

SAN FRANCISCO BAY RESTORATION AUTHORITY

Staff Recommendation

September 11, 2026

**ACCELERATING ECOSYSTEM-SCALE HABITAT STEWARDSHIP IN
RICHARDSON BAY**

Project No. RA-051

Project Manager: Alexis Barrera

RECOMMENDED ACTION: Authorization to disburse up to \$1,900,000 to the Richardson Bay Regional Agency to undertake the Accelerating Ecosystem-Scale Habitat Stewardship in Richardson Bay Project, consisting of restoring 6 acres of eelgrass through traditional eelgrass shoot transplantation and autonomous underwater vehicle eelgrass seeding, post-implementation ecological monitoring, and workforce development in Richardson Bay in Marin County.

LOCATION: Richardson Bay, Marin County; Measure AA Region: North Bay.

MEASURE AA PROGRAM CATEGORY: Vital Fish, Bird and Wildlife Habitat Program

EXHIBITS

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

Exhibit 2: [Project Photographs](#)

Exhibit 3: [Project Letters](#)

RESOLUTION AND FINDINGS

Staff recommends that the San Francisco Bay Restoration Authority adopt the following resolution and findings:

Resolution:

The San Francisco Bay Restoration Authority hereby authorizes the disbursement of an amount not to exceed one million nine hundred thousand dollars (\$1,900,000) to Richardson Bay Regional Agency (“the grantee”) to undertake the Accelerating Ecosystem-Scale Habitat Stewardship in Richardson Bay Project, consisting of restoring 6 acres of eelgrass through traditional eelgrass shoot transplantation and autonomous underwater vehicle eelgrass seeding,

post-implementation ecological monitoring, and workforce development in Richardson Bay in Marin County.

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

1. A detailed work program, schedule, and budget.
2. Names and qualifications of any contractors to be employed in carrying out the project.
3. A plan for acknowledgement of Authority funding.
4. Evidence that all permits and approvals required to implement the project have been obtained.

Findings:

Based on the accompanying staff recommendation and attached exhibits, the San Francisco Bay Restoration Authority hereby finds that:

5. The proposed authorization is consistent with The San Francisco Bay Restoration Authority Act, Gov. Code Sections 66700-66706.
6. The proposed authorization is consistent with The San Francisco Bay Clean Water, Pollution Prevention and Habitat Restoration Measure (Measure AA).

STAFF RECOMMENDATION

PROJECT SUMMARY:

Staff recommends the San Francisco Bay Restoration Authority authorize a grant of \$1,900,000 to the Richardson Bay Regional Agency (RBRA) to undertake the Accelerating Ecosystem-Scale Habitat Stewardship in Richardson Bay Project, consisting of restoring 6 acres of eelgrass through traditional eelgrass shoot transplantation and autonomous underwater vehicle (AUV) eelgrass seeding, post-implementation ecological monitoring, and workforce development in Richardson Bay in Marin County (Exhibit 1) (“the project”).

Richardson Bay historically sustained expansive, healthy eelgrass meadows that provided essential nursery habitat for Pacific herring, salmonids, Dungeness crab, and other estuarine species. Over time, however, these meadows were fragmented and damaged by human caused disturbances, especially anchor scouring from vessels and the accumulation of derelict gear and marine debris, which left eelgrass vulnerable to environmental stressors such as shifting sediments, changes in water depth, and inconsistent sunlight reaching the bay floor.

RBRA is a joint powers agency made up of the County of Marin, the Cities of Belvedere and Mill Valley, and the Town of Tiburon. RBRA regulates mooring in Richardson Bay, including addressing illegally moored vessels and abandoned vessels. RBRA’s ordinances establish a non-

anchorage area and prohibit damage to eelgrass. Since 2000, RBRA has increased efforts to address illegally anchored and abandoned vessels. In conjunction with those efforts, RBRA is working to restore lost eelgrass meadow structure, improve water clarity, stabilize sediments, and recover the ecological functions that fish, wildlife, and shoreline communities rely on.

