Comments of the Marine Fisheries Advisory Committee

on the draft Joint Subcommittee on Aquaculture

National Aquaculture Research and Development Strategic Plan

August 24, 2012

The Marine Fisheries Advisory Committee (MAFAC) advises the Secretary of Commerce on all living marine resource matters that are the responsibility of the Department of Commerce. MAFAC members draw on their expertise and other appropriate sources, such as the National Marine Fisheries Service, to evaluate and recommend priorities and needed changes in national programs, such as the Magnuson-Stevens, the Endangered Species and the Marine Mammal Protection Acts. The members represent a wide spectrum of fisheries interests, environmental, academic, state, tribal, consumer and other related national interests.

The committee functions solely as an advisory body (complying fully with the Federal Advisory Committee Act) who reports to the Secretary. More information about MAFAC, its charter, membership, meetings and activities can be found at http://www.nmfs.noaa.gov/ocs/mafac/index.htm

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Comments:

The National Aquaculture Research and Development Strategic Plan should be lauded and is a bold and comprehensive research and development plan that does a fine job of both identifying the chief impediments to and the steps needed to improve and expand aquaculture production in the U.S. Many of the research objectives are necessary to move the business of aquaculture forward in a competitive global industry and address lingering concerns, especially environmental.

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However, MAFAC has some general and specific comments on the draft National Aquaculture Research and Development (R&D) Strategic Plan that, if rectified, will greatly strengthen the Plan and support domestic aquaculture production.

Overarching Comments or Issues

- The document refers to interagency collaboration to eliminate overlap, find synergies and maximize benefits; however, little specific detail is provided to describe which redundancies might be eliminated or where cost saving synergies might be found.

- Many goals and outcomes will require significant investments and leadership by government entities. The plan should include projections on the estimated cost of some of these objectives, and the potential economic impact of some of the desired outcomes. It is clearly in the Nation's best interest to reduce the trade deficit, create jobs, and increase food security domestically. A significant aquaculture budget request will be required to make U.S. marine aquaculture globally competitive. However, if resources are not adequate, the research will result in publications, but not increased production.

To create an aquaculture development policy that encourages the United States to be a production leader (which is *not* the current status quo) then a 5-10 year budget equal to the task must also be envisioned and would be an appropriate component for a 5-10 year R&D strategic plan.

- The Draft Plan appears to presume that aquaculture development is limited by some unsolved mysteries that must be overcome for the industry to advance. However, if we consider all aquaculture (catfish, trout, etc.) then many industries are already big and are limited by some factor unrelated to technological advances.

- The primary obstacles to marine aquaculture development and expansion in the U.S. are availability of space, citing conflicts, regulatory challenges, 'not-in-my-back-yard' groups, and lack of an offshore framework. Technological limitations are not the primary constraints to increased U.S. advances in shellfish, macro algae, or finfish as much as the lack of a regulatory mandate to move forward and permit new farms. Thus, it appears the cart is in front of the horse – if there were space and a reasonable permitting mechanism, we would develop an industry; this industry might or might not experience problems which would then need research to develop solutions. This Draft Plan appears to develop a justification for a research budget that will likely ***not*** alleviate the major permitting constraints.

- Until the permitting issue is resolved, most of the techniques or technologies that we develop through research to improve production will be implemented in other countries and not in the U.S. Until impediments are addressed, the return on our investment will be reaped overseas, and the U.S. will continue to import more aquaculture product. Without a legal regulatory framework for permitting in the Exclusive Economic Zone (EEZ), these waters will never be developed. It is important to focus in one of the Goals the objective of developing a concise, streamlined permitting framework that encourages business investment in the development of domestic aquaculture in Federal waters (a key statement of the developed policies MAFAC supported in 2010). In other countries, industry is encouraged and provided incentives to develop aquaculture businesses, but that is lacking in the U.S.

- There remains some degree of disagreement about the potential, real and perceived environmental impacts of aquaculture. These unknowns may never be resolved unless we try some new farms and monitor for impacts. Potentially irreversible changes should be avoided (such as introduction of non-natives, permanent habitat destruction, release of non-sterile genetically modified organisms). However, some degree of risk may be justifiable in order to answer some of these compelling questions.

- Improvement in "environmental performance" (page 9) has also been a result of scientific research to resolve unknowns and dispel various myths purporting ecological damage by aquaculture. Much of this work has been achieved through government-funded research and it is critical that this work continues to help address any new environmental impact concerns. However, impacts of aquaculture should be compared with other food production and land and water-use practices for proper perspective.

Summary and Specific Comments by Goal or Page:

- **The Vision Statement:** Delete the last sentence in the Vision statement or edit it to clarify its meaning. As worded it is redundant with meeting "high standards for…environmental stewardship."

- **Page 3:** The first and last bullets in the list articulate clearly that the vision is to support aquaculture development in the U.S. However, the Strategic Plan lacks incentives for companies to place their capital at risk or assurances that operations will have a chance to fail (or hopefully succeed). The current framework is fraught with uncertainty, and from a global perspective, creates a disincentive to establish operations in the U.S. The framework must be incorporated more clearly into this Strategic Plan, potentially as its own Goal. It has been discussed at length and at all levels, such that a permit framework should be explicitly described to encourage the expansion of aquaculture in Federal waters. If we cannot create a document that does this then we are ignoring our own policies.

