



Staff Recommendation

February 29, 2024

Item 6

Action Item:

Consideration and Approval to Disburse Funds for an Intertidal Biodiversity DNA Barcode Library

Pike Spector, Biodiversity Program Manager

Recommended Action: Authorization to disburse up to \$9,025,000 to Coastal Quest to support the development of an Intertidal Biodiversity DNA Barcode Library for California.

Location: Statewide

Strategic Plan Goals and Objectives: Goal 3: Enhance Coastal and Marine Biodiversity; Objective 3.1. Protect and Restore Coastal and Marine Ecosystems

Equity and Environmental Justice Benefits: Mentorship to undergraduate and graduate students, with the goal of increasing diversity and retention in science, technology, engineering, and mathematics (STEM) fields; supporting research relationships with minority-serving institutions; supporting meaningful inclusion of underserved research and academic communities in research and synthesis efforts.

Findings and Resolution:

Staff recommends that the Ocean Protection Council (OPC) adopt the following findings:

“Based on the accompanying staff report and attached exhibit(s), OPC hereby finds that:

1. The proposed projects are consistent with the purposes of Division 26.5 of the Public Resources Code, the California Ocean Protection Act;
2. The proposed projects are consistent with the Budget Act of 2023, which included a \$9,025,000 appropriation from the General Fund for the creation of the Intertidal Biodiversity DNA Barcode Library; and
3. The proposed projects are not ‘legal projects’ that trigger the California Environmental Quality Act (CEQA) pursuant to Public Resources Code section, section 15378.”

Staff further recommends that OPC adopt the following resolution pursuant to Sections 35500 *et seq.* of the Public Resources Code:

“OPC hereby approves the disbursement of up to \$9,025,000 to Coastal Quest to support the development of an Intertidal Biodiversity DNA Barcode Library for California.

This authorization is subject to the condition that prior to disbursement of funds, (insert grantee here) shall submit for the review and approval of the Executive Director of the OPC detailed work plans, schedules, staff requirements, budgets, and the names of any contractors intended to be used to complete the projects, as well as discrete deliverables that can be produced in intervals to ensure the projects are on target for successful completion. All projects will be developed under a shared understanding of process, management, and delivery.”

Executive Summary:

Staff recommends that OPC authorize the disbursement of up to \$9,025,000 to Coastal Quest to support the development of the first-ever Intertidal Biodiversity DNA Barcode Library for California.

The intertidal environment is fundamental to California’s marine biodiversity. However, intertidal habitats are impacted by changing climatic conditions and anthropogenic disturbances, including sea level rise, marine heatwaves, pollution, terrestrial runoff, and wildfires, all of which are expected to increase in both frequency and magnitude in the coming decades. To address concerns about environmental degradation and species loss in intertidal habitats, the California Legislature included a one-time General Fund appropriation of \$9.5 million in the Budget Act of 2023 to support the creation the Intertidal Biodiversity DNA Barcode Library.

OPC staff seek authorization to advance the development of an Intertidal Biodiversity DNA Barcode Library through competitive solicitations and discretionary spending administered by Coastal Quest. The resulting DNA library will allow resource managers to better protect and conserve California’s rich biodiversity, allowing for new insights into species’ distributions and movements along the coast, and is consistent with the goals and directives of [Executive Order B-54-18](#) and [Executive Order N-82-20](#).

Project Summary:

Background:

California’s intertidal ecosystems are among the most productive and biodiverse ecosystems on the planet. Characterized by changing tides, these habitats host a diversity of unique species and

draw thousands of tourists to California’s nearshore environment each year. However, these ecosystems are also highly vulnerable to climactic changes and anthropogenic disturbances. Sea level rise, marine heatwaves, and the increased frequency and magnitude of severe storms, coupled with terrestrial runoff, land use changes, and wildfires, threaten intertidal biodiversity now and in coming decades. These natural and anthropogenic disturbances can have lasting impacts on the abundance, distribution, and diversity of species found along California’s coastline.

