HUBBS SEAWORLD RESEARCH INSTITUTE

2595 Ingraham Street, San Diego, CA 92109 • (619)226-3870
4020 South Highway A1A, Melbourne Beach, FL 32951 • (321)327-8970
4200 Garfield Street, Carlsbad, CA 92008 • (760)434-9501
www.hswri.org

CONGRESSIONAL TESTIMONY

Growing the Future: Opportunities to Support Domestic Seafood through Aquaculture

Testimony before Commerce, Science and Transportation Committee United States Senate

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Donald B. Kent
President/CEO
Hubbs-SeaWorld Research Institute

My name is Donald Kent and I am the President and CEO of the Hubbs-SeaWorld Research Institute. I want to thank Chairman Thune, Ranking Member Nelson, and the other Members of the Committee for this chance to discuss opportunities and concerns arising from the development of marine farming in our Nation's waters. I have been involved in aquaculture research for over 40 years and have worked on research involving the culture of a wide range of species including plants, shellfish and finfish. In addition to these brief remarks, I will append an annotated list of references for the Committee's consideration.

Our Institute is a non-profit, scientific research organization dedicated to advancing a healthy ocean environment to the benefit of both human and animal populations. As a part of this mission, we have developed a comprehensive aquaculture research program looking at the feasibility of not only restoring depleted marine fish stocks, but also developing a broader sustainable seafood production capability.

Our nation leads the world in the production of farmed products except for seafood. Presently, the United States is a minor player in aquaculture production but the second largest consumer of seafood. The resulting dependence on importing farmed seafood from other countries could be reversed by the United States using its existing regulations to demonstrate best practices for farming seafood in the open ocean. The lack of a federal management framework to grow fish in the Exclusive Economic Zone is a significant barrier to reaching this goal, and presents an almost insurmountable barrier to investors that would rather invest in farms in other countries and import the product into our markets.

Our nation has invested heavily in marine aquaculture research resolving issues like fish meal replacement, disease prevention and management, open ocean equipment engineering and domesticating regionally appropriate species for culture, and our Institute and its collaborators have contributed significantly to setting the stage for offshore farming. The research we have conducted over the decades has not gone un-noticed. To demonstrate the potential for open ocean farming, we have provided juvenile fish reared in our hatchery to farms off the coast of Baja California, Mexico; farms funded and operated by Americans. These farms have expanded well beyond the demonstration scale and are now selling the majority of their product to U.S. markets.

For more than a decade we have been working, without success, to permit a farm off the coast of southern California. This one farm, while using less than a square kilometer of open ocean surface area, would produce 5 times more seafood than all the commercially harvested seafood in San Diego County while supporting 70 direct farm jobs as well as additional 200 or more indirect jobs. The problem is not a lack of regulatory process, but rather the lack of federal leadership to manage that process.

Federal agencies, including the Army Corps of Engineers (Corps) and the Environmental Protection Agency (EPA) have relevant permitting authorities and understand those authorities. The limiting factor has been a lack of defined

leadership for the required environmental review, as neither the Corps nor the EPA has been willing to accept that responsibility. In 2014 we submitted permit applications to these agencies, but it took seven months before the EPA finally agreed to lead a single, consolidated NEPA review process in collaboration with the Corps and NOAA Fisheries under the auspices of a multi-agency Memorandum of Understanding. After both the EPA and Corps had published their individual Notices of Intent in the Federal Register and had each received public and various agency comments following extended public review periods, the wheels came off the wagon. In March 2016, 11 months after the EPA agreed to lead the joint NEPA review, the Regional Director of the EPA recanted the agreement thereby bifurcating the conjoined environmental reviews into two, disconnected and independent reviews.

A year later in the spring of 2017, NOAA Fisheries, based on their unique aquaculture and marine resources expertise, offered to undertake the lead agency role for the requisite NEPA review even though their agency does not have permitting authority for aquaculture at this time. (NOAA Fisheries is consulted by EPA and the Corps via their respective consultation processes.) We are hopeful that we now have a process to move the environmental review process forward with NOAA Fisheries leading NEPA review, and the EPA and the Corps as cooperating or participating agencies and are trying to assure our understandably nervous investors that this time there will be no recanting of the process.

