

COASTAL CONSERVANCY

Staff Recommendation
May 24, 2012

ELKHORN SLOUGH TIDAL MARSH ENHANCEMENT PROJECT

Project No. 12-014-01
Project Manager: Rachel Couch

RECOMMENDED ACTION: Authorization to disburse up to \$600,000 to the Elkhorn Slough Foundation to prepare design, engineering, environmental analysis and permit application documents for restoration of tidal marsh and connected uplands in Elkhorn Slough, Monterey County.

LOCATION: Elkhorn Slough, City of Watsonville, Monterey County

PROGRAM CATEGORY: Resource Enhancement

EXHIBITS

Exhibit 1: [Project Location and Site Map](#)

Exhibit 2: [Figures and Photos](#)

Exhibit 3: [Project Letters](#)

RESOLUTION AND FINDINGS:

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

“The State Coastal Conservancy hereby authorizes the disbursement of up to \$600,000 (six hundred thousand dollars) to the Elkhorn Slough Foundation (“ESF”) for preparation of design, engineering, environmental analysis and permit application documents for restoration of tidal marsh and connected uplands in Elkhorn Slough, subject to the condition that prior to the disbursement of funds, the ESF shall submit for review and approval of the Conservancy’s Executive Officer a work program, budget, schedule and any contractors to be employed for these tasks and evidence that ESF can provide all remaining funds needed to complete the documents.”

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 project is consistent with the Conservancy Project Selection Criteria and Guidelines as updated in November 2011.

2. The proposed project is consistent with the purposes and objectives set forth in Chapter 6 of Division 21 the Public Resources Code (Section 31251-31270) regarding enhancement of coastal resources.
3. The Elkhorn Slough has been identified in the Certified Local Coastal Program of Monterey County as environmentally sensitive habitat area that requires public action to resolve existing resource protection problems.
4. Elkhorn Slough Foundation 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 is recommending that the Conservancy provide up to \$600,000 to Elkhorn Slough Foundation (ESF) for preparation of design, engineering, environmental analyses required by the California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA), permit application documents for restoration of tidal marsh and connected uplands in four marshes located in Elkhorn Slough, Monterey County (Exhibit 1). ESF, in partnership with the California Department of Fish and Game (CDFG) and the Elkhorn Slough National Estuarine Research Reserve (ESNERR), proposes to plan the restoration of at least 50 acres of tidal marshes at Seal Bend, Minhoto, and Hester’s marshes, as well as the sixth finger of Parson’s Slough in the southern area of in Elkhorn Slough, through placement of sediment to raise subsided land to the elevation necessary to enable formation of tidal marsh. ESF also proposes to plan the restoration of 35 acres of uplands at Minhoto marsh.

The Elkhorn Slough estuary, containing California’s second largest tract of salt marsh, is currently facing unprecedented rates of tidal wetland loss and degradation. Fifty percent of the tidal salt marsh in Elkhorn Slough has been lost in the past 70 years. This habitat loss is a result of diking and draining, increased tidal flooding which “drowns” the vegetation, and bank erosion which causes the marsh to collapse into the channel. It is predicted that the dramatic rates of tidal wetland loss and degradation in Elkhorn Slough will continue in the near future if no management actions are taken.

All four of the marshes that are the subject of the proposed project were previously diked and drained for agricultural uses and have undergone subsidence. As a result, portions of each marsh are too low to sustain tidal marsh. Seal Bend Marsh is approximately 24 acres, and approximately 14 acres requires sediment addition to support tidal marsh. A significant portion of the levee around Seal Bend Marsh is still intact, which could make sediment retention relatively easy. In Minhoto Marsh, approximately 25 of the 38 acres require sediment addition. Minhoto Marsh is adjacent to a commercial flower-growing agricultural operation. Hester’s Marsh is 33 acres with only one acre of intact marsh left. The rest needs sediment in order to be restored. The Sixth Finger of Parsons Slough requires sediment addition to all 27 acres to support tidal marsh (Exhibit 1).

