



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
Monterey Bay National Marine Sanctuary
99 Pacific Street, Bldg 455a
Monterey, CA 93940

April 21, 2023

California Ocean Protection Council
715 P St., 20th Floor
Sacramento, CA 95814

Dear Council Members:

I am writing this letter in strong support for the Ocean Protection Council to disburse up to \$5,400,000 to California Sea Grant to support kelp research and restoration projects statewide and within national marine sanctuaries. This funding opportunity will not only enhance coastal and marine biodiversity through projects designed to restore and protect kelp ecosystems, but will also further the goals of Monterey Bay National Marine Sanctuary (MBNMS or sanctuary), which has prioritized in their management actions the monitoring, recovery and restoration of Iconic Kelp Forest habitat.

Both the state of California and NOAA's national marine sanctuaries in California recognize that kelp forests are fundamental to California's marine biodiversity and its ocean economic engine. Recent changes demonstrate that kelp is also under threat from marine heatwaves, overgrazing by native herbivores, and competition with invasive species. Given the ecological, socioeconomic, and cultural importance of kelp, as well as its vulnerability to climate change, state and federal agencies alike are prioritizing science focused on kelp forest monitoring, recovery, and restoration.

This funding will support key projects such as 1) kelp restoration through human intervention; 2) assessing the benefits and potential risks of kelp restoration methods; 3) modeling to reliably forecast patterns of kelp abundance and distribution under future scenarios of climate change; and 4) research and restoration projects led by tribal groups, including work that promotes the elevation of Indigenous Traditional Knowledges in kelp management. Further, we support the inclusion of undergraduate and graduate students in these projects, 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 stakeholder communities in research and restoration efforts, including through community science; supporting tribally-led research and restoration efforts; and improved access to coastal and marine resources and ecosystem services.

These efforts fit seamlessly into our ongoing scientific collaboration with CDFW scientists, including Dr. Kristen Elsmore, and builds upon the recommendations generated by researchers at UC Santa Cruz and the Research Activity Panel (RAP) of the MBNMS Advisory Council. Recommendations from regional kelp experts and the RAP established several themes of research that will support the monitoring, recovery, and restoration of kelp forests in central California. These were then unanimously supported by the MBNMS advisory council, which was established by Federal law to assure continued public participation in



the management of the sanctuary. The advisory council's twenty voting members represent a diversity of community groups, including: Agriculture, At-Large (3 seats from Santa Cruz, Monterey and San Luis Obispo Counties), Business/Industry, Commercial Fishing, Conservation, Diving, Education, Recreation, Recreational Fishing, Research and Tourism, plus seven local and state governmental jurisdictions. The community-based recommendations, representing the Central Coast of California, demonstrate the importance of kelp forests and the need for research and monitoring to support the persistence of kelp forests in California and in Monterey Bay National Marine Sanctuary, in particular.

Sincerely,

A handwritten signature in black ink, appearing to read 'Lisa Wooninck', written in a cursive style.

Lisa Wooninck, Ph.D.
Superintendent





UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
Channel Islands National Marine Sanctuary
University of California Santa Barbara
Ocean Science Education Building 514, MC 6155
Santa Barbara, CA 93106-6155

April 21, 2023

California Ocean Protection Council
715 P St., 20th Floor
Sacramento, CA 95814

Dear Ocean Protection Council Members:

I am writing this letter in support for the Ocean Protection Council to disburse up to \$5,400,000 to California Sea Grant to fund kelp research and restoration projects statewide and within national marine sanctuaries. I join with other leadership from California national marine sanctuaries in supporting this funding, which will not only enhance coastal and marine biodiversity through projects designed to restore and protect kelp ecosystems, but will also further the goals of Channel Islands National Marine Sanctuary, which as you know helps to protect extremely productive and valuable California kelp forests.

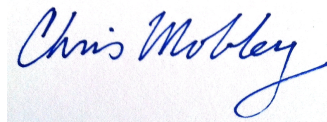
Both the state of California and the network of national marine sanctuaries managed by NOAA recognize that kelp forests are fundamental to California's marine biodiversity and its ocean economic engine. Recent changes demonstrate that kelp is also under threat from marine heatwaves, overgrazing by native herbivores, and competition with invasive species. Given the ecological, socioeconomic, and cultural importance of kelp, as well as its vulnerability to climate change, state and federal agencies alike are prioritizing actions focused on kelp forest science, monitoring, recovery, and restoration.

