

COASTAL CONSERVANCY

Staff Recommendation  
September 14, 2023

**BUILDING CAPACITY FOR COASTAL CLIMATE RESILIENCY IN SAN FRANCISCO BAY**

Project No. 23-039-01  
Project Managers: Marilyn Latta, Vanessa Aczon

**RECOMMENDED ACTION:** Authorization to disburse up to \$4,351,500 to San Francisco State University to plan and design two, and implement one, sea level rise adaptation project, develop a workforce training program in nature-based climate resiliency, and develop a consortium of experts to advance nature-based adaptation projects in various Bay Area counties, including Marin, San Francisco, Solano, Alameda, San Mateo, and Santa Clara.

**LOCATION:** Multiple locations in the Counties of Marin, San Francisco, Solano, Alameda, San Mateo, and Santa Clara

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EXHIBITS

Exhibit 1: [Project Location Map](#)

Exhibit 2: [Project Design](#)

Exhibit 3: [Project Letters](#)

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**RESOLUTION AND FINDINGS**

Staff recommends that the State Coastal Conservancy adopt the following resolution and findings.

Resolution:

The State Coastal Conservancy hereby authorizes a grant of an amount not to exceed four million three hundred fifty-one thousand five hundred dollars (\$4,351,500) to San Francisco State University (“the grantee”) to plan and design two, and implement one sea level rise adaptation project, develop a workforce training program in nature-based climate resiliency, and develop a consortium of experts to advance nature-based adaptation projects in various Bay Area counties, including Marin, San Francisco, Solano, Alameda, San Mateo, and Santa Clara.

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

1. A detailed work program, schedule, and budget.
2. Names and qualifications of any contractors to be retained in carrying out the project.
3. A plan for acknowledgement of Conservancy funding.
4. Evidence that all permits and approvals required to implement the project have been obtained.
5. Evidence that the grantee has entered into agreements sufficient to enable the grantee to implement, operate, and maintain the project.

Findings:

Based on the accompanying staff recommendation and attached exhibits, the State Coastal Conservancy hereby finds that:

1. The proposed authorization is consistent with Chapter 3, Section 31113, of Division 21 of the Public Resources Code, regarding the Climate Ready Program.
2. The proposed project is consistent with the current Conservancy Project Selection Criteria.

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## **STAFF RECOMMENDATION**

### **PROJECT SUMMARY:**

Staff recommends the Conservancy authorize a \$4,351,500 grant to San Francisco State University (“SFSU”) to plan and design two, and implement one, sea level rise adaptation projects, develop a workforce training program in nature-based climate resiliency, and develop a consortium of experts to advance nature-based adaptation projects in various Bay Area counties, including Marin, San Francisco, Solano, Alameda, San Mateo, and Santa Clara (Exhibit 1).

Sea level rise is a major threat to the California coast, including the San Francisco Bay shorelines. A significant portion of the San Francisco Bay Area - a hub of diverse habitats and wildlife, intermingled with commerce, infrastructure, and home to 7.8 million people- is situated along the San Francisco Bay (SF Bay) shoreline, making the region inherently vulnerable to the rising tides. Major impacts of sea level rise include an acceleration of coastal erosion, leading to the loss of valuable land along the bay shorelines; increased risk of flooding, groundwater rise, and storm surge events that endanger coastal communities, homes, critical infrastructure, and public health; and disruption of estuarine and coastal ecosystems, that may impact fish and wildlife populations, particularly sensitive species endemic to the region, as well as the overall health of the bay.

Nature-based solutions, such as living shorelines, harness the power of natural ecosystems to enhance resilience against sea level rise and climate change impacts. This approach is more likely to preserve the benefits of coastal ecosystems while also maintaining and/or enhancing coastal access. While traditional grey infrastructure has its own benefits, such as immediate flood protection and structural stability, studies reveal that they continue to degrade the shoreline, reduce adaptive capacity, and have limited lifespans. The integration of both

approaches (often called “green-grey infrastructure”) can be utilized if thoughtfully designed and monitored for habitat benefits.