The proposed project aims to demonstrate the beneficial reuse of sediment as a strategy to correct imbalanced physical processes caused by historic wetland diking and draining affecting much of the Elkhorn Slough estuary. Adding sediment will displace tidal waters, reducing the tidal prism, which is anticipated to in turn reduce tidal scour. The added sediment will also fill

accommodation space, deep areas left over from past erosion and subsidence, which competes with tidal marsh for sediment suspended in the water column. Increasing sediment deposition on the tidal marshes will increase marsh resiliency to erosion and rising sea levels. Although the project is not dependent on any specific source of sediment, some initial coordination has occurred with Monterey and Santa Cruz Counties flood management agencies from whose management activities generate sediment and require identifying disposal options. The uplands restoration to be planned as part of this project is a 35-acre area connected to the Minhoto parcel and located between the farmland and the estuary. The goal is to restore this area with native grasslands to form a buffer that will intercept stormwater runoff, provide transitional habitat, and provide a space for marsh migration with sea level rise.

The proposed project would entail planning the sediment addition and upland restoration through engineered design, CEQA/NEPA compliance, and permitting. Initial investigations into using sediment addition to restore tidal marsh in Elkhorn Slough were conducted in 2010 as part of the Parsons Slough Restoration Plan. That planning process led to two findings that drove the development of the proposed project: sediments are expensive to procure unless combined with other sediment management activities, and areas with less subsidence yield more acres of tidal marsh per unit of sediment added. As a result of these two findings, the proposed project focuses on four marshes with relatively less subsidence than other areas. For instance, much of Parsons Slough has subsided by three to five feet; as a result, restoring tidal marsh in those areas would require up to five times the amount of sediment as needed for the Minhoto and Seal Bend parcels.

The goal of the proposed project is to plan restoration that will increase the extent of tidal marsh in Elkhorn Slough for the first time in 60 years and that will demonstrate an innovative approach that, when fully implemented in all construction phases will result in an 8-10 percent increase in tidal marsh in the estuary. If extended to other parts of the estuary, this approach could increase the extent of marsh by 50 percent over existing acreage, and approach the historic extent.

The Seal Bend property was formerly a site for oyster cultivation, and a developed area adjacent to the water remains intact. This disturbed site may be well suited for recreational kayakers for a pullout and restroom (informal use of the area for this purpose occurs presently). The planning process will consider the suitability of the site for that purpose, while considering operations and maintenance issues and alternatives for recreational users.

The Elkhorn Slough National Estuarine Research Reserve is an educational facility that reaches 40,000 people each year. The lessons learned through this project will increase public education about the need for collaboration to solve complex environmental issues, as well as on the ecological benefits of wetland restoration.

The proposed project will be led by ESF in partnership with ESNERR, a partnership that is now 30 years old. ESF is a community non-profit and, subcontracting with the Conservancy, serves as the fiscal agent for receiving and administering federal grant funding from the National Oceanic and Atmospheric Administration (NOAA) for the support of ESNERR staff. ESNERR, a member of the national network of estuarine research reserves, is a partnership between NOAA and CDFG. Successful restoration projects have resulted from this partnership including restoration of 24 acres of wetlands at Azevedo Ranch and installation of the Parsons Slough Sill to reduce tidal scour and sediment loss in the slough.

Site Description: Elkhorn Slough, an estuary extending inland for seven miles (11 kilometers) from the midpoint of Monterey Bay in Central California, provides extraordinary biological diversity and recreational opportunities. The estuary contains many distinctive habitat types including subtidal channels, tidal creeks, mudflats, salt marshes, and tidal brackish marshes. These habitats provide a rich ecosystem essential for over 340 bird species, 550 marine invertebrate, and 102 fish species. Elkhorn Slough is an important nursery for commercial and recreational fish and a premier migratory stopover for birds. Estuaries like Elkhorn Slough are among the most threatened ecosystems in California, and as a result, a disproportionate number of rare, threatened, and endangered species reside in these areas. In the Elkhorn Slough watershed, two dozen species are included in these categories. The estuary also provides many beneficial human uses such as recreational boating, hiking, and bird watching. Moreover, the coastal wetlands minimize shoreline erosion and filter polluted waters.

