MADE IN ALASKA

# MARICULTURE

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***RE: Recommendations to make fisheries and aquaculture more resilient to climate change***

To Whom It May Concern: April 2, 2021

In response to NOAA's request for recommendations regarding how to make fisheries and aquaculture more resilient to climate change, the Alaska Mariculture Task Force (Task Force) submits the following recommendations. (*NOTE: In references by the Task Force, mariculture is defined as enhancement, restoration, and farming of shellfish and seaweed. Mariculture does not include fin-fish farming, which is prohibited by state law.*)

***Task Force Background***

In 2016, the Task Force was established by Administrative Order (AO) #280 and re-authorized in 2018 by AO #297. The AOs describe the benefits provided to Alaskans by a fully developed mariculture industry:

- Economic – providing jobs and commerce in coastal communities:
- Environmental – improving the local ecosystem in various ways, such as providing habitat improvement, carbon removal, or countering ocean acidification;
- Cultural – compatible with traditions, cultures, and skills in rural communities;
- Industrial – complements and expands our existing renewable seafood industry, which is Alaska's largest private sector employer;
- Food Security – increases access to local foods for Alaskans.

The Task Force was directed "*to create a comprehensive plan for the development of a viable and sustainable mariculture industry producing shellfish and aquatic plants for the long-term benefit of Alaska's economy, environment and communities*". The comprehensive plan was completed in 2018 and can be viewed here. Additionally, a brief version of the plan can be viewed here, ***with the goal to grow a $100 million industry in 20 years.***

The planning process included five advisory committees and a phased economic analysis to inform the development of the comprehensive plan. The first phase of the economic analysis involved a set of case studies of other regions with successful mariculture industries and relevance to Alaska in terms of species, regulatory structure, etc., which demonstrated common pre-existing elements leading to success (i.e. pre-existing large-scale seafood industry) and common challenges to overcome. The second phase of the economic analysis provided an economic framework for the development of a $100 million mariculture industry in 20 years. This framework included the following six species currently under some level of research and development in Alaska and annual revenue goals in 20 years: oysters ($30M), geoducks ($10M), seaweeds ($15.7M), mussels ($7.5M), sea cucumbers ($6.5M), and King crab ($5.7M).

***Recommendations***

First, related to fishery management, it is essential that fishery management continue to prioritize monitoring and stock assessment, in order to see change in stocks (increases or decreases) as quickly as possible. This allows for adaptive management guided by the precautionary approach to take swift and responsible actions to appropriately adjust harvest levels in the face of change.

Second, related to shellfish fisheries, if ocean acidification continues along its projected trajectories, investments should be made NOW in shellfish hatcheries, which can culture shellfish in its early stages and adjust Ph levels in order to increase survival during the vulnerable juvenile stages. These cultured shellfish may be necessary to restore and rehabilitate wild stocks to prevent crashes from which it would likely take decades to recover. It takes several years to get a shellfish hatchery built, operating, staffed and producing up to full capacity. It is absolutely necessary to get ahead of that curve now. This is a critical place for NOAA to invest in facilities, staff, research and training.

Third, related to aquaculture, it is promoted by NOAA that aquaculture will provide resilience to US food production. Additionally, it is widely understood and promoted by NOAA that shellfish and seaweed aquaculture provide numerous ecosystem services which are beneficial to the ocean and wild stocks. Some refer to this as a "restorative industry", one that not only produces a resource, but also helps to restore other resources. Emphasis on the development of restorative industries should be emphasized as one way to adapt to a world in which climate change is the norm.

In Alaska, the Task Force is working on a Five-Year Action Plan to build a foundation for the growth of the mariculture industry. NOAA financial and technical support, particularly in the early stages of this development, is critical to reach a fully developed mariculture industry, which produces significant environmental benefits, including the removal of excess nitrogen and carbon, to our oceans.

Fourth, the commercial fishing/aquaculture fleet of vessels and processing facilities need financial and technical support in upgrading from diesel-burning engines and power supplies, to upgraded technologies which increase energy efficiency and reduce emissions. In Alaska, the commercial fishing fleet operates approximately 9,000 registered vessels and deliver to dozens of processing plants which still operate on diesel generation.

Thank you for your consideration of our comments. If you have questions, feel free to email me.

Sincerely,

Heather D. McCarty

Heather McCarty, Chair, Alaska Mariculture Task Force