specifying equipment, materials and techniques that minimize GHG emissions as compared to standard practices (for example by using on-site and local materials rather than imported from distant sources).

**COMPLIANCE WITH CEQA:**

The proposed project, which consists of preparation of plans and designs, is statutorily exempt from the California Environmental Quality Act (CEQA) under Title 14 California Code of Regulations (CCR) § 15262, as it involves only planning for future actions which have not yet been approved or funded, and the planning will consider environmental factors. In addition, the project is categorically exempt pursuant to 14 CCR § 15306 (Information Collection), which exempts the “basic data collection, research, experimental management, and resource evaluation

*PESCADERO MARSH RESTORATION*

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activities which do not result in a serious or major disturbance to an environmental resource.” This exemption may be used for information gathering purposes, or as part of a study leading to an action, which a public agency has not yet approved, adopted or funded.

Staff will file a Notice of Exemption upon approval of the project.