This funding will support key projects such as 1) kelp restoration through human intervention; 2) assessing the benefits and potential risks of kelp restoration methods; 3) modeling to reliably forecast patterns of kelp abundance and distribution under future scenarios of climate change; and 4) research and restoration projects led by tribal groups, including work that promotes the elevation of Indigenous Traditional Knowledge in kelp management. In that regard, we support and can assist with reaching out to indigenous Chumash contacts that may be interested in becoming involved. We also support the inclusion of undergraduate and graduate students in these projects, 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 stakeholder communities in research and restoration efforts, including through community science; supporting tribally-led research and restoration efforts; and improving access to coastal and marine resources and ecosystem services.



Thank you for your considering action to make this vital kelp protection and restoration work become a reality. We stand ready to work in partnership with implementing partners, and look forward to continuing our work together to advance Ocean Protection Council and sanctuary goals.

Sincerely,



Chris Mobley
Superintendent



April 20, 2023

RE: Accelerating Kelp Research and Restoration Efforts

Dear California Ocean Protection Council and Deputy Secretary Eckerle,

The Nature Conservancy (TNC) is writing in strong support of the Ocean Protection Council (OPC) Staff Recommendation for *Action Item #7: Consideration and Approval to Disburse Funds to Accelerate Kelp Research and Restoration Efforts*.

Healthy kelp forests are the foundation of California's nearshore ocean ecosystem— supporting more than a thousand marine species, reducing local ocean acidification, and sequestering carbon. But human impacts and climate change are creating unprecedented threats to kelp forests here and around the world. As such, kelp forest restoration is becoming a leading management intervention practiced globally to combat losses and protect this invaluable ecosystem.

TNC has been engaging for five years to address the threat to our kelp forests by launching an ambitious ocean recovery program that engages a diverse set of partners in California and globally to develop innovative conservation solutions that work for both people and nature. Some of our principal guiding works to date include: A Structured Approach for Kelp Restoration and Management Decisions, Global Kelp Restoration Guidebook, Roadmap to Recovery for the Sunflower Star, and the launch of [Kelpwatch.org](https://www.kelpwatch.org), the world's largest open-source platform for tracking kelp forest canopy dynamics over space and time. In addition, we are actively pursuing in-water restoration: exploring techniques and methodologies to better monitor the scale of kelp loss and identify areas of persistence, reducing grazers and building subsequent market opportunities, enhancing kelp recovery via seeding and outplanting, and supporting ecosystem rebalance through sunflower star captive breeding and research.

Drawing from lessons learned globally, we understand institutional support by governments is critical to overcome social, ecological and economic constraints. As such, TNC has worked in close coordination with OPC and the state, to identify and address key knowledge gaps to restore and protect kelp forests, and subsequently enhance California's coastal and marine biodiversity.

Initial investments in kelp research by the state of California have been vital to explore possible interventions to the kelp crisis across the state. To date, the Nature Conservancy has worked with OPC and further leveraged their investments to help reach desired outcomes and maintain ongoing infrastructure, knowledge, and personnel in-the-water, which has positively contributed to building a community of practice. We are confident the proposed 2023 Kelp Recovery Research Program will help further address research needs and support in-water action while we improve our understanding of kelp loss and persistence in a changing climate.

We are enthusiastic to support the additional disbursement of funds by OPC to California Sea Grant for the Kelp Recovery and Research Program to accelerate and scale kelp restoration in California. Thank you for the consideration and for your time.

Sincerely,

Tristin McHugh

*Kelp Project Director
California Oceans Program
The Nature Conservancy*

+ 1 925 285 2544
tristin.mchugh@tnc.org

Agenda Item 7

andrew.pacificwildcraft.com andrew@pacificwildcraft.com

Fri 4/21/2023 11:58 AM

To: CNRA COPC Public COPCPublic@resources.ca.gov

Cc: kelp@wildlife.ca.gov <kelp@wildlife.ca.gov>

Andrew Daunis

Public Comment, Action Item 7

My name is Andrew Daunis and I have been a commercial hand-harvester of seaweeds for human consumption for over 20 years, along the Mendocino coastline.

