Item 8b

CONSENT ITEM
Staff Recommendation
February 16, 2021

Additional Funds for Statewide Kelp Recovery Research Program

Michael Esgro, OPC Marine Ecosystems Program Manager & Tribal Liaison

RECOMMENDED ACTION: Staff recommends that OPC approve the disbursement of $163,557 to California Sea Grant to augment the statewide Kelp Recovery Research Program. Together with $1,800,000 already provided to the program by OPC and California Sea Grant, this additional funding will ensure that all projects can be fully supported for the duration of the program.

LOCATION: Statewide

STRATEGIC PLAN OBJECTIVE(S): 3.2: Restore and protect kelp ecosystems

EXECUTIVE SUMMARY:

Staff recommends that OPC provide $163,557 to California Sea Grant to augment the statewide Kelp Recovery Research Program. In June 2020, OPC approved the disbursement of $600,000 to launch this unique partnership between state government and California's leading kelp forest researchers[1,2]. Together with $1,200,000 in match funding from California Sea Grant ($1,800,000 total), the program is now supporting six solutions-oriented research projects aimed at restoring and protecting kelp ecosystems statewide.

Individual projects were selected via a competitive call and approved by OPC in June 2020. During the proposal review process, OPC staff identified a need for additional funding to fully support all six projects for the duration of the program. The approval of this consent item will fill that gap.

[1] Staff recommendation: https://opc.ca.gov/webmaster/ftp/pdf/agenda_items/20200619/Item8_KelpRecoveryResearchProgram_FINAL.pdf
[2] Letters of support: https://opc.ca.gov/webmaster/ftp/pdf/agenda_items/20200619/Item8_support_letters.pdf

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 Ocean Protection Act; and
> 2) 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 $163,557 to California Sea Grant to augment the statewide Kelp Recovery Research Program. Together with $1,800,000 already provided to the program by OPC and California Sea Grant, this additional funding will ensure that all projects can be fully supported for the duration of the program.
>
> This authorization is subject to the condition that prior to disbursement of funds, California Sea Grant 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."

PROJECT DESCRIPTION:

Background

California's coastline has recently been devastated by unprecedented declines in kelp. Aerial surveys conducted by the California Department of Fish and Wildlife (CDFW) and The Nature Conservancy show that more than 95% of the bull kelp canopy off California's north coast has been lost since 2014. California's central and south coasts have experienced significant declines in giant kelp, although in general these have been patchier and less widespread than those on the north coast. Declines have generally been attributed to a "perfect storm" of climate-related factors, including the 2014-2016 marine heat wave.

The loss of kelp has had significant impacts on ecological function and the provision of ecosystem services in California. For example, populations of red abalone, California's only remaining abalone fishery, have declined so substantially that the $44 million recreational red abalone fishery was closed by the California Fish and Game Commission in 2017.

As the kelp crisis has unfolded, resource managers have been constrained by a variety of knowledge gaps surrounding kelp forest ecosystem dynamics. In order to more effectively address the kelp crisis and ensure the resilience of California's kelp ecosystems into the future, OPC, CDFW, and California Sea Grant have initiated a unique partnership with California's leading kelp researchers to create a statewide Kelp Recovery Research Program. This partnership is currently supporting six innovative, solutions-oriented research projects aimed at informing kelp management efforts.

Individual projects were selected via a competitive call and approved by OPC in June 2020. During the proposal review process, OPC staff identified a need for additional funding to fully support all six projects (summarized below) for the duration of the program. The approval of this consent item will fill that gap.

Project Tasks

OPC and CDFW will continue to coordinate with California Sea Grant and individual project teams to collaboratively manage selected projects and ensure that data collection, analysis, and reporting efforts are contributing to management priorities.

The six research projects approved by OPC in June 2020 are summarized below:

- *Jennifer Caselle, Tom Bell (UC Santa Barbara), Mark Carr (UC Santa Cruz): Where, when and how? A guide to kelp restoration in California using spatio-temporal models of kelp dynamics.* This project will use cutting-edge modeling techniques to identify key ecological, oceanographic, geographic, and management-related drivers of kelp persistence at local and regional scales. Model results will be used to produce a restoration guide. This guide will enable resource managers to choose optimal locations, times, and methods for kelp restoration activities statewide.

- *Michael Graham, Scott Hamilton (Moss Landing Marine Laboratories): Assessment of practical methods for re-establishment of northern California bull kelp populations at an ecologically relevant scale.* Re-establishing kelp populations via seeding or outplanting is a promising restoration tool that, when paired with urchin removal efforts, may lead to more successful restoration outcomes than urchin removal alone. This project will test the efficacy of various methods for 1) culturing bull kelp in the lab and 2) outplanting cultured kelp to reefs following sea urchin removal in northern California. Investigators will monitor the growth, survival, and reproduction of bull kelp following outplanting.