While there is substantial and growing support for nature-based adaptation approaches, the ability to adapt in ecologically appropriate ways is constrained by the region’s shortage of on-the-ground experience, including an adequately trained workforce in nature-based climate resilience, pilot or demonstration projects that guide adaptation methods, and a dedicated group comprised of various restoration practitioners and key stakeholders that can provide climate science problem-solving and regional guidance for the SF Bay. To address these specific gaps, the proposed project will consist of:

**Design and permitting of a pilot living seawall and boat access**

As shown in the Project Designs (Exhibit 2), SFSU will prepare designs and permit applications for an experimental living seawall at SFSU’s Estuary and Ocean Science Center (EOS), in Tiburon. Although a similar project was recently implemented at the Port of San Francisco, which this project component will seek guidance from, more testing in different settings is still needed. This component of the proposed project is intended to increase understanding of how to better retrofit seawalls to provide more habitat benefits such as supporting native species like the Olympia oyster. The goal is not to promote additional seawalls getting built, but to provide habitat support to those that are necessary for flood protection, for example, in areas where a living shoreline or retreat is not possible. The project will also prepare designs and permit applications for a small boat access required for installation and monitoring of the living seawall pilot as well as additional educational activities at EOS. The small boat access will include a small boat ramp, crane, and floating dock. Both the living seawall project and the small boat access elements will be designed to the 60% design level. Additional project activities include creating a Technical Advisory Committee that will be consulted to support design of the living seawall and hosting a living seawall workshop with local and restoration practitioners, academic experts, and resource and regulatory staff.

**Piloting an oyster shell recycling program**

The second project component to be funded through this Conservancy authorization is to design, implement, and evaluate a pilot oyster shell recycling program for future commercially-grown Pacific oyster restoration use. The shell recycling pilot is modeled after highly successful shell recycling programs on the East and Gulf Coasts, led by Chesapeake Bay Foundation and many others, that lead to increased supply of restoration material as well as substantial public education and involvement in living shorelines. For this project component, EOS will partner with Hog Island Oyster Company (farm and two of their restaurants), Sustainable Agriculture Education, and Zero Waste Department of the Conservation Corps North Bay to implement this pilot recycling program. Oyster shells can serve as the basis for restored native oyster reefs that provide critical habitat and protect shores from shoreline erosion, but shells are not readily available in the Bay Area for use in oyster restoration efforts.

This pilot shell recycling program will be evaluated for its efficacy and potential for scaling up to support living shorelines in the SF Bay. Project component activities include development of the

shell recycling program logistics, collecting and curing of oyster shells, and designing print materials to inform restaurant patrons about native oysters and nature-based adaptation projects that the pilot shell recycling will support.

**Developing and implementing a workforce development program with seven community colleges**

The third project component to be funded through this Conservancy authorization is to create and implement a workforce development program for approximately 900 community youth and community college students that will focus on ecology, engineering design, restoration methods, and monitoring of nature-based adaptation on the SF Bay shoreline. SFSU will work with faculty and deans from seven community colleges around SF Bay to develop a nature-based adaptation curriculum and teaching materials, and support “teaching circles” where faculty can share experiences and adapt the curriculum as-needed. The seven community colleges include Solano, Berkeley City, Chabot, Ohlone, San Mateo, Skyline, and Evergreen Valley, all of which serve a diverse community of students often from historically excluded communities in the Bay Area. SFSU will also partner with two community organizations, Conservation Corps of North Bay and Literacy for Environmental Justice, to develop curriculum, host trainings for the community colleges and educators at the EOS Center, and provide field trips to learn about existing or future living shorelines projects across the SF Bay. Additional project component activities include tribal outreach led by Indigenous faculty at SFSU and/or the community colleges, to foster opportunities in climate action jobs and education and advise on traditional ecological knowledge.

**Creating and piloting a Regional Climate Science Consortium**

The fourth project component to be funded through this Conservancy authorization is to develop and implement for 2 years (2024-2026 years) a consortium comprised of scientists, restoration practitioners, community-based organizations, Tribal members, and public agencies that will offer climate science problem-solving and regional guidance for innovative nature-based adaptation along the San Francisco Bay shoreline.

The funding of the consortium will include compensation for consortium staff, technical consultants, and Climate Justice Leadership students who will contribute to various aspects of the consortium such as management and coordination of activities, and gathering and analyzing data. Additionally, funding will be allocated to rental space as the consortium will be housed at SFSU’s EOS Center where they will utilize dedicated EOS Center meeting spaces for collaborative work and convening. The consortium will commence with the core planning entities, such as EOS, San Francisco Bay Conservation and Development Commission (BCDC), San Francisco Estuary Partnership, and the San Francisco Bay National Estuarine Research Reserve. Additional entities such as community-based organizations, Tribal members, and US Army Corps of Engineers may join after initial set-up of the consortium. To guide the consortium’s focus, the project will also develop a steering committee with broad representation across key stakeholders and expertise and host a web-based portal on BCDC’s Bay Adapt website to solicit ideas of current and emerging science needs. This solicitation process will request ideas for highly innovative nature-based solutions that do not currently have much scientific basis, like ecologically enhanced rock slope revetments, to select priority

issues for their work. Once nature-based methods and science gaps have been selected, the consortium will provide project-level support to on-going, planning projects in need of scientific input as well as regional guidance via white papers and a “State of the Adaptation Science” workshop to disseminate information gathered.