The proposed project consists of implementing a coordinated, multipartner eelgrass restoration approach that integrates innovation with established restoration strategies over 6 acres in Richardson Bay. All partner organizations will serve as subcontractors to RBRA, carrying out individual components of the project:

RBRA will lead overall project management and steward site access and enforcement. The project will take place within the Eelgrass Protection Zone. This is an area where anchoring and other damaging activities are prohibited to protect sensitive eelgrass habitat, ensuring restoration occurs under protected conditions. The Estuary & Ocean Science Center at San Francisco State University (EOS Center at SFSU) will implement traditional whole-shoot eelgrass transplantation, a reliable, well tested restoration method, across 3 acres. Traditional whole shoot transplantation involves divers or field crews collecting healthy eelgrass shoots from a donor bed and planting them by hand into the sediment at the restoration site, allowing each shoot to anchor and grow into new meadow patches.

At the same time, an AUV eelgrass seed-injection pilot will be conducted across 3 acres by Ulysses, a marine technology company specializing in autonomous underwater vehicles. AUV seed-injection restoration uses autonomous underwater vehicles operated by Ulysses to place eelgrass seeds directly into the bay floor with high precision. This approach allows wide area coverage, tests whether automated seed-injection can restore eelgrass more efficiently and cost-effectively than manual planting and provides direct comparison of eelgrass survival and density between the two methods.

The project includes conducting a comprehensive monitoring and evaluation program over approximately two years to track eelgrass restoration performance and perform adaptive management. The EOS Center will assess eelgrass survival, density, and annual growth across both transplanted and AUV-seeded sites, and Ulysses will conduct quarterly unmanned underwater vehicle imaging surveys to map eelgrass cover and evaluate seed-injection effectiveness. Once the project is complete, RBRA will provide long-term project protection through the enforcement of anchoring prohibitions in the Eelgrass Protection Zone.

Throughout project implementation, both restoration methods will be evaluated, and results will be presented in a joint technical assessment at the end of the implementation period. EOS Center will analyze biological performance, and Ulysses will contribute data on spatial coverage, efficiency, and seed deposition accuracy. Interim comparative reports will be produced during the project, with a final combined report determining relative cost-effectiveness, scalability, and ecological results. Beyond the grant period, EOS Center and Ulysses will continue their respective monitoring efforts as part of ongoing operations.

Coastal Policy Solutions will oversee project coordination, permitting compliance, and stakeholder communication, ensuring smooth implementation across partners. Together, these partners will provide the technical and scientific expertise needed to support large-scale eelgrass restoration in Richardson Bay.

The project also includes a workforce development component, consisting of one to two paid internships for students from historically excluded or underserved communities in Marin County, offering experience across fields like marine ecology, restoration fieldwork, and emerging AUV robotics. More specifically, interns may assist with ecological monitoring, social media outreach, or eelgrass planting, giving them valuable exposure to environmental restoration and other marine-related career paths.

Grant Applicant Qualifications: RBRA has recently successfully implemented large-scale vessel removal and habitat protection programs and has already restored approximately 14.5 acres of eelgrass through its current U.S. Environmental Protection Agency (EPA)-funded effort, demonstrating direct experience with transplantation, monitoring, and restoration logistics. RBRA also leads a well-established partnership network that includes the EOS Center at SFSU for transplant science and monitoring, Ulysses for AUV-based restoration technology, Coastal Policy Solutions for project management and stakeholder coordination, and community organizations such as the Richardson Bay Audubon Society and Galilee Harbor for stewardship and youth engagement. Collectively, this multidisciplinary team ensures RBRA has both the institutional foundation and technical expertise necessary to deliver ecosystem scale eelgrass restoration in Richardson Bay.

Barriers and Risks: Environmental variability presents risk to the restoration success, particularly related to sea level rise, sediment movement, temperature fluctuations, and light penetration that influence eelgrass survival. Project partners will mitigate these risks by restoring eelgrass across a range of depths identified through habitat suitability modeling, ensuring that both AUV-planted seeds and traditionally transplanted shoots are positioned to persist under changing conditions. Biological risks include seed predation, algal overgrowth, and variations in seed viability. These risks will be addressed through periodic crush-tests (simple checks where seeds are gently crushed to confirm they contain a healthy embryo), follow-up planting as needed, and adaptive management informed by continuous monitoring from the EOS Center at SFSU and Ulysses.