The Elkhorn Slough estuary hosts the greatest extent of tidal marshes on the 600-mile stretch of coast between San Francisco and Mexico, supporting remarkable biological diversity and serving as an important breeding area for many marine species including sharks, rays and commercially harvested flatfish. Elkhorn Slough has been recognized as a Globally Important Bird Area by the National Audubon Society and a Western Hemisphere Shorebird Reserve Network by the Manomet Center for Conservation Sciences. Portions of the slough are designated a State Ecological Reserve and Wildlife Management Area and a Marine Protected Area.

Over the past 150 years, human actions have altered the tidal, freshwater, and sediment processes that are essential to support and sustain Elkhorn Slough's estuarine habitats. Large areas of the Elkhorn Slough tidal marshes were diked and drained for agricultural use in the 19th century. Decades later, these dikes began to fail, reintroducing tidal waters to the reclaimed wetlands. However, the act of draining wetlands leads to sediment compaction and land subsidence, which makes the substrate too low and wet to support salt marsh. Approximately 50 percent or 1,000 acres of salt marsh habitat was lost between 1870 and 2003 due to human impacts. Today the historic marshes in the project area are lost or in poor condition and are in need of restoration. Human alterations to the landscape have also significantly decreased the abundance of native grassland species in the watershed.

This project area includes Seal Bend Marsh, Minhoto Marsh, Hester's Marsh and the sixth finger of Parsons Slough all of which are part of the ESNERR, which is owned by the California Department of Fish and Game (CDFG). The Seal Bend-Minhoto Marsh-Hester's Marsh Complex is a 90-acre swath of coastal wetlands that link high quality tidal marshes to the west and east, and which, when restored, will provide a transition between restored uplands and the open waters of the estuary. These marshes are central to and contiguous with 2500 acres of protected lands. These three marshes were reclaimed between 1931 and 1949. Some of the levee system is still intact, but much of the marsh complex is open to tidal flow. About 24 acres of the marsh complex still supports tidal marsh. The remainder is too low to support marsh vegetation.

Sixth Finger of Parsons Slough is a 27-acre site first reclaimed in 1931. There is a very low remnant levee and no salt marsh detectable from aerials. This is the highest elevation portion of the Parsons Slough Complex and, but it is still too low to support tidal marsh. Compared to the other three marshes, it is relatively deep and hosts some shellfish resources; therefore, it is a lower priority restoration site and would likely be included in a later phase of construction.

Project History: The project is the outcome of an ecosystem based management initiative that began in 2004. The Elkhorn Slough Tidal Wetland Project (TWP) has engaged over 100 scientists, agency staff, and elected officials in planning and implementing activities for the restoration of the physical processes that support the long-term vitality of the slough’s estuarine habitats. Conservancy staff has participated on the Strategic Planning Team for the TWP.

In 2008, the Conservancy secured a \$200,000 grant from the U.S. Environmental Protection Agency and added \$100,000 of its own funds for planning the Parsons Slough Wetland Restoration Project, which included investigating sediment addition as a method to restore tidal marsh in the slough. This information helped lead to the current project proposal. ESF staff approached the Conservancy in 2011 to request funds for planning this tidal marsh enhancement project as the next priority identified by the TWP.

PROJECT FINANCING

Coastal Conservancy	\$600,000
Department of Water Resources	\$647,329
U.S. Army Corps of Engineers	\$302,451
David and Lucille Packard Foundation	\$40,000
Other sources to be determined	<u>\$118,053</u>
Total Project Costs	\$1,707,833

The expected source for the Conservancy funds for this authorization is an appropriation to the Conservancy from the Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006, “Proposition 84,” Public Resources Code section 75001 et seq. Proposition 84 authorizes the Conservancy’s use of these funds for projects that protect beaches, bays, coastal waters and coastal watersheds, including projects that protect and restore the natural habitat values of coastal waters and lands, and that are consistent with the Conservancy’s enabling legislation at Division 21 of the Public Resources Code. Section 75060(e) of the Public Resources Code specifically allocates Conservancy funding for the protection of Monterey Bay and its watersheds, which is defined in Section 75072.5 to include the watersheds of those rivers and streams in Santa Cruz and Monterey Counties flowing to the Monterey Bay. The proposed project will protect and restore the natural habitat values of the Elkhorn Slough wetlands and uplands, benefiting coastal waters in the larger Slough complex, which flows to Monterey Bay. The proposed authorization is consistent with the Conservancy’s enabling legislation, as discussed in the “Consistency with Conservancy’s enabling legislation” section below.