As the recognition over the past decade of the need for expanding domestic aquaculture has become more prevalent, far more attention is being paid to the potential for a net benefit to the environment that would result from farming more seafood. Numerous studies now point to marine farming as the most sustainable way to grow animal protein for human consumption. Marine conservation groups as diverse as the Coastal Conservation Association, The Nature Conservancy and the World Wildlife Fund are exploring how improved technology and best practices can enhance the potential positive role aquaculture could play in reducing the U.S. seafood market's sole reliance on commercially caught wild finfish and imported farmed seafood products. Many studies now point to the need to turn to aquaculture to meet the growing demand for protein since terrestrial based animal production puts far more pressure on limited natural resources. Last week the Yale School of Forestry and Environmental Studies published an article in which Dr. Steve Gaines, the Dean of the Bren School of Environmental Science & Management at UC Santa Barbara, stated: *"If you look at best management practices in aquaculture, there's nothing comparable in terms of land-based meat production that has such a low level of environmental impacts."*

The limited scope and size of today's U.S. marine aquaculture industry simply cannot substantially expand without access to the offshore waters controlled by the federal government, the Exclusive Economic Zone (EEZ). However, access alone is not sufficient, and will not create the fertile environment for private investment in U.S. marine aquaculture. What is urgently needed is clear legal authority for U.S. aquaculture entrepreneurs to operate in the EEZ in compliance with existing

regulatory programs toward implementation of viable business models that will prosper in the highly competitive global seafood market place.

Offshore marine aquaculture in the EEZ holds tremendous potential for advancing the public health, food security and economic interests of Americans, but those interests can only be served if government provides the legal authority for the private sector to fulfill that mission without unwarranted regulatory obstacles. We need to establish a consistent, predictable and efficient permitting process that will incentivize American investors into keeping their investment capital in this country to create a new paradigm for domestic seafood production thereby leading to higher food security, lower transportation costs to our seafood supply chain, more American jobs, a larger tax base and greater utilization of our working waterfronts.

Additional Comments and References[1] to Augment the Testimony Presented by Donald Kent to the Commerce, Science and Transportation Committee of the United States Senate's hearing on *Growing the Future: Opportunities to Support Domestic Seafood through Aquaculture.*

Over the last 20 years, responsible environmental stewardship has become the proven business model in the states or territorial waters of Maine, Washington, Hawaii and Puerto Rico where commercial scale net pens have been operated to farm Atlantic salmon, Almaco jack or cobia. Additionally, shellfish farming is expanding in Alabama, Alaska, California, Connecticut, Florida, Hawaii, Louisiana, Maine, New Hampshire, New Jersey, New York, Maryland, Massachusetts, North Carolina, Oregon, Rhode Island, Virginia, South Carolina and Washington, growing abalone, clams, oysters, geoduck, mussels or scallops. These farms have been managed in compliance with state and federal regulations with Best Management Practices, along with the provisions of long-term lease agreements with the states or territory. All such operations are conducted with regulatory transparency supported by environmental monitoring data and periodic reporting for these operations in publicly available documentation required by state and federal agencies.

It is abundantly clear: the limited scope and size of today's U.S. marine aquaculture industry simply will not substantially expand without access to the majority of offshore waters that are controlled by the federal government. Large-scale marine aquaculture production in the United States would create the ability to:

- Close a significant gap in U.S. food security (availability) through the farming of seafood products in U.S. waters rather than relying as the United States currently does on foreign seafood sources for 90% of the seafood consumed by our citizens.
- Create ancillary equipment and service businesses and new jobs within coastal and inland communities.
- Accelerate technological development to reduce production costs and minimize adverse environmental effects.
- Maintain working waterfronts and build upon the existing and unique knowledge, skills and abilities possessed by commercial fishers.
- Preserve rural and coastal communities by providing economic development and diversification opportunities and jobs consistent with community desires for a sustainable future.

