

MARINE MAMMAL COMMISSION  
4340 East-West Highway, Room 700  
Bethesda, MD 20814-4447

27 October 2008

Ms. Carrie Simmons  
Gulf of Mexico Fisheries Management Council  
2203 North Lois Avenue, Suite 1100  
Tampa, Florida 33607

Mr. Andy Strelcheck  
Southeast Regional Office  
National Marine Fisheries Service  
263 13th Avenue South  
St. Petersburg, Florida 33701

Dear Ms. Simmons and Mr. Strelcheck:

The Marine Mammal Commission, in consultation with its Committee of Scientific Advisors on Marine Mammals, has reviewed the 3 September 2008 public hearing draft of the Fishery Management Plan for Regulating Offshore Marine Aquaculture in the Gulf of Mexico. The purpose of the plan is to establish a regional permitting process to manage the development of an environmentally sound and economically sustainable aquaculture industry in federal waters of the Gulf of Mexico. The document incorporates a Draft Programmatic Environmental Impact Statement (DEIS), Initial Regulatory Flexibility Analysis, and Regulatory Impact Review.

Wild fisheries appear to have leveled off at 80 to 85 million tons per year worldwide, and aquaculture will supplement the protein available from wild harvests. Done poorly, aquaculture poses risks to coastal ecosystems and marine species. Done well, it has the potential to provide significant benefits to the nutritional and economic well-being of the nation, while maintaining the health and stability of marine ecosystems as required by the Marine Mammal Protection Act and other authorities. To both avoid the risks and maintain healthy ecosystems, the expansion of aquaculture should be done carefully. To that end, the Marine Mammal Commission offers the following recommendations and rationale.

## RECOMMENDATIONS

The Marine Mammal Commission believes the DEIS needs to be strengthened by giving further consideration to the potential effects of aquaculture on Gulf of Mexico wild stocks, protected species, and ecosystems in general. Therefore, the Marine Mammal Commission recommends that the Gulf of Mexico Fisheries Management Council and the National Marine Fisheries Service—

- Develop and implement protocols for collecting baseline data needed to assess aquaculture impacts on Gulf of Mexico ecosystems;
- Ensure completion and implementation of the national aquatic animal health plan, currently under development by the National Marine Fisheries Service, the Animal and Plant Health

Inspection Service, and the Fish and Wildlife Service, as a necessary precursor to the implementation of aquaculture programs and the issuance of permits under this fishery management plan. The plan requires careful, ongoing monitoring of disease and parasites in aquaculture stocks, as well as environmental monitoring to detect possible adverse effects from introducing antibiotics into the marine environment.

- Review on a species-specific basis the consequences of unintentional releases and their ecological impacts, including the likelihood of hybridization of escaped fish with local species as well as the potential for competition between released aquaculture stocks and wild stocks.
- Revise the DEIS to include consideration of risks related to aquaculture interactions with protected species, including marine mammals, and establish a monitoring regime and database to provide a basis for evaluating the level of interaction.
- Revise the DEIS to include an analysis of the potential effects of increased vessel traffic resulting from aquaculture operations.

## **RATIONALE**

Overall, the Gulf of Mexico Fisheries Management Council and the National Marine Fisheries Service have done a good job in designing a programmatic framework for permitting and monitoring aquaculture operations in the U.S. Exclusive Economic Zone in the Gulf of Mexico. The 10 action steps outlined for the fishery management plan, and the preferred alternative, appear to require significant and detailed review prior to permitting. They also require ongoing monitoring of operations once they are approved. The intent of review and monitoring are to prevent and manage potential environmental impacts, and the Commission is in complete agreement with that emphasis.

The DEIS elucidates many of the environmental concerns associated with aquaculture programs and outlines advances in the technology and management of such operations. Although these ameliorate some historical environmental concerns, in this letter we highlight some questions and issues that either have not been addressed or require continued close scrutiny during approval and monitoring of future aquaculture programs.

The DEIS also asserts that some environmental issues may be less significant for aquaculture operations in deep waters. Nonetheless, each of these factors must be considered carefully in evaluating proposed aquaculture programs, projects, and processes. The Commission strongly supports the preferred approach involving thorough case-by-case review of proposed aquaculture projects in federal waters and strong and frequent oversight of such activities once they are permitted.