The overall project will provide multiple benefits, including future habitat value from the living seawall as well as transfer of knowledge to other shoreline landowners and provide guidance for other nature-based working waterfront projects; increased utility of the EOS Center waterfront educational facilities for ongoing research and training; exposure and education of living shoreline projects to the public with the potential to reach an estimated 7,500 restaurant patrons; recommendations of how to expand oyster shell recycling programs to support living shoreline projects in the SF Bay; hands-on science and restoration training to a diverse and underserved student population across the Bay Area; workforce development specific to living shoreline projects; science support for innovative nature-based solutions; and increased communication and collaboration across sectors to advance and expand nature-based resiliency on the SF Bay shoreline.

**Site Description:** The majority of the project’s elements will occur at San Francisco State University Estuary and Ocean Science Center in Tiburon in Marin County. Since 1978, the State of California has leased and then owned (since 2008) 53 acres of former United States Navy waterfront property on SF Bay. With close proximity to the SF Bay, the EOS provides an ideal setting for scientific research and education, allowing easy access to diverse marine habitats.

Other project sites include the two Hog Island restaurants in San Francisco and Larkspur as well as their oyster farm in Marshall. The project will also utilize classrooms and labs at seven community colleges, and field trips for community college students and youth to visit existing or planned nature-based shoreline adaptation projects across SF Bay.

**Grant Applicant Qualifications:** As the only marine and estuary research facility in the SF Bay, SFSU EOS is perfectly situated to advance critical gaps in advancing nature-based climate resilience solutions as they are a restoration practitioner who works on native oyster and eelgrass restoration, and has been in coordination with living shoreline experts, design engineers, public agencies (funding, regulatory, local), and communities who strive to protect the shorelines with methods that provide both physical and biological benefits. Being an established educational institution also positions SFSU’s EOS to build and train the up-and-coming workforce to address these climate change and sea level rise challenges. The Conservancy has also worked extensively with SFSU’s EOS for similar types of projects over the past ten-plus years.

**CONSISTENCY WITH CONSERVANCY’S PROJECT SELECTION CRITERIA:**

The proposed project is consistent with the Conservancy’s Project Selection Criteria, last updated on September 23, 2021, in the following respects:

**Selection Criteria:**

- 1. Extent to which the project helps the Conservancy accomplish the objectives in the Strategic Plan.**

See the “Consistency with Conservancy’s Strategic Plan” section below.

**2. Project is a good investment of state resources.**

The proposed project is a good investment of state resources because it will provide demonstration value in nature-based solution work, develop a program to empower and train individuals in nature-based adaptation strategies, and produce evidence-based practices that can be shared with other stakeholders, agencies, and communities facing similar restoration challenges in the SF Bay.

**3. Project includes a serious effort to engage tribes. Examples of tribal engagement include good faith, documented efforts to work with tribes traditionally and culturally affiliated to the project area.**

Within the proposed project’s workforce development task, SFSU’s EOS will work with Indigenous SFSU and/or community college faculty to collaboratively envision and create opportunities for tribal participation in nature-based adaptation work. Indigenous SFSU and/or community college faculty will lead tribal outreach efforts, with the goal of determining needs while also fostering opportunities in climate actions jobs, as well as advise on traditional ecological knowledge.

**4. Project benefits will be sustainable or resilient over the project lifespan.**

The proposed project will be sustainable and lead to resiliency over the project lifespan. The proposed project will include a monitoring plan for the pilot living seawall that will help in assessing performance, understanding ecological impacts, and facilitating an adaptive management approach. The oyster shell recycling program will support future living shoreline projects which will provide self-sustaining sea level rise resiliency by attenuating wave energy, increasing sedimentation along the shoreline, and creating native subtidal habitat. All other proposed project components are also intended to build capacity for climate resiliency projects, and they are expected to offer benefits well beyond the project lifespan.

**5. Project delivers multiple benefits and significant positive impact.**

The proposed project will deliver multiple benefits and significant positive impact through their multi-pronged approach in piloting sea level rise adaptation projects and creating of a workforce development program.