- **Goal 1** – Please add the following two milestones: (1) Review of existing research, or completion of new research as necessary, to quantify ecosystem services and net environmental benefits of aquaculture for water quality and habitat; and (2) Developed programmatic regulatory approval procedures to expedite environmental impact analyses and Endangered Species Act and Essential Fish Habitat consultations, particularly for small scale aquaculture projects in federal waters.

- **Goal 2** – Genetic improvement will significantly help production economics, however this work is expensive and will require substantial long-term government funding. These programs are historically long-term USDA-ARS projects. NOAA and other Federal agencies should look for projects that improve production economies in short timeframes (such as for species where domestication efforts are in their infancy).

  Integrity of wild populations must be conserved while we enhance the traits of cultured species. Development of genetic risk models will help quantify the risk of genetic interactions between wild and domesticated stocks.

- **Goal 4** – Improve production efficiency. Hatchery production for marine finfish species is a limiting factor in the development of aquaculture both in Federal waters and in land based systems. Developing broodstock for year round production of a variety of species is a long term investment that should also be linked to a breeding program. This sector is ideal for a private-public partnership as it has broad benefits downstream as an enabling technology. NOAA has recently cut its cod breeding program in Rhode Island – the only such facility for breeding large marine fish in the nation.

- **Goal 5** – Nutrition: Since shellfish do not require formulated feeds or fishmeal, the report should eliminate reference to shellfish in this section. Novel sources of high-PUFA feed ingredients should be identified and evaluated as potential feed ingredients. For instance seaweed harvested for nutrient-bioextraction and eutrophication mitigation or fisheries by-catch products could both be viable sources of high-PUFA meal ingredients.

- **Goal 5 -** Novel Feed Development: This goal has been a priority for a number of years and is critically important, especially in a developing species; however feed companies already invest in and do much of this as a result of consumer, regulatory, and industry pressures. As there is no industry (finfish) without feed, this feedback loop is always present to push research forward. The proposed research can help 'fast-track' development but one should be cautioned that the novel feeds developed at a research institution must have an economic benefit to the producer that can be realized in the life cycle of a production. There should be linkages with feed industry representatives or associations to assure the research is both practical as well as novel, otherwise who will produce the developed feeds for industry?

- **Goal 6** – Nutritious safe seafood: Naturally occurring pathogens such as Vibrio bacteria and toxic algal blooms create significant challenges for producers, especially for shellfish. Research can help industry develop better tools for predicting, measuring, and mitigating these risks.

- **Goal 6** – Please add the following milestone: Improved understanding of the health benefits of fish in general and expand fish marketing efforts for all fish production types -- aquaculture, hatchery, and wild fish -- capturing efficiencies and synergies for the different fish products as appropriate.

- **Goal 7** – Culture of marine species are no longer limited to the geographical area within which they are found in nature. Closed recirculating land-based marine production systems are being operated commercially and much research is underway in this field. Antifouling cage materials that are environmentally benign are available save significant operating costs. Such developments are critical to pushing the industry forward. This goal will be instrumental for dramatically increasing seafood/sea-vegetable production. Carbon footprints can be dramatically reduced through U.S. production, compared to product being shipped from distant ports.

- **Goal 8**: The JSA should be responsible for the "pooling" and administration of the various agencies' research budgets to reduce redundancy.

- **Goal 9**

    - Market research and economic assistance appear to be overlooked in this plan. Solid pricing, low interest loans for capital investment, crop insurance, and regulatory relief will ensure that the industry will grow. Rapid expansion of aquacultural production without commensurate investments in marketing may lead to price collapse and painful industry consolidation, as has happened in the past. If production growth is a goal, then producers need marketing assistance until the industry matures. Local and coastal markets can only absorb a limited volume of product before prices are negatively impacted. Small producers are ill equipped to conduct a proper national marketing campaign. Market research would help producers maximize the benefits of their marketing investments.

    - There are ways in which social science research can help breakdown some of the citing and permitting barriers that are impeding the development of marine aquaculture. Socio-economic studies can help user groups map the areas that they utilize to identify

low-conflict areas. Vessel tracking, satellite imagery or shoreside radar tracking and modeling could help resolve these questions.

- New socio-economic analyses can help determine the "highest and best use" of a public waterway. Criteria such as "least environmental impact" and "maximum socio-economic benefit" can help resource managers and stakeholders prioritize the use of limited public resources.

- One issue is how to make the regulatory processes less complicated and less uncertain. If a risk cannot be quantified, businesses will not invest. This relates to the first outcome "Identify and **resolve** key regulatory, policy and socioeconomic and environmental constraints …." A parallel outcome could be: Identify and **resolve** key regulatory, policy and socioeconomic and environmental constraints to improve the **permit process to encourage aquaculture in Federal waters in keeping with the Federal Aquaculture Policies of 2010**.