While these potential outcomes are well-documented,[2] we have yet to make any significant advances in U.S. marine aquaculture production in the 37 years since

[1] Content compiled by Paul W. Zajicek, Executive Director of the National Aquaculture Association for its Marine Aquaculture Committee

[2] Rubino, Michael (ed). 2008. Offshore Aquaculture in the United States: Economic Considerations, Implications & Opportunities. U.S. Department of Commerce; Silver Spring, MD; USA. NOAA Technical Memorandum NMFS F/SPO-103

passage of the National Aquaculture Act of 1980. Currently marine farming production is approximately 45,500 tons valued at $327 million and supplies about 3% of U.S. seafood consumption. Federally managed waters beyond coastal state boundaries, termed the Exclusive Economic Zone, encompass 4.4 million square miles (11.3 million square kilometers). A U.S. study estimated that 195 square miles (500 sq. km) of ocean, managed under existing regulations, could produce 1.3 billion pounds (600,000 metric tons) or more of high quality seafood.[3] Theoretically, the farming of 970 sq. miles (2,500 sq. km), an area representing .0002% of the Exclusive Economic Zone, less than half the size of Delaware, would double U.S. edible seafood production or an area the size of the Pentagon could produce 220 million pounds (100,000 MT). A doubling of U.S. aquaculture production to about 1 million tons could create an estimated additional 50,000 farm and non-farm jobs.[4]

Over the last 20 years, rather than acknowledging the many advances in marine aquaculture production practices and successful management strategies for adverse environmental impacts, the environmental community continues to restate a variety of potential adverse environmental effects of aquaculture based on outdated production methods and standards.[5] We note the U.S. Environmental Protection Agency has held authority under the Clean Water Act to regulate discharges from fish farms for decades. During a four-year period, 2000-04, the agency completed a detailed technical review of its standards and modern aquaculture methods, including those used for marine aquaculture. The Clean Water Act regulations for aquaculture met all standards of environmental protection mandated by Congress and additional regulatory standards were found to be unwarranted. Current regulatory authority exists to appropriately protect marine water quality and benthic environmental systems, manage fish escapes, and require responsible drug and chemical use. Basic and applied research supported by governmental agencies and the private sector has led to continuing improvements in reducing the use of essential fish meal and fish oil components in pelleted aquaculture feeds.

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[3] Nash, C.E. 2004. Achieving Policy Objectives to Increase the Value of the Seafood Industry in the United States: The Technical Feasibility and Associated Constraints. Food Policy 29:621-641.
[4] Knapp, G. and M.C. Rubino. 2016. The political economics of marine aquaculture in the United States. Reviews in Fisheries Science and Aquaculture 24(3): 213-229.
[5] Goldburg, R. and T. Triplett. 1997. Murky Waters: Environmental Effects of Aquaculture in the United States. Environmental Defense Fund, New York NY

Practices, along with the provisions of long-term lease agreements with the states or territory. All such operations are conducted with regulatory transparency supported by environmental monitoring data and periodic reporting for these operations in publicly available documentation required by state and federal agencies.

The inherent sustainability of aquaculture production as practiced in the United States is recognized by marine education organizations, academic institutions and national agricultural and aquaculture organizations as vividly described in recent videos:

- Aquarium of the Pacific, *Perspectives on Marine Aquaculture in California and the U.S.*: https://vimeo.com/211721422 and *Marine Aquaculture: a tool for conservation*: https://www.youtube.com/watch?v=ygoU5knT7ww.
- University of Miami, *The Business of Aquaculture*: https://www.youtube.com/watch?v=2vduoM7hYKA.
- University of Maine, *Farming the Sea*: https://science360.gov/obj/video/ae3d54f0-eb7e-4b0d-9db8-379be48f7b04/farming-sea
- Soy Aquaculture Alliance, *The Working Waterfront - American Aquaculture in the 21st Century*: https://www.youtube.com/watch?v=aGgtS4v9WBM.