Proposition 84 also requires that for potential projects that include acquisition or restoration for the purpose of protect natural resources protection, the Conservancy give priority to potential projects that meet one or more of the criteria specified in Public Resources Code Section 75071. The proposed project satisfies the following specified criteria: 1) Landscape/habitat linkage – the project will enhance at least 50 acres of tidal marsh and 35 acres of adjacent upland habitat to maximize ecological connectivity within the slough; 2) Watershed protection – the project will contribute to the protection and restoration of the Elkhorn Slough watershed by improving water quality and protecting habitat for the benefit of the entire Elkhorn watershed, which is a priority watershed in the Central Coast, one of the major biological regions of the state as identified by

the Resources Agency; and 4) Non-state matching contribution – the U.S. Army Corps of Engineers Estuary Habitat Restoration Grant program is expected to provide \$302,451 toward the proposed project, and ESF has secured a \$40,000 grant from the Packard Foundation for the project. Accordingly, the proposed authorization is an appropriate use of Proposition 84 funds.

CONSISTENCY WITH CONSERVANCY’S ENABLING LEGISLATION:

Conservancy funding of the proposed project is consistent with Chapter 6 (Sections 31251-31270) of the Conservancy’s enabling legislation, Division 21 of the Public Resources Code, regarding enhancement of coastal resources. Pursuant to Section 31251, the Conservancy may award grants to nonprofit organizations for the purpose of enhancement of coastal resources that, because of human-induced events, or incompatible land uses, have suffered loss of natural and scenic values. Such grants must be used for assembly of parcels of land, relocation of improvements or for other corrective measures that will enhance the natural and scenic character of the area. The proposed project will plan the corrective measures, i.e., restoration, that are necessary to enhance the natural and scenic character of the Elkhorn Slough complex, which has been significantly degraded by historical diking and farming of the property.

Consistent with Section 31252, Elkhorn Slough has been identified in the Monterey County Local Coastal Program as requiring public action to resolve existing resource protection problems. Specifically, section 2.3.4.2 of the North Monterey County Local Coastal Program calls for all appropriate agencies to participate in the development and financing of a comprehensive wetland management plan for Elkhorn Slough, and for an agency to accept management responsibility for implementing the plan.

Section 31253 states that the Conservancy may provide up to the total cost of a coastal resource enhancement project. Consistent with Section 31253, the following factors were considered in determining the amount of Conservancy funding for this project: the total amount of funding available for coastal resource enhancement projects, the fiscal resources of the applicant, the urgency of the project, and the Conservancy’s project selection criteria, as described in detail below, under the heading “Consistency With Conservancy’s Project Selection Criteria & Guidelines.” Conservancy funds would comprise just over one third of project costs, with the additional funding provided by the U.S. Army Corps of Engineers, the Department of Water Resources, and the David and Lucille Packard Foundation.

CONSISTENCY WITH CONSERVANCY’S 2007 STRATEGIC PLAN GOAL(S) & OBJECTIVE(S):

Consistent with **Goal 5, Objective A** of the Conservancy’s 2007 Strategic Plan, the proposed project will develop a plan for the restoration and enhancement of coastal habitats including coastal wetlands.

Consistent with **Goal 6, Objective E**, the proposed project will develop a plan to improve water quality to benefit coastal ocean resources in that restoration of Elkhorn Slough tidal marsh will improve water quality in Monterey Bay.