The overall project will increase educational and career pathways, promoting sustainable practices and environmental stewardship. The project will generate valuable data that will offer guidance and lessons-learned on the feasibility and scalability of oyster shell recycling, living seawalls, and other nature-based solutions that can be integrated into existing infrastructure in the SF Bay.

**6. Project planned with meaningful community engagement and broad community support.**

The proposed project will plan for meaningful community engagement by hosting a series of workshops that will offer an opportunity for individuals and communities, including local and regional managers, resource and regulatory staff, and contractors to increase their

understanding and awareness on living shorelines, living seawalls, and other nature-based adaptation solutions. Additionally, through SFSU’s partnerships with two community organizations and seven community colleges, youth and students will engage in hands-on climate action training and experiences, and education.

**PROJECT FINANCING**

|                            |                    |
|----------------------------|--------------------|
| <b>Coastal Conservancy</b> | <b>\$4,351,500</b> |
| <b>Project Total</b>       | <b>\$4,351,500</b> |

The anticipated source of Conservancy funding for this proposed project is a FY 2022/2023 appropriation from the General Fund specifically for Climate Ready program nature-based projects that address sea level rise in the San Francisco Bay Area Conservancy Program. The proposed project is consistent with this fund source because it will provide scientific support, a workforce training program, and planning, design for several pilot nature-based adaptation strategies to mitigate the impacts of climate change along the SF Bay shoreline. Alignment with the Climate Ready Program is also discussed below in the “Consistency with Conservancy's Enabling Legislation” section below.

Unless specifically identified as “Required Match,” the other sources of funding and in-kind contributions described above are estimates. The Conservancy does not typically require matching funds or in-kind services, nor does it require documentation of expenditures from other funders or of in-kind services. Typical grant conditions require grantees to provide any funds needed to complete a project.

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

Conservancy funding for the proposed project is consistent with Chapter 3, Establishment and Functions of the State Coastal Conservancy, Section 31113, the Climate Ready Program, of the Conservancy’s enabling legislation, Division 21 of the Public Resources Code.

Pursuant to Section 31113 (a), the Conservancy will administer the Climate Ready Program to address the impacts and potential impacts of climate change on resources within the Conservancy’s jurisdiction. The proposed project is within the Conservancy’s jurisdiction as it is within the 9 counties of the Bay Area.

Pursuant to Section 31113 (b), the proposed project will address sea level rise impacts through the development, scientific-support, implementation, and communication of nature-based solution projects including living shorelines and living seawalls.

**CONSISTENCY WITH CONSERVANCY’S [2023-2027 STRATEGIC PLAN](#):**

Consistent with **Goal 1.4, Workforce Development**, the proposed project will create a workforce development program with community organizations and community colleges that will support a pathway for underserved youth and community college students towards nature-based climate resiliency work.

Consistent with **Goal 4.1, Sea Level Rise Adaptation**, the proposed project will plan for nature-based climate adaptation pilot projects including supporting future native oyster restoration.

Consistent with **Goal 4.3, Nature-Based Climate Adaptation**, the proposed project will plan for pilot projects, including a living seawall, that will work to protect urban waterfronts, public access infrastructure, and natural resources from sea-level rise.

**CEQA COMPLIANCE:**

The proposed project consists of four components, all of which are exempt from review under CEQA. The design and permitting of the pilot living seawall is exempt pursuant to 14 California Code of Regulations Section 15262, "Feasibility and Planning Studies". As required by section 15262, the proposed authorization will involve review and consideration of environmental factors associated with the project. This element of the project is also categorically exempt pursuant to CCR Section 15306, since it consists of basic data collection, research and evaluation activities which do not result in a serious or major disturbance to an environmental resource and which will be undertaken as part of a study leading to an action which the Conservancy has not yet approved, adopted, or funded.

The oyster shell recycling program component is categorically exempt pursuant to 14 CCR Section 15301. Consistent with Section 15301, "Existing Facilities," the project will consist of the operation of existing facilities that involves negligible or no expansion of use.

The workforce development program component is exempt pursuant to CCR Section 15322. Consistent with Section 15322, "Educational or Training Programs Involving No Physical Changes," the project will consist of the creation and adoption of a training program which involves no physical alteration of the area affected.

The creation and piloting of a Regional Climate Science Consortium is not a "project" as that term is defined under 14 CCR § 15378. This section excludes from CEQA review organizational or administrative activities that will not result in direct or indirect physical changes in the environment.

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