



State of California – Natural Resources Agency  
DEPARTMENT OF FISH AND WILDLIFE  
Marine Region  
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*GAVIN NEWSOM, Governor*  
*CHARLTON H. BONHAM, Director*



September 30, 2022

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

RE: Support for funding to initiate development of a Kelp Restoration and Management Plan for California (Item 8)

Dear Chair Crowfoot and Members of the Ocean Protection Council:

The Department of Fish and Wildlife (Department) supports the authorization of funding by the Ocean Protection Council (OPC) on Item 8 for initiating development of a Kelp Restoration and Management (KRMP) for California. By approving the disbursement of funds for the KRMP, the OPC will help address the clear need for a community informed, scientifically robust, adaptive, and climate-ready approach to managing the State's kelp forest ecosystems.

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). Given the severe ecological and economic consequences of kelp forest loss statewide, an improved understanding of the status of kelp forest ecosystems, kelp harvest, and the suite of kelp restoration techniques that could be applied as management tools is essential to promoting kelp forest ecosystem resilience. The Department, in collaboration and with support from OPC and other partners, is developing a statewide KRMP for giant kelp, *Macrocystis pyrifera*, and bull kelp, *Nereocystis luetkeana*. The requested funds would support the Department with 1) overall project management and facilitation and 2) integration of the best available science, both of which are critical to the success development of the KRMP.

OPC support has been, and will continue to be, critical to the success of essential kelp research and pilot restoration projects and for the development of the KRMP. Your approval of the funding support will ensure the KRMP is grounded in the best available science, includes a cohesive management strategy that integrates ecosystem-based management and restoration, is responsive to the needs of tribes and stakeholders, and

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Wade Crowfoot, Secretary for Natural Resources  
September 30, 2022  
Page 2

is consistent with the Department and OPC's respective missions. The KRMP will ultimately help the long-term survival and health of the State's kelp forest ecosystems.

If you have any questions or need additional information, please contact Kirsten Ramey, State Managed Finfish and Nearshored Ecosystem Program Manager, at (707) 599-0769 or by email at [Kirsten.Ramey@wildlife.ca.gov](mailto:Kirsten.Ramey@wildlife.ca.gov).

Sincerely,



Craig Shuman, D. Env.  
Marine Regional Manager

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**Giant Kelp**  
Restoration Project

📎 1 attachments (94 KB)

G2KR Kelp Restoration Projects Timeline 22.1004.pdf

**From:** Keith Rootsart <keith@g2kr.com>

**Sent:** Tuesday, October 4, 2022 3:01 PM

**To:** Esgro, Michael@CNRA <Michael.Esgro@resources.ca.gov>

**Cc:** California Nature <californianature@resources.ca.gov>; nancy@getinspiredinc.org

**Subject:** OPC Item #8 10/6/22

Mike,

Comments on the KRMP:

1. Page 4: "Given the ecological and socioeconomic importance of kelp, the severity of the crisis on the north coast, the potential vulnerability of giant kelp on the central and south coasts." Potential vulnerability makes it sound like kelp may be threatened but is still doing well. The Kelp ESR failed to recognize the extent of kelp loss in the central coast because we do not have high enough resolution. Aerial surveys were halted in 2016 and the only source is LandSat data which is wildly inaccurate because the resolution is 100 ft. per pixel and doesn't differentiate between giant kelp, a perennial and bull kelp, an annual. Most of the Big Sur coast is consumed and the perennial giant kelp has transitioned to the lesser annual bull kelp at an unknown rate. While recent literature estimates the kelp loss at 59%, the giant kelp in south Monterey Bay and Carmel Bay is down 90% in our conservative estimation. A high resolution infrared drone survey could verify or refute our assertion, but despite promises, a survey has not been performed since 2016.
2. Page 6: Project Timeline. The KRMP calls for beginning early implementation January - December 2026. At that point there will not be kelp to manage! This is an exponential problem, but because the kelp loss is consistently underestimated, there is this persistent illusion that we have time to develop a plan before we respond. At a minimum, start restoration efforts now and reduce this project duration to 2 years.

3. Regarding Plans: I have been doing kelp restoration for 4 years now and my experience is that we start out with a plan but very quickly the plan is obsolete and wrecks the work. At Lovers Point we planned on reducing urchin densities on patch reefs to determine the threshold when an urchin barren would become a kelp forest again. As soon as we started we realized that we had to reduce urchins to very low densities, we needed bigger reefs, and red urchins needed to be removed as well. We could not defend the adult kelp adjacent to the site and the site became spore limited on the east side and the project was abandoned. At the Tanker's Reef site, we picked a spot and laid down a cable grid only to find that the kelp forest formed northwest of the grid and we didn't have time to defend it from the urchins pouring in. We successfully cleared a 2.5 acre urchin barren and found that it became immediately covered in invasives and *Desmarestia ligulata* that was illegal and hazardous to remove. The MPAs started out like a good plan but nobody had thought about what would happen if they were filled up with urchins we were then prohibited from taking!

Each time we started with a plan we quickly realized that the plan was insufficient and the plan itself was a bigger problem than the actual work. The KRMP is just such a plan that will fail us because the situation changes so quickly as we learn more, discover better methods, and the ocean gets hotter. We'll continue to learn more each day, so why lock us in with rules that last forever? The better approach is to set Kelp Restoration as official policy, start doing actions, learn what works, and adaptively manage kelp restoration as we continue to learn what works and doesn't work. "As we increase the area of our knowledge, so do we also increase the perimeter of our ignorance." Neil DeGrasse Tyson

4. The California Aquatic Invasive Species Management Plan of 2008 is a similar plan. It took years to accomplish. However, there were term limits and the new CA legislature didn't fund it. The invasive species *Sargassum horneri* spread exponentially all over southern California unchecked. We had a plan, but it just sat on the shelf. The proposed KRMP does not have funded actions associated with it. By the time the plan is completed, funding, and the will to fund it, may not be available.

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