- *Joleah Lamb, Matthew Bracken (UC Irvine): Scaling a new cost-effective intervention tool to restore and future-proof coastal kelp forests.* This project will complement Graham's project (described above) by testing the efficacy of various methods for culturing and outplanting giant kelp in southern California. In addition, investigators will pursue an "assisted evolution" approach that will acclimatize young kelps to warmer waters, helping to ensure future restoration success in the face of climate change.

- *Brian Gaylord, Marissa Baskett, Aurora Ricart (UC Davis), Mackenzie Zippay, Brent Hughes, Matt Edwards, Sean Place (Sonoma State University), Jason Hodin (University of Washington): A multi-pronged approach to kelp recovery along California's north coast.* This multi-pronged project will accomplish the following: 1) culture heat-tolerant strains of bull kelp and test their outplanting success; 2) model bull kelp spore dispersal to help create a "network" of bull kelp refugia on California's north coast; 3) assess the reproductive viability of malnourished purple sea urchins in urchin barrens, helping to determine whether in-water urchin culling may inadvertently cause urchins to spawn; 4) quantify the predation rate of juvenile sunflower sea stars on juvenile purple urchin; and 5) develop a dynamic model of the kelp-urchin-sea star system, to help isolate the best policy levers for management action.

- *Alison Haupt (CSU Monterey Bay), Jan Freiwald (Reef Check California): Informing restoration and recovery of central coast kelp forests – understanding the dynamics of urchin recruitment, reproduction and density.* This project will examine the reproductive potential of intertidal and subtidal purple sea urchin populations, helping to determine potential reproductive sources of sea urchins that may play a role in maintaining urchin barrens. Investigators will also assess spatial patterns in kelp and sea urchin recruitment by collecting larvae at a variety of central and north coast sites, including sites where purple urchin removal is currently being conducted. An improved understanding of the kelp and urchin landscape will assist resource managers in restoration site selection.

- *Felipe Alberto (University of Wisconsin – Milwaukee), Peter Raimondi (UC Santa Cruz), Sergey Nuzhdin (USC): Conservation genomics and gametophyte banking of bull kelp in California.* This project will create a bull kelp "seed bank" that will include both spores and living kelps, helping to preserve the species and its genetic diversity for decades into the future. Investigators will also assess genetic variation in bull kelp populations over time and space, enhancing resource managers' understanding of why bull kelp is persisting at certain locations but not others, and helping to optimize restoration site selection on the north coast.

The results of these projects will help to address critical knowledge gaps, directly informing state efforts to protect and restore California's kelp forests in the face of changing ocean conditions. Results for all projects are anticipated by Fall 2022.

Site Description

The Kelp Recovery Research Program is statewide in scope. Individual projects were selected to ensure that scientific efforts are being conducted across the state (i.e. North Coast, Central Coast, and South Coast) in both bull kelp and giant kelp systems.

About the Grantee

California Sea Grant is a unique partnership that unites the resources of the federal government, state government, and universities across California to create knowledge, products and services that benefit the economy, the environment, and the citizens of California. Sea Grant has an established, highly respected process for evaluating, prioritizing, and administering research grants related to coastal and ocean resources, and has a proven track record of supporting state research efforts. California Sea Grant is experienced at managing large contracts and grants, is familiar with the state's scientific community, and has successfully managed many other solicitation and award efforts on behalf of OPC.

Project Timeline

- June 2020: grant awarded
- June 2020 – September 2020: projects begin
- December 2020: supplemental funding awarded
- September 2020 – March 2022: data collection and analysis under way, interim reports submitted at regular intervals to OPC, CDFW, and California Sea Grant
- March 2022: final reports due to OPC, CDFW, and California Sea Grant

PROJECT FINANCING:

Staff recommends that OPC authorize encumbrance of up to $163,557 to California Sea Grant to conduct the project summarized above.

Ocean Protection Council	$163,557
TOTAL	**$163,557**

The anticipated source of funds will be OPC's FY 2018/2019 appropriation of Proposition 68 funds (Chapter 9 – Ocean, Bay, and Coastal Protection). Per OPC's Proposition 68 Grant Guidelines, this funding source prioritizes projects intended to conserve, protect, and restore marine wildlife and healthy ocean and coastal ecosystems.

CONSISTENCY WITH CALIFORNIA OCEAN PROTECTION ACT:

The proposed project is consistent with the Ocean Protection Act, Division 26.5 of the Public Resources Code. Specifically, this project will contribute to the following:

- Eliminate or reduce threats to coastal and ocean ecosystems, habitats, and species
- 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

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.