



September 15, 2020

Mr. Wade Crawfoot, Secretary for Natural Resources
Chair, California Ocean Protection Council
1416 Ninth Street, Suite 1311
Sacramento, CA 95814

Dear Mr. Crawfoot,

In December 2019, I wrote to you on-behalf of the California members of the Pacific Coast Shellfish Growers (PCSGA) expressing support for the development of the CA Ocean Protection Council's 2020-2025 Strategic Plan. Today, I'm expressing enthusiastic encouragement for taking the next step towards implementation by dispersing funds to develop a statewide aquaculture action plan.

PCSGA represents shellfish growers from Alaska, Oregon, Washington, Hawaii, and California who sustainably produce oysters, clams, and mussels. Our members, as well as generations before them, have dedicated their lives to being good stewards of the environment. The work identified within the Strategic Plan, particularly Target 4.2, provides vision and hope that CA's coastal and marine resources will be managed in a manner that will support shellfish culture long into the future.

PCSGA strongly encourages the Council to approve the expenditure of funds and dedication of staff resources to initiate the development of an aquaculture action plan. In order for CA to continue its reputation of growing some of the world's finest shellfish, we need comprehensive, consistent, and science-based framework and policy for marine aquaculture. The aquaculture action plan is intended to address that need. The decision before the Council is a critical first step in charting the course towards promoting sustainable aquaculture and protecting the State's ocean and coastal resources.

We are familiar with, and impressed by, the work of the National Center for Ecological Analysis and Synthesis and CA Sea Grant and support the OCP Staff's recommendation to have them lead this important effort. It is our collective hope that along with state and federal agencies, academic research, environmental non-profits and shellfish representatives will all be involved in the development and implementation of the plan.

Thank you for providing the opportunity to provide comment on the 2020-2025 plan elements and we look forward to further engaging in this process. Please contact me if you would like to discuss how PCSGA might be involved or if I may provide any other assistance.

Respectfully,

Margaret A. Pilaro
Executive Director

September 15, 2020

Wade Crowfoot, California Secretary for Natural Resources
California Ocean Protection Council
COPCpublic@resources.ca.gov

RE: **Support for Item 5-** Consideration of Authorization to Disburse Funds to Develop a Statewide Aquaculture Action Plan

Dear Secretary Crowfoot and Members of the Ocean Protection Council:

I am writing to express California Sea Grant's strong support for the project to develop a statewide aquaculture action plan, including a robust engagement process in alignment with the Ocean Protection Council strategic goal of promoting sustainable aquaculture. The aquaculture action plan provides a tremendous potential to support viable aquaculture activities in California.

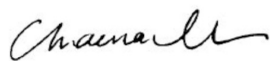
California is well positioned to help supply the growing demand for seafood through sustainable aquaculture. California Sea Grant, as part of the national network of 34 state programs, has made substantial investments in aquaculture research and outreach for nearly 50 years. These sustained investments, in close collaboration with university research and industry partners, have led to the development of the sturgeon aquaculture industry, which today gives consumers a sustainable alternative to wild-caught caviar; the development of the commercial red abalone aquaculture in California; and the revitalization of the West Coast oyster industry. Through our continued use of our research, extension, and education capacities, California Sea Grant is committed to providing unbiased information to support the kind of informed public and private decision making that will lead to a safe and sustainable supply of farmed seafood.

Providing science-based information to resource managers, stakeholders, and the general public to better support sustainable aquaculture is a key priority in meeting one of our strategic goals for sustainable fisheries and aquaculture. California Sea Grant is pleased to have an opportunity to contribute to the aquaculture action plan, to help facilitate the development of model state guidance for aquaculture development that government, industry, and the public can support. Dr. Luke Gardner, one of our aquaculture extension specialists, plans to join the team from NCEAS to co-lead the development of the scientific framework and stakeholder engagement for the action plan. Recognizing the importance of a broad and robust stakeholder engagement process, California Sea Grant plans to commit up to \$100,000 to augment the stakeholder engagement component of the project to ensure a successful adoption and implementation of the action plan.

We look forward to contributing to the development of the aquaculture action plan and hope that our participation in this project will help OPC generate the actionable science-based information needed to enable the state to move towards a more consistent, comprehensive, and coordinated approach for considering and developing aquaculture activities in California.

Thank you for the opportunity for California Sea Grant to engage in this much needed and important project.

Sincerely,

A handwritten signature in black ink, appearing to read "Shauna Oh".

Shauna Oh, Ph.D.
Director, California Sea Grant



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FOR A HEALTHIER WORLD

September 14, 2020

The Honorable Wade Crowfoot
Secretary for Natural Resources &
Chair, California Ocean Protection Council
California Resources Agency
1416 Ninth Street, Suite 1311
Sacramento, CA 95814
Email: COPCpublic@resources.ca.gov

Re: Comment for Discussion Item #5 - Statewide Aquaculture Action Plan

Secretary Crowfoot:

Thank you for affording the opportunity to comment upon the draft *Strategic Plan to Protect California's Coast and Ocean 2020-2025* (Plan). As a marine research organization, the Hubbs-SeaWorld Research Institute¹ (HSWRI) appreciates and respects the Ocean Protection Council's efforts toward preserving California's coastline and ensuring a healthy ocean environment.