As an industry stakeholder and long-time harvester, I have substantial local knowledge of seaweed trends along the Mendocino coastline. More significantly, as the primary commercial harvester of bull kelp along the Mendocino Coast since 2000, I possess unique insight into “high priority” Essential Fisheries Information identified in the Giant Kelp/Bull Kelp 2021 ESR.

The ESR also identifies (5.2.2.) “Opportunities for Collaborative Fisheries Research” with such partners as myself and other commercial harvesters “to help fill information gaps related to the management of kelp ecosystems.”

I am grateful for the opportunity to collaborate as a partner and contribute to the goal of an adaptive and sustainable kelp harvest management plan by offering my expertise to assist with the following high priority data gaps identified in the 2021 ESR:

1. Effects of Harvest: including current harvest methods. (ESR 3.1.1.1 **there is no research identifying how much kelp can be removed before populations, ecosystem functions, and recovery are affected.**)

2. Effects of Harvest “**Determine acceptable levels and methods of sustainable harvest.**” (The current commercial hand-harvest of bull kelp in Mendocino County is characterized by the retention of every individual within canopy structure, along with the preservation of the reproductive potential and genetic diversity of every individual harvested. Only a portion of the fronds of any given individual are harvested.)

3. Abundance and Distribution Monitoring: **Another management priority for kelp abundance monitoring is improving estimates of kelp biomass, particularly for bull kelp, whose biomass distribution is unknown. One way to do this is by finding a relationship between canopy area and total biomass for bull kelp.**

Harvesters routinely weigh bull kelp harvested from the canopy and understand biomass differences according to canopy density. In general, fronds within dense canopy are undesirable for harvest for human consumption, due to both quality and biomass. We are able to offer valuable data for more accurate canopy to biomass conversion.

4. Abundance and Distribution Monitoring: “Due to funding limitations and the lack of availability of suitable contractors... **Resource managers therefore lack a consistent and timely understanding of kelp abundance and spatial distribution in the region.**”

Harvesters are uniquely positioned to provide real-time distribution data.

In closing, I am happy to offer my services and collaboration to this ongoing effort.



**Monterey Bay
Aquarium®**

April 18, 2023

California Ocean Protection Council
715 P St., 20th Floor
Sacramento, CA 95814

RE: OPC 4/24/23 Meeting Agenda Item 7 to Disburse Funds to Accelerate Kelp Research and Restoration Efforts – SUPPORT

Submitted electronically via: COPCpublic@resources.ca.gov

Dear Secretary Crowfoot and Honorable Councilmembers:

Monterey Bay Aquarium strongly supports Agenda Item 7 to disburse \$5.4 million in funding for kelp research and restoration projects statewide and commends the Ocean Protection Council on its continuing efforts to address the significant loss of kelp off the coast of California.

Monterey Bay Aquarium works to protect and restore ocean health in California. We inspire millions of visitors a year with our live kelp forest exhibition, which showcases one of California's most iconic and important ocean ecosystems. Our kelp forests underpin the rich array species that make California's coast one of the most biodiverse places on the planet. These ecosystems drive our tourism and fishery economies, and are a source of pride for all Californians. The significant loss of kelp fueled by climate change must be addressed to help ensure a healthy California coast for future generations. These funds are vitally needed to support the science-based action necessary to put kelp on a path to recovery.

Thank you for your leadership in creating a healthy and resilient California ocean and coast.

Sincerely,

A handwritten signature in black ink that reads "Amy Wolfrum". The signature is fluid and cursive, with the first name "Amy" and last name "Wolfrum" clearly distinguishable.

Amy Wolfrum
California Ocean Policy Senior Manager
Monterey Bay Aquarium

Item 7 - Kelp Research and Restoration Efforts

James Jungwirth

Fri 4/21/2023 10:02 AM

To: CNRA COPC Public <COPCPublic@resources.ca.gov>

Cc: kelp@wildlife.ca.gov <kelp@wildlife.ca.gov>

Greetings!

I have been commercially hand harvesting Bull Kelp (*Nereocystis luetkeana*) and other marine algae species for human consumption for about 30 years, mostly in Del Norte and Humboldt counties. I was also a member of the CDFW Bull Kelp Working Group. My business is called Naturespirit Herbs.

I am willing to assist with the Kelp Research and Restoration Efforts, and request that I be included as a partner in these efforts.

