Item 9

Staff Recommendation
October 6, 2022

Consideration and Approval of Disbursement of Funds to Expand MPA Connectivity Modeling

Lindsay Bonito, Program Manager

Recommended Action: Authorization to disburse up to $88,455 for a minor budget augmentation of a previously funded project with the University of California, Santa Cruz to expand the MPA connectivity model to inform adaptive management of the MPA Network.

Location: Statewide

Strategic Plan Goals and Objectives: Goal 3: Enhance Coastal and Marine Biodiversity; Objective 3.1: Protect and Restore Coastal and Marine Ecosystems; Target 3.1.1 and associated actions.

Exhibits: Letters of Support

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 OPC's Proposition 68 Grant Guidelines, adopted May 2019; 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 $88,455 to University of California, Santa Cruz to expand the MPA connectivity model to inform adaptive management of the MPA Network.

> This authorization is subject to the condition that prior to disbursement of funds, University of California, Santa Cruz 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 approve the disbursement of $88,455 for the expansion of the marine protected area (MPA) connectivity modelling effort to inform the adaptive management of the MPA Network. This funding will supplement the original connectivity project approved at the November 2019 OPC meeting. The Marine Life Protection Act requires that California's MPAs be designed and managed as an ecologically cohesive network. California's MPAs have shown evidence of ecological connectivity, which is influenced by both oceanographic forcing (e.g. currents) and attributes unique to individual species, such as life history traits and mortality rates. However, resource managers currently lack a comprehensive understanding of how the effects of protection are influencing connectivity and network-scale dynamics. To address this knowledge gap, this connectivity modeling effort was funded by the OPC in November 2019 and is currently building on an existing population connectivity model specific to California. In addition to including a demographic component to the model to evaluate effects of MPA protection, the supplemental funding will allow the grantee to explore how a connectivity model based on species distribution models perform better than our habitat area-based model. This expanded work will also

provide managers with a better understanding of what role MPA status integrated with population dynamics plays on network connectivity. This updated model will more accurately identify the separate and combined contributions of MPAs to ecological connectivity across the statewide network, providing resource managers with an improved understanding of network-wide performance and helping to ensure a successful management review of the MPA network in 2022 and beyond.

Background & Project Details:

Project Summary:

The foundation for designing and implementing a network of MPAs is based on the notion that local populations are connected regionally through the dispersal of their animal larvae or algal spores. Understanding the connectivity of the California MPA network (via the coupling of biological and oceanographic processes) will help elucidate whether the size and structure meets the design goals for the upcoming decadal review. This supplemental funding will complement the originally funded proposal to further understand how well connected the MPAs are relative to other sites along the CA coastline. Specifically, the additional proposed tasks are to determine: (1) How does species and ecosystem connectivity among MPAs compare with general species and ecosystem connectivity along the coast? (2) For kelp forests, does a connectivity model based on a species distribution model perform better than our habitat area-based model? (3) What role does MPA status play in connectivity across the network?

This project will accomplish the following objectives in addition to those described in the 2019 staff recommendation:

- Construct the Habitat Area Model (HAM) calibrated submodels for all other habitats besides the rocky intertidal (which is complete), and the Species Distribution Model (SDM) calibrated submodel for kelp and rock 0-30m depth habitat.
- Calculate the connectivity ratios for HAM and SDM calibrated submodels as well as the realized connectivity from the Integrated Connectivity Population Model (ICPM) output.
- Generate results and interpret how MPA connectivity differs across the three model types: HAM, SDM and ICPM

About the Grantee

The lead researchers on this project, based at the University of California Santa Cruz and Oregon State University, bring decades of experience in relevant disciplines, including: marine population and community ecology, population connectivity modeling using ROMS-based models, and MPA network science. They have been involved in the development of this model since 2016 and have worked closely with the state, in particular the California Department of Fish and Wildlife, to ensure that model design and outputs directly inform state priorities. The researchers are also intimately familiar with California's MPA network, having been involved with the design and monitoring of the network since the passage of the MLPA in 1999.

Project Timeline

Project timeline remains the same: April 2020 – May 2022.

Project Financing:

Staff recommends that the Ocean Protection Council (OPC) authorize encumbrance of up to $88,455 to University of California, Santa Cruz to expand the MPA connectivity model to inform adaptive management of the MPA Network.

OPC Prop 68, Ch. 9 (FY 18/19)	$88,455
TOTAL	**$88,455**

The anticipated source of funds will be from the Proposition 68, Chapter 9 (FY 18/19) appropriation. These funds are reserved for projects that "conserve, protect, and restore marine wildlife and healthy ocean and coastal ecosystems with a focus on the state's system of marine protected areas and sustainable fisheries". This recommended project directly contributes to conserving California's marine resources, specifically within MPAs, by collecting and analyzing monitoring data to support adaptive management.

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:

- Eliminate or reduce threats to coastal and ocean ecosystems, habitats, and species.
- Improve the management of fisheries and/or foster sustainable fisheries.
- 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 categorically exempt from review under the California Environmental Quality Act ("CEQA") pursuant to 14 Cal. Code of Regulations Section 15306 because the project involves only data collection, research and resource evaluation activities that will not result in a serious or major disturbance to an environmental resource. Staff will file a Notice of Exemption upon approval by the OPC.