Approximately 12% of the U.S. population lives in California and about half of those citizens live within the five coastal counties from Santa Barbara to the Mexican Border. Accordingly, conflicts associated with multiple ocean and the coastline user groups are most acute along the Southern California Bight (SCB). As California's population continues to grow, it is imperative that we refine our uses of the ocean environment such that impacts are minimized locally and that we continue to work to demonstrate to the rest of the Nation that there can be sustainable solutions to many of the problems facing us today.

OPC's 5 Year Strategic Plan lays out ambitious strategies to advance this overarching goal. I would offer comment on one of the delineated objectives, specifically 4.2, *Promote Sustainable Aquaculture*:

The stated intent of this objective is to create "*a comprehensive, consistent and science-based framework and policy for marine aquaculture in California by 2023*". This is indeed a noble undertaking, but the limitations laid down within that objective are fundamentally contrary to realizing its intent.

¹ HSWRI is a 501C(3), public charity that has worked with coastal managers for decades on restoring depleted marine resources and ensuring that conflicts resulting from human uses of coastal resources are minimized or completely mitigated.

Targeting sustainable aquaculture for finfish to only be attempted in land-based systems is contrary to the state of the ocean-based technologies available. There are many examples of finfish being sustainably grown domestically and internationally in marine pens in both coastal and offshore areas, with *de minimis* impacts to the environment, and these fish are readily available in U.S. markets, including California. If we are to reap the Blue Economy benefits of marine farming to sustain coastal communities and minimize the impacts to global warming, then we cannot forego the opportunity for using small tracts of the open ocean to grow a substantive portion of our Nation's animal protein needs.

I would recommend that you review a short TED Talk style video presented by Dr. Steven Gaines from the Bren School at U.C. Santa Barbara.

<https://www.youtube.com/watch?v=0KDsIa6-NVA>

Dr. Gaines compares the environmental and resource costs associated with different types of farmed animal protein including terrestrial (cattle, goats, swine and poultry) and marine (finfish and shellfish). By matter-of-factly discounting the ability to grow finfish in California waters, the Resources Agency has committed to relying upon far less environmentally appropriate forms of animal protein production.

The greatest opportunity for developing pen rearing of marine finfish does not exist within coastal embayments, but rather out in the open ocean where there is far more space, cleaner water and adequate current flow to mitigate the potential for adverse impacts to water quality. There has been much concern regarding the expansion on pen rearing finfish in the ocean. However, most of these concerns have been moderated by proper farm siting, appropriate engineering for open water environments and best management practices now being practiced. Further, pen farming affords the existing commercial fishing industry an opportunity to utilize much of its existing expertise and infrastructure to provide a new source of harvestable seafood.

California had developed a process to assess and mitigate these concerns through the planned drafting of a Programmatic Environmental Impact Report (PEIR) that would have served as the basis for a CEQA review for any proposed finfish farm in coastal waters. The PEIR was mandated after the Governor Schwarzenegger signed the Sustainable Oceans Act (SB 201²) in May 2006, but 14 years later there has still not been a draft PEIR available for public review. It is my understanding that the Department of Fish and Wildlife and the OPC have expended close to \$1 million in contracts and staff time to develop the requisite document, but still there is no document available for public review. By banning pen rearing marine fish because

² http://www.senatorsimitian.com/entry/sb_0201_marine_finfish_aquaculture/



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of the State's inattention to performing an adequate review of the available science, the proposed strategic plan calls for advancing land-based farming of marine finfish.

I recognize the interest in advancing Recirculating Aquaculture Systems (RAS) as this technology has advanced greatly over the past decade, but its capacity for sustainable production still lags far behind that resulting from farming finfish in marine pens. The reasons for this are the need for coastal land, which is in short supply, and for significant amounts of energy to drive the RAS technology. Coastal property is a premium in California and RAS farms located on coastal sites would further limit the use of that land by others and can also offset existing seafood infrastructure.

RAS enterprises typically employ vertically integrated production, processing and marketing systems such that the product is not only grown on the site, but is also processed on the farm site for subsequent distribution. Rather than complementing the existing seafood infrastructure provided by local seafood processors, these farms duplicate that resource to gain the economic "value added" that is normally provided by existing processors. As to minimizing contributions to global warming, the economic and carbon footprint advantages of placing RAS farms near seafood markets, is negated by the cost of energy and the higher carbon footprint associated with that increased energy demand.

Since 1991, there have been at least 10 U.S. based RAS companies that have failed financially, and they were growing freshwater species for which coastal land was not used. Since 2008, there have been at least 10 more U.S. and foreign based RAS farms that have failed in an attempt to grow marine species using RAS technology. That is not to say that RAS technology cannot work, but rather that California should not rely solely upon it for sustainably farmed seafood. If and when RAS systems become reliable and affordable, they will represent an excellent complement to our existing harvest fisheries and open ocean farms, but California should not limit any one of these opportunities in lieu of another.