The following is an excerpt from the Department's 2021 Enhanced Status Report, chapter 5, part 1:

"Effects of Harvest. More research is needed on the effects of harvest on kelp populations, communities, and ecosystems, particularly for bull kelp forests, to determine acceptable levels and methods of sustainable harvest. While there are several studies on the effects of harvest on kelp populations and communities in California, most are on giant kelp forests, many were not conducted in a scientifically rigorous manner (e.g., low replication, statistical power, or spatial area), and they were done over two decades ago (Brandt 1923; Clendenning 1968a, b; Davies 1968; North 1968; Quast 1968; Miller and Geibel 1973; Barilotti and Zertuche-González 1990). Studies of current harvesting methods in today's climate and in ecosystems spanning more biogeographic regions are needed. This is an especially high priority need for bull kelp, which is potentially more vulnerable to overfishing than giant kelp because bull kelp carries all its reproductive blades on the surface where they can easily be harvested (Nicholson 1970; Roland 1985; Ulaski et al. 2020)."

As a harvester of Bull Kelp and as a keen observer of marine algae life cycles and nearshore ecosystem dynamics, I have hundreds if not thousands of hours of hands-on experience "in the field", which could be of value in informing many aspects of kelp research and restoration.

I am also willing to collaborate with researchers in conducting studies of my harvest methods. I believe that a study of the sustainability of my Bull Kelp harvest methods in Del Norte and Humboldt counties, where this species exhibits a somewhat different seasonal growth pattern compared to locations further south, offers a good opportunity for informing future management of Bull Kelp in this biogeographic region.

Please enter this letter into the public record.

Thanks,

James

James Jungwirth



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
Greater Farallones and Cordell Bank
National Marine Sanctuaries

991 Marine Drive, The Presidio, San Francisco, CA 94129

April 21, 2023

Ocean Protection Council

Sent Via Email: COPCpublic@resources.ca.gov

RE: 7. Action Item: Consideration and Approval to Disburse Funds to Accelerate Kelp Research and Restoration Efforts - Support

Dear Chairman Crowfoot and Members of the Ocean Protection Council:

Greater Farallones National Marine Sanctuary includes California's north coast from Manchester Beach in Mendocino County through Marin County, an area that has experienced unprecedented kelp loss. The Ocean Protection Council is an important state partner in restoring kelp in the areas which have experienced the greatest impact.

As directed by the National Marine Sanctuaries Act, our primary mandate is protection of sanctuary natural and cultural resources and ecological values by protecting the estuarine and marine environment, which includes kelp forests. Kelp forests are economically, ecologically, and culturally important habitats, and it is essential to restore them. They contribute to carbon sequestration, provide essential habitat for nearshore invertebrate and fish species, and are valuable to local communities, tribal nations, and the economy.

The Greater Farallones sanctuary strongly supports state funding for kelp restoration. By leveraging state and federal funding to target the sites that have experienced the greatest loss of kelp, together we can make a significant impact to restoring this vital ecosystem. The Greater Farallones Sanctuary Advisory Council in partnership with the California Department of Fish and Wildlife developed recommendations that were adopted by the sanctuary to guide restoration efforts consistent with the Greater Farallones Association's Sonoma-Mendocino Bull Kelp Restoration Plan. Together with our partners, we have a plan and are working expeditiously to restore kelp at priority locations. Additional funds for kelp restoration would fill important knowledge gaps and further expedite kelp restoration.

We commend efforts of the Ocean Protection Council to support kelp research and restoration and urge continued funding. We will continue to be an active partner and appreciate this opportunity to comment. Thank you.

Sincerely,

Maria Brown, Superintendent
Greater Farallones and Cordell Bank National Marine Sanctuaries



GREATER FARALLONES ASSOCIATION

April 21, 2023

Secretary Crowfoot

Chair, Ocean Protection Council

Sent Via Email: COPCpublic@resources.ca.gov

RE: 7. Action Item: Consideration and Approval to Disburse Funds to Accelerate Kelp Research and Restoration Efforts - Support

Dear Secretary Crowfoot and Members of the Ocean Protection Council:

Greater Farallones Association (GFA) is a nonprofit organization dedicated to monitoring, restoring, and building stewardship for the National Oceanic and Atmospheric Administration's Greater Farallones National Marine Sanctuary (GFNMS). Covering over 3,300 square miles off the coast of Mendocino, Sonoma, Marin, and San Mateo counties, the sanctuary was designated to protect its ecological and cultural integrity for current and future generations. GFA is a unique partner with GFNMS in conducting joint research and restoration projects. We also provide technical staff on contract to support interagency coordination with the State of California. Our kelp restoration team has a long history in developing kelp restoration and monitoring strategies, and we look forward to continued collaboration as we ramp up restoration activities in the sanctuary.