Technical and operational risks are also anticipated, particularly because AUV-based seed injection remains a newer method. Issues such as inconsistent seed delivery or equipment malfunction could reduce pilot effectiveness. These risks will be mitigated by pairing the AUV pilot with traditional eelgrass transplantation performed by the EOS Center at SFSU, ensuring restoration goals can still be met even if AUV performance varies. Ulysses will also maintain backup equipment and contingency protocols to reduce the likelihood of interruptions in seed deployment.

Site Description: Richardson Bay is a 3,100-acre shallow embayment in Marin County and represents the largest eelgrass restoration opportunity in the San Francisco Bay Estuary, with approximately 75 acres of suitable habitat identified for restoration. Historic anchor damage eliminated more than 80 acres of eelgrass habitat, but subsequent vessel removal and

establishment of a single, contiguous 700-acre Eelgrass Protection Zone have created conditions favorable for recovery. Regional restoration plans, including the San Francisco Estuary Partnership's Estuary Blueprint and the San Francisco Bay Subtidal Habitat Goals Report, identify Richardson Bay as a high priority location for eelgrass expansion. Restoring continuous areas of eelgrass meadows increases wildlife movement and improves ecosystem function, compared to isolated patches of eelgrass. Restoring eelgrass meadows also positively contribute to long-term climate resilience by creating habitat that can better withstand sea-level rise, heat waves, and shifting sediments. The restoration site contains healthy eelgrass areas where plants can be safely collected and replanted, and areas of suitable substrate identified through habitat suitability modeling. The shallow subtidal zones support spawning habitat for Pacific herring and provide foraging and shelter for salmonids, waterbirds, and numerous estuarine fish and invertebrates.

PROJECT FINANCING

San Francisco Bay Restoration Authority	\$1,900,000
Project Total	\$1,900,000

This project is fully funded through this grant. Separately, an EPA grant is supporting complementary restoration efforts, including marine debris removal and the restoration of the first 15 acres of eelgrass within the broader, contiguous 75-acre opportunity area.

CONSISTENCY WITH AUTHORITY'S ENABLING LEGISLATION, THE SAN FRANCISCO BAY RESTORATION AUTHORITY ACT:

The project is consistent with the San Francisco Bay Restoration Authority Act (Government Code, Sections 66700-66706).

The project is consistent with Section 66704.5(a) of the Government Code, which authorizes the Authority to award grants to public entities, including owners or operators of shoreline parcels in the San Francisco Bay Area. RBRA is a public agency operating within Marin County.

The project is consistent with Section 66704.5(b), which defines eligible projects, because it will restore and enhance subtidal natural habitat by expanding eelgrass meadows. Eelgrass is a critical native habitat in the San Francisco Bay, and the project directly contributes to the restoration, protection, and enhancement of this habitat type, as required under subsection (b)(1).

The project is consistent with Section 66704.5(e), which allows Authority funding to support all phases of planning, construction, monitoring, operation, and maintenance for eligible projects. This project includes construction (i.e., restoration) that includes evaluation of restoration methods, monitoring of restored eelgrass, and operation through adaptive management.

CONSISTENCY WITH MEASURE AA PROGRAMS AND ACTIVITIES:

The proposed project is consistent with the Vital Fish, Bird and Wildlife Habitat Program's purpose to significantly improve wildlife habitat that will support and increase vital populations of fish, birds, and other wildlife in and around San Francisco Bay by restoring and enhancing native eelgrass habitat in Richardson Bay. Eelgrass meadows provide critical ecological functions like improved water clarity, sediment stabilization, and foraging and shelter opportunities for shorebirds, waterfowl, and fish. The project directly improves subtidal habitat quality, strengthens biological productivity, and increases habitat complexity in one of San Francisco Bay's most important nursery areas.