There are multiple proposals for RAS, land-based salmon farms in Maine, Florida and California all of which are being funded by foreign companies, and their incentive is to move their supply closer to our markets. Most of these companies have their base in Norway which produces more than \$7 billion in farm-gate value of Atlantic salmon annually using marine pens. These companies are expanding their RAS operations to the U.S., while still enjoying the benefits of extensive pen farming operations in their own countries. The take home message is that California needs to be open to both forms of farming marine finfish.

We believe that as a center for global innovation, California should support marine aquaculture for finfish, shellfish and seaweed not only in RAS systems, but also using effectively demonstrated technologies for both the nearshore and offshore

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environments. California has already spent significant effort to develop a PEIR as legislatively mandated by SB 201. It would be disappointing for the OPC to disregard the 14 year-long effort and the substantive financial investment made to develop that required document. The PEIR should be finalized into a working document designed to allow the development of sustainable marine aquaculture in the waters of our State.

Thank you again for providing an opportunity to comment on the Draft Plan and please let us know if HSWRI can in any way assist OPC with its important mission to protect and conserve California's invaluable ocean resources.

Sincerely,

A handwritten signature in black ink that reads "D B Kent". The signature is stylized, with the first letters of each name being capitalized and prominent.

Donald B. Kent
President/CEO

September 14, 2020

Dear Ocean Protection Council,

Regarding **Agenda item 5: Consideration of Authorization to Disburse Funds to Develop a Statewide Aquaculture Action Plan** of the upcoming September 17, 2020 Public Meeting, we offer the following comments:

As a consortium of researchers, educators, and architects from California academic institutions (USC, UCSB, SJSU), we would like to **express our support for a state action plan for sustainable marine aquaculture and our interest in collaborating with the OPC and associated partners on this plan.**

Our consortium has been collaborating with industry and government partners over the past two years to support the growth of California's blue economy, with a particular focus on farming of marine seaweeds and shellfish. Seaweed and shellfish aquaculture in California will provide new sources of food, fuels, and animal feeds and fertilizers, while improving water quality, restoring habitat and mitigating ocean acidification.

Our vision as a consortium is that the expansion of aquaculture in southern California presents an opportunity to advance a **"One Health Framework"** for aquaculture systems that recognizes environmental, organism, and human health and wellbeing, as fundamentally interdependent. Our consortium, with the support of industry, regulatory, and non-profit partners, has recently submitted a grant proposal to the National Science Foundation with a goal of designing COASTAL HAZARDS AQUACULTURE MITIGATION PLATFORMS (CHAMPs) to mitigate coastal hazards along open California coastlines while using seaweed and shellfish species of increasing economic value in the burgeoning aquaculture and marine products industries. We hope to advance the basic research required to redesign aquaculture systems to functionally mitigate coastal hazards ("Environment") with commercially viable, ecologically resilient kelp and bivalve species best able to adapt to changing conditions ("Organisms"). A One Health Framework requires that aquaculture, through this science-driven innovation, becomes economically viable, supported by well-informed regulatory and community stakeholders, and provides opportunities for historically underrepresented communities to be a part of this expanding blue economy workforce ("People"), creating a more ecologically and socially resilient future (*See Figure 1 on next page*).

We welcome future opportunities to share our expertise and collaborate with OPC on crafting a state action plan for sustainable marine aquaculture.

Sincerely yours,

¹Amalia Aruda Almada, Provost Fellow, Dornsife College of Letters, Arts & Sciences, amaliaal@usc.edu

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Maddelyn Harden, Dornsife College of Letters, Arts & Sciences, mharden@usc.edu

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Aroussiak Gabrielian, USC School of Architecture, aroussig@usc.edu

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Gale Sinatra, USC Rossier School of Education, gsinatra@rossier.usc.edu

Pat Lynett, USC Viterbi School of Engineering, plynett@usc.edu

Mike Graham, SJSU Moss Landing Marine Laboratory, mgraham@mlml.calstate.edu

¹*Dr. Almada will be speaking on our group's behalf at the September 17, 2020 public meeting*

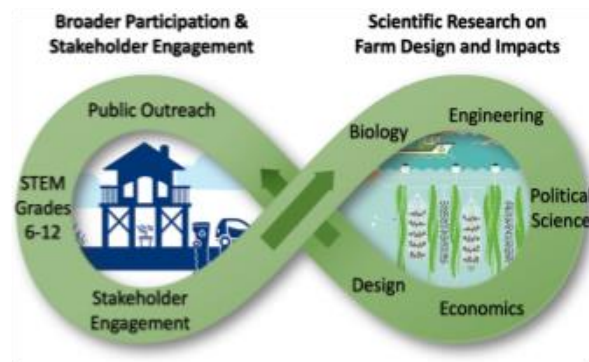


Figure 1. Stakeholder engagement will help refine our research questions on farm design and impacts. Our science will facilitate broader participation while informing the public and other stakeholders.