GFA and GFNMS, in close collaboration with our partners, are leading kelp restoration and research efforts that aim to (1) Implement novel restoration techniques along Sonoma County; (2) Conduct robust monitoring and assessment of these restoration efforts, including underwater and aerial surveys, and environmental data collection; (3) Evaluate factors that contribute to restoration success and natural recovery of kelp forests in the sanctuary; and (4) Investigate the influence of restored kelp forests on coastal resilience.

GFA strongly supports the recommended OPC action to disperse up to \$5,400,000 to California Sea Grant to support kelp research and restoration projects statewide. Loss of kelp forests has vastly impacted the state of California, and especially within the sanctuary. GFA led the development of the Sonoma-Mendocino Bull Kelp Restoration Plan that identifies pathways to initiate restoration, as well as many areas of critical research needed to advance our understanding of kelp restoration and recovery on the north coast and in the sanctuary. As we begin the initial phases of our kelp restoration project, we look forward to working with OPC and recipients of this funding to fill knowledge gaps and further expedite kelp restoration efforts across the state. The Ocean Protection Council (OPC) is an important partner in our collaborative restoration planning and implementation. We look forward to continuing our collaboration with the State of California as an active partner in kelp forest restoration, and we appreciate this opportunity to comment.

Sincerely,

Deb Self

Executive Director



State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Marine Region
1933 Cliff Drive, Suite 9
Santa Barbara, CA 93109
wildlife.ca.gov

GAVIN NEWSOM, Governor
CHARLTON H. BONHAM, Director



April 21, 2023

Wade Crowfoot, Secretary for Natural Resources
Chair, Ocean Protection Council
California Natural Resources Agency
1416 9th Street, Suite 1311
Sacramento, CA 95814

SUBJECT: Support for funding to support advancements in kelp research and restoration (Item 7)

Dear Chair Crowfoot and Members of the Ocean Protection Council:

The Department of Fish and Wildlife (Department) has worked closely with Ocean Protection Council (OPC) staff and supports authorization of funding for the project entitled: Consideration and Approval to Disburse Funds to Accelerate Kelp Research and Restoration Efforts, Agenda Item #7.

The Department is the primary agency responsible for managing California's kelp forest resources. Kelp forests are critically important ecosystems in California, providing a broad suite of services, including support of commercial and recreational fisheries, and hold cultural significance to California's Tribes and coastal communities. California has experienced kelp declines along its coastline, with some places exhibiting severe and persistent loss that has led to significant impacts to the coastal communities (e.g., Sonoma and Mendocino counties). Kelp loss continues to be most severe in the northern region of the state, and localized areas in central and southern California are showing signs of concerning decline.

OPC's investments in the Kelp Recovery Research Program, advancement of kelp mapping techniques, and a pilot kelp restoration project collectively fill many essential knowledge gaps surrounding kelp ecosystem processes, including improved scientific understanding of the drivers of kelp decline and evaluation of the efficacy of different restoration approaches. However, critical knowledge gaps and restoration needs remain. The proposed project will build on previous and ongoing state investments, to address remaining knowledge gaps essential to taking a proactive approach to kelp recovery.

OPC support has been, and will continue to be, critical to the success of the acceleration of kelp research and restoration project (Item 7) and its application to the development of the statewide Kelp Restoration and Management Plan which will provide a science-based framework for managing, protecting, and restoring kelp forests in the face of changing ocean conditions. If you have any questions or need additional

Wade Crowfoot, Secretary for Natural Resources

April 21, 2023

Page 2

information, please contact me at (805) 568-1246 or by email at r7regionalmgr@wildlife.ca.gov.

Sincerely,

A handwritten signature in blue ink, appearing to read "Craig Shuman".

Craig Shuman, D. Env.
Marine Regional Manager

ec: Kirsten Ramey, Program Manager
Marine Region
Kirsten.Ramey@wildlife.ca.gov

Kristen Elsmore, Ph.D., Senior Environmental Scientist, Specialist
Marine Region
Kristen.Elsmore@wildlife.ca.gov