**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 November 10, 2011, 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. **Support of the public:** The project has the support of state and local elected officials including Senator Sam Blakeslee, Assemblymember Bill Monning, Monterey County Supervisor Lou Calcagno, City of Watsonville, NOAA National Estuarine Reserve Division, U.S. Fish and Wildlife Service, Department of Fish and Game, Department of Water Resources, and the Regional Water Quality Control Board. See Exhibit 3: Project Letters.
4. **Location:** The proposed project is located within the coastal zone of Monterey County.
5. **Need:** While Elkhorn Slough Foundation has obtained in-kind commitments and matching funds from public agencies and partnering organizations, Conservancy assistance is needed at this point to enable the proposed project to move forward.
6. **Greater-than-local interest:** Elkhorn Slough is one of the most ecologically important and largest estuarine systems in California as signified by its designation as a National Estuarine Research Reserve. The proposed restoration will provide water quality and habitat benefits for the Elkhorn Slough complex, as well as enhance significant tidal wetland habitat for state and federally endangered species such as the California clapper rail, California least tern, Southern sea otter and several other species of concern.
7. **Sea level rise vulnerability:** The project's vulnerability to sea level rise will be evaluated in the environmental analysis for the years 2050 and 2100 and will be designed to have a useful life of at least 20 years. Elkhorn Slough has been the subject of numerous studies that include vulnerability assessments and ongoing monitoring of existing marsh conditions and conditions projected under various sea level rise scenarios. The project is experimental and concurrent monitoring will inform management of vulnerable habitats and methods to maximize viability of tidal marsh sustainability in sediment addition restoration projects in Elkhorn slough, while learning what local factors most affect marsh viability

Additional Criteria

8. **Urgency:** Human actions have altered the tidal, freshwater and sediment processes essential to supporting and sustaining Elkhorn Slough's estuarine habitats. Historic marshes in this area are lost or in poor condition and are in need of restoration to once again function viably. A unique opportunity exists to restore a rare ecosystem in coastal California and improve habitat for rare and declining estuarine dependent species.
9. **Leverage:** See the "Project Financing" section above.

10. **Conflict Resolution:** The Monterey Bay National Marine Sanctuary currently has a prohibition on the beneficial reuse of sediment in areas under its jurisdiction. This policy eliminates creative options for beneficial reuse of sediments in many areas and complicates sediment management for numerous local government entities. While the proposed project site is outside Sanctuary jurisdiction, it may serve as an example of how the beneficial reuse of sediment can be consistent with robust resource stewardship.
11. **Innovation:** The project will serve as a pilot project for the Central Coast to demonstrate the beneficial reuse of sediment as a strategy to correct imbalanced physical processes affecting the estuary.
12. **Readiness:** ESF is ready to commence the proposed project this year.
13. **Realization of prior Conservancy goals:** The Coastal Conservancy has worked with ESF and other organizations for almost two decades to preserve and restore the resources of Elkhorn Slough. Tidal erosion and marsh loss within the Slough threaten the resources the Conservancy has worked hard to protect. The proposed project will evaluate one option for protecting these resources from continued erosion. See also the “Project History” section above.”
14. **Cooperation:** The project will involve a community engagement component to guide design of the project.

CONSISTENCY WITH LOCAL COASTAL PROGRAM POLICIES:

The proposed project is consistent with the following recommended actions or specific policies of the certified North Monterey County Local Coastal Program:

Section 2.3 defines environmentally sensitive habitats as “areas in which plant or animal life or their habitats are rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments.” Section 2.3.1 states that environmentally sensitive habitats of North County “shall be protected, maintained, and where possible, enhanced and restored.” This project will facilitate enhancement and restoration of the Elkhorn Slough through a sediment addition pilot project.

Section 2.3.3.B.5 states “all wetland areas of the north County Coastal Zone shall be protected and preserved for their plant and wildlife values, including but not limited to...Elkhorn Slough...”

Section 2.3.4.2 states that a comprehensive wetland management plan should be completed for...Elkhorn Slough... All appropriate public agencies including...the Coastal Conservancy... should participate in the management plan financing and development.”

Section 2.3.4.5 states “the County shall encourage the restoration of sensitive plant habitats on public and private lands.”

The proposed project meets the goals of these LCP policies by carrying out one or more of the recommendations of the Elkhorn Slough Watershed Conservation Plans of 1989 and 1999 which identifies the loss of tidal marsh as a major conservation issue in the Elkhorn Slough watershed, and calls for habitat restoration of wetland habitat where suitable.

COMPLIANCE WITH CEQA:

The proposed project is statutorily exempt under 14 Cal.Code of Regs. Section 15262 as the project will only involve preparation of planning documents and feasibility studies for future actions that have not yet been approved or authorized for funding, and will consider environmental factors. Upon approval, staff will file a Notice of Exemption for this project.