While intertidal habitats are often the most accessible coastal systems for many Californians, their geographic complexity and species richness make these habitats relatively understudied and poorly understood. To date, genetic sampling in California’s intertidal habitats has led to improved understanding of coastal biodiversity, and the distribution of native, endemic, alien, and invasive species along California’s 1,100-mile-long coastline. However, recent advancements in analytical and genetic tools make it possible to answer previously unsolvable questions regarding the abundance, distribution, and diversity of species in intertidal environments.

In 2021, the California Institute for Biodiversity formed an Intertidal Biodiversity Working Group (IBWG) to share information, identify needs and challenges to understanding and preserving intertidal biodiversity, including the development of a publicly accessible genetic database for California’s intertidal organisms. In 2023, the California Legislature subsequently appropriated a one-time General Fund investment of \$9.5 million in the Budget Act of 2023 to support the creation of an Intertidal Biodiversity DNA Barcode Library (Intertidal Library) modeled after past barcode library development efforts previously funded by the California Legislature for Insect, Fungal, and Soil Biodiversity, consistent with the objectives of [Executive Order B-54-18](#) and [Executive Order N-82-20](#) to advance and conserve statewide biodiversity.

Project Summary:

To support management needs related to the protection of intertidal ecosystems and to advance priorities of the California Legislature, the proposed project will develop an Intertidal Library by facilitating critical sampling and analytical approaches to improve understanding California’s intertidal biodiversity. Through competitive solicitations and discretionary spending administered by Coastal Quest, field sampling for voucher (e.g., representative reference) specimens and curated museum collections will be leveraged to create a novel genetic digital library of intertidal species. This library of species will help resource managers to better protect and conserve California’s rich biodiversity, allowing for new insights into species’ distributions and movements along the coast via high-resolution, biogeographic data products that can be used to study and map changes in species’ distributions along the California coast in the face of a changing climate. Further, the creation of the Intertidal Library will support an early warning system that can help inform managers’ efforts to protect and restore these vulnerable ecosystems.

This disbursement will support discrete solutions-oriented projects through competitive solicitations, as well as advancing equity in expanding capacity for environmental DNA in intertidal habitats. The use of discretionary funds, where appropriate, will augment competitive solicitations to ensure the efficacy of this project in achieving the development and publication of the Intertidal Library, and species distribution maps.

Specifically, this project will accomplish the following objectives:

1. *Select projects and identify subawardees.* Coastal Quest will administer the research proposal and application process. Any competitive solicitations and discretionary funding will undergo a structured review process.
2. *Manage research projects.* Coastal Quest will administer research awards, support convenings of Principal Investigators and state resource managers, and conduct public-facing outreach and communications about project findings to a variety of audiences. Specific research objectives include:
 - Secure multiple geo-referenced and photographed voucher specimens of key taxa in California’s intertidal zone as identified by the IBWG. These specimens, and their genetic samples are to be maintained in durable, long-term collections to ensure availability to future generations.
 - Obtain DNA reference sequences (e.g., “barcodes”) for identified taxa of interest. Reference sequences are added to the DNA reference library, to work toward DNA reference library completeness for the intertidal environment.
 - Develop maps of California intertidal biodiversity, consistent with the directives of [Executive Order B-54-18](#) and [Executive Order N-82-20](#), including species distribution and community composition baselines.

The final deliverables of this project will include species distribution maps, a publicly accessible online database, and durable collections of all voucher specimens taken from the field. Ultimately, this project will result in the first-ever DNA reference library for California’s intertidal ecosystems, and analytical tools to help marine managers protect and conserve California’s intertidal biodiversity.

Equity and Environmental Justice Benefits:

OPC is committed to ensuring that all Californians benefit from the work that it supports. For competitive calls associated with this project, Coastal Quest will encourage all applicants to meaningfully integrate justice, equity, diversity, and inclusion into project design, and will prioritize work that broadens participation of underrepresented groups in science and

conservation. In particular, research proposals that provide guided research experiences and mentorship to students, with the goal of increasing diversity and retention in science, technology, engineering, and mathematics (STEM) and launching careers in coastal science, and supporting research programs within or building research relationships with Minority Serving Institutions (MSIs), will be highly encouraged.