CONSISTENCY WITH MEASURE AA PRIORITIZATION CRITERIA:

7. **Greatest positive impact.** The proposed project will generate major ecological and climate resilience benefits for San Francisco Bay by restoring 6 acres of eelgrass, contributing directly to Richardson Bay's broader 75-acre eelgrass restoration opportunity, identified in regional plans and habitat assessments as one of the most significant subtidal restoration potentials in the entire San Francisco Bay. Restored eelgrass meadows naturally improve water clarity, filter nutrients, and support vital populations of fish, birds, and marine invertebrates, aligning with the Baylands Ecosystem Habitat Goals Science Update (2015). By expanding eelgrass cover in one of San Francisco Bay's most productive nursery systems, the project will strengthen wildlife corridors, improve ecological linkages between open water and marsh zones; sequester carbon, and help the entire shoreline better withstand rising sea levels through stabilizing sediments, reducing erosion, and absorbing wave energy.
8. **Greatest long-term impact.** The project offers the greatest long-term impact by restoring eelgrass habitat using a dual method approach designed to perform reliably under multiple climate change scenarios. By pairing autonomous underwater vehicle seed-injection with traditional whole-shoot transplantation, the project increases long-term restoration success by preparing for future changes such as rising sea levels, shifting sediments, warmer water, and differences in how much sunlight reaches eelgrass. With traditional transplanting, divers place mature shoots at suitable depths, where they can have a better chance of survival and quickly anchor, providing immediate habitat structure. With AUVs, seeds can be planted without needing divers, thus expanding seeding areas to places where manual transplanting is impractical, unsafe, or too deep/shallow for divers. Compared to mature shoots, planting seeds allows restoration across a broader gradient of depths and microhabitats expected to shift under future climate conditions. As a result, the project provides durable ecological and climate adaptive benefits for Richardson Bay.
9. **Leveraging resources and partnerships.** The proposed project leverages substantial federal investment already secured for eelgrass restoration in Richardson Bay. The EPA has provided significant grant funding toward donor bed monitoring, transplantation, and early restoration phases that have already produced 14.5 acres of eelgrass recovery. The project also benefits from strong public-private partnerships. RBRA contributes regulatory authority and long-term stewardship of the Eelgrass Protection Zone; the EOS Center at SFSU provides scientific expertise, transplantation implementation, and monitoring capacity;

Ulysses brings advanced uncrewed underwater vehicle technology and permitting experience for autonomous deployment; and Coastal Policy Solutions offers project management, coordination with regulators, and stakeholder engagement. Together, these partners bring technical, scientific, and operational resources that strengthen the impact of this proposed work.

- 10. Engage youth and young adults.** The project includes a paid internship program designed for one to two disadvantaged students in Marin County. The internship program will provide hands-on exposure to natural resource protection, including participation in eelgrass restoration fieldwork, basic ecological monitoring, and support for AUV-based robotics used in seed-injection restoration. The intern(s) may also assist with communications and outreach related to restoration activities. Through this experience, the intern(s) will gain practical skills in marine ecology and restoration science while working alongside RBRA and its scientific partners, helping build early career pathways within the region's growing environmental and blue economy sectors.
- 11. Monitoring, maintenance, and stewardship.** The project incorporates a robust monitoring program to evaluate restoration effectiveness and inform adaptive management decisions over time. The EOS Center at SFSU will lead ecological monitoring of eelgrass performance, including shoot survival, density measurements, and annual quadrat counts that document growth across both traditionally transplanted and AUV-seeded restoration areas. Ulysses will conduct quarterly high-resolution underwater imaging surveys and unmanned underwater vehicle (UUV)-based monitoring to map eelgrass cover and assess the performance of seed-injection methods. Long-term stewardship and maintenance of restored eelgrass habitat will be carried out by RBRA, which prohibits anchoring in the Eelgrass Protection Zone, to protect sensitive subtidal habitat from disturbance. The EOS Center will continue scientific monitoring beyond the grant period, and Ulysses will maintain ongoing UUV surveys as part of its standard operational protocols for autonomous restoration support.
- 12. Coastal Conservancy's San Francisco Bay Area Conservancy Program.** The proposed project aligns with the Selection Criteria of the San Francisco Bay Area Conservancy Program (Public Resources Code, Section 31163(c)). The project advances regional goals identified in the San Francisco Bay Subtidal Habitat Goals Report and the San Francisco Estuary Blueprint which call for the expansion of eelgrass meadows, improving habitat connectivity, and restoring critical subtidal habitat.