Partnerships with local community-based organizations, community science groups, and interested stakeholders, will be highly encouraged. This is consistent with OPC’s [Equity Plan](#) Goal 1.4: “Ensure OPC projects and actions are informed by community needs by incorporating community engagement into every OPC project and funding opportunity, as appropriate” and Goal 4.2: “Collaborate with California Native American tribes, environmental justice communities, and community partners such as: community-based organizations, colleges and universities, research organizations, including community science groups, and local stakeholders, to include Traditional Ecological Knowledges, tribal expertise, local knowledge, social science, historical context, and lived experiences into ocean and coastal science, and research.”

About the Grantee:

Coastal Quest is a 501(3) non-profit whose mission is to accelerate solutions to build resilient coastal communities for people, nature, and the climate. Coastal Quest’s team has deep experience with grant administration, including leading procurement, and audits. Coastal Quest has over a decade of experience administering projects in collaboration public partners, including OPC, California Department of Parks and Recreation, National Fish and Wildlife Foundation, and the State Water Resources Control Board. Since 2017, Coastal Quest has administered three rounds of the OPC Marine Protected Areas Outreach and Education Small Grants Program including providing significant philanthropic matching funds.

Coastal Quest was also competitively selected by the OPC to design and implement a technical assistance program for the Senate Bill 1 (SB 1) Sea Level Rise Adaptation Planning Grant Program to support local government and coastal jurisdictions in sea level rise adaptation planning. Coastal Quest has experience managing large teams, administering grant processes, including identifying and hiring expert subcontractors, managing steering committees and peer review processes, and delivering projects on time and budget.

Project Timeline:

- February 2024: OPC approval and disbursement of funds
- April 2024: Project commencement
- October 2024: Request for Proposals (RFP) release

- November – January 2025: Project review and selection
- February 2025 – March 2027: Work commences on individual projects
- January 2027 – March 2027: Publication of analytical deliverables

Project Financing:

Staff recommends that the Ocean Protection Council (OPC) authorize encumbrance of up to \$9,025,00 to Coastal Quest to support the development of the Intertidal Biodiversity DNA Barcode Library.

| | |
|-------------------------------------|--------------------|
| California Ocean Protection Council | \$9,025,000 |
| TOTAL | \$9,025,000 |

The anticipated source of funds will be from the Budget Act of 2023, which included a one-time General Fund appropriation of \$9,500,000 to OPC for the creation of the Intertidal Biodiversity DNA Barcode Library. This appropriation authorizes 5% of the funds to be used for staff support to administer and oversee the funds; the remaining \$9,025,000 will be used to develop the Intertidal Library. The proposed disbursement and anticipated projects are an appropriate use of this funding source because the project will directly support efforts and result in the development of an Intertidal Biodiversity DNA Barcode Library.

Consistency with California Ocean Protection Act:

The proposed project is consistent with the Ocean Protection Act, Division 26.5 of the Public Resources Code, because it is consistent with trust-fund allowable projects, defined in Public Resources Code Section 35650(b)(2) as projects which:

- Improve the management of fisheries and/or foster sustainable fisheries.
- Allow for increased public access to, and enjoyment of, ocean and coastal resources, consistent with sustainable, long-term protection and conservation of those resources.
- Improve management, conservation, and protection of coastal waters and ocean ecosystems.
- Provide monitoring and scientific data to improve state efforts to protect and conserve ocean resources.
- Protect, conserve, and restore coastal waters and ocean ecosystems.

- Provide funding for adaptive management, planning coordination, monitoring, research, and other necessary activities to minimize the adverse impacts of climate change on California's ocean ecosystem.

Compliance with the California Environmental Quality Act (CEQA):

The proposed project is not a 'legal project' that triggers the California Environmental Quality Act (CEQA) pursuant to Public Resources Code section 21068 and Title 14 of the California Code of Regulations, section 15378. If the project were determined to be a 'legal project' under CEQA, the proposed projects are categorically exempt from review under CEQA pursuant to 14 Cal. Code of Regulations Section 15306 because the project involves information collection, consisting of data collection, research, and resource evaluation activities that will not result in a serious or major disturbance to an environmental resource.