The project can be implemented in a timely manner because restoration methods, permitting pathways, and partner roles are already established, and both traditional and AUV-based restoration techniques are ready for deployment. The project also provides ecological benefits that could be lost if not implemented quickly, as eelgrass habitat faces increasing pressures from climate change, sediment variability, and vessel impacts. Finally, the project complements additional eelgrass restoration efforts funded by EPA and committed partner contributions, ensuring efficient use of Authority funds and alignment with the Conservancy Program's expectation that projects leverage other sources of funding.

13. San Francisco Bay Conservation and Development Commission's Coastal Management

Program. The proposed project is consistent with the San Francisco Bay Conservation and Development Commission's (BCDC's) Coastal Management Program, including several key policies in the San Francisco Bay Plan that guide restoration of subtidal habitats, protection of fish and wildlife, and advancement of nature based shoreline resilience. These are:

Fish, Other Aquatic Organisms and Wildlife Policy 1: To assure the benefits of fish, other aquatic organisms and wildlife for future generations, to the greatest extent feasible, the Bay's tidal marshes, tidal flats, and subtidal habitat should be conserved, restored and increased.

Fish, Other Aquatic Organisms, and Wildlife Policy 2: Native species, including candidate, threatened, and endangered species; species that the California Department of Fish and Wildlife, the National Marine Fisheries Service, and/or the U.S. Fish and Wildlife Service have listed under the California or Federal Endangered Species Act; and any species that provides substantial public benefits, as well as specific habitats that are needed to conserve, increase, or prevent the extinction of these species, should be protected, whether in the Bay or behind dikes. Protection of fish, other aquatic organisms, and wildlife and their habitats may entail placement of fill to enhance the Bay's ecological function in the near-term and to ensure that they persist into the future with sea level rise.

Subtidal Areas Policy 10: The Commission should continue to support and encourage expansion of scientific information on the Bay's subtidal areas, including: (a) inventory and description of the Bay's subtidal areas; (b) the relationship between the Bay's physical regime and biological populations; (c) sediment dynamics, including sand transport, and wind and wave effects on sediment movement; (d) oyster shell transport; (e) areas of the Bay used for spawning, birthing, nesting, resting, feeding, migration, among others, by fish, other aquatic organisms and wildlife; (f) where and how habitat restoration, enhancement, and creation should occur considering species/ habitat needs and suitable project sites; and (g) if, where, and what type of habitat type conversion may be acceptable.

14. San Francisco Bay Joint Venture's Implementation Strategy. The project is consistent with the San Francisco Bay Joint Venture's Implementation Strategy, which emphasizes restoring native eelgrass habitats and improving ecological connectivity. The San Francisco Bay Joint Venture has adopted this project onto its Project List, demonstrating formal alignment with their regional priorities.

CONSISTENCY WITH AUTHORITY'S TRIBAL CONSULTATION POLICY:

In accordance with the Authority's Tribal Consultation Policy, as defined by Resolution 142, the Authority sent consultation letters on March 11, 2026, to all tribes identified by the Native

American Heritage Commission as having potential cultural or historical interest in the project area. No responses were received, and no tribe requested consultation or provided comments.

COMPLIANCE WITH CEQA:

RBRA, as the lead agency for this project, has determined that the project is categorically exempt from CEQA under 14 Cal Code of Regs Section 15304, which exempts minor alterations to land, water, and/or vegetation that do not involve removal of mature, healthy, scenic trees. The planting of eelgrass shoots and injection of eelgrass seeds into the Eelgrass Protection Zone, an area where eelgrass has historically thrived and where it is protected, will enhance this habitat. The project does not include the removal of mature, healthy, scenic trees. Authority staff concurs that the project is exempt. Upon approval of the project, staff will file a Notice of Exemption.