## **Establishment of Baseline Information and Monitoring**

As the Gulf of Mexico Fisheries Management Council and the National Marine Fisheries Service contemplate the development of an offshore aquaculture industry in the Gulf of Mexico, a necessary first step of an effective regulatory system is the establishment of environmental baselines (e.g., biological, chemical, water quality). Without such data, it will be impossible to assess changes and effects resulting from aquaculture activities. Doing so will be difficult because existing conditions cannot be assumed to represent healthy and stable ecosystems. The existing baselines reflect tremendous past and present modification of Gulf ecosystems (as exemplified by dead zones, harmful algal blooms, areas of high nutrient loading, etc.). Management plans must be developed with the goal of improving the health and stability of existing Gulf ecosystems, not just maintaining them in their current state. Because existing baselines are already inappropriately low, aquaculture ventures that are shown to adversely affect ecosystem parameters should not be approved or allowed to continue in operation. For these reasons, the Marine Mammal Commission recommends that the Gulf of Mexico Fisheries Management Council and the National Marine Fisheries Service develop and implement protocols for collecting baseline data needed to assess aquaculture impacts on Gulf of Mexico ecosystems.

## **Disease and parasites**

The fishery management plan and DEIS raise a number of specific issues for which we would like to see further analysis and discussion. The first issue concerns the potential for disease in the aquaculture stock. The DEIS suggests that the technology for vaccinating farm fish against bacterial and some viral diseases is well advanced. However, protection against disease is an ongoing process as disease vectors evolve, and disease risks still require careful monitoring and management. Monitoring and management of parasites also will be required, and the DEIS acknowledges that vaccination against external parasites is still under development.

The second issue is excessive use of antibiotics and the potential adverse effects on the local marine community. Although aquaculture operations have reduced their use of antibiotics, the DEIS raises concerns about antibiotics in uneaten fish food passing through nets, settling in the benthos, and potentially impacting local biological communities. The DEIS also acknowledges (on page 185) that “regardless of route of administration, careful guidelines must be followed for dose and withdrawal times [of antibiotics].”

The third issue involves the spread of disease and parasites from aquaculture stocks to wild stocks. The cited research on the likelihood of disease spreading from infected aquaculture fish to wild stocks is not sufficiently conclusive to dismiss the risk of such occurrences. Furthermore, this concern is not alleviated, even with the introduction of disease-free brood stock into the marine environment. In fact, addressing this issue may require more liberal use of antibiotics, and aquaculture operators and those responsible for monitoring those operations will have to weigh carefully the risks and benefits of antibiotic use.

For all of these reasons, the Marine Mammal Commission recommends that the Gulf of Mexico Fisheries Management Council and the National Marine Fisheries Service ensure completion and implementation of the national aquatic animal health plan, currently under development by the National Marine Fisheries Service, the Animal and Plant Health Inspection Service, and the Fish and Wildlife Service, as a necessary precursor to the implementation of aquaculture programs and the issuance of permits under this fishery management plan. The Marine Mammal Commission also recommends that the plan require careful, ongoing monitoring of disease and parasites in aquaculture stocks, as well as environmental monitoring to detect possible adverse effects from introducing antibiotics into the marine environment.

### **Emergency plans**

The DEIS preferred alternative would require applicants to develop emergency disaster plans for their facilities before they are granted permits. The Gulf of Mexico is known for its major storms (e.g., hurricanes), which are likely to be the primary cause of such emergencies. All things considered, unintended releases of aquaculture stock will occur. The proposed limitation of aquaculture to species native to the Gulf of Mexico avoids the issue of introduced alien species. However, this limitation does not address risks to wild stocks from genetic mixing with unintentionally released farmed fish. Those risks will result, in part, from the fish stocks selected for traits that are desired by the aquaculture industry (e.g., rapid growth) but that may lead to undesirable impacts on the wild stocks or the affected ecosystems. We agree with the conclusion concerning genetic diversity on page 180 that “the consequences of hybridization between farmed fish and closely related natural species are still generally unknown and should be avoided.” For that reason, the Marine Mammal Commission recommends that the Gulf of Mexico Fisheries Management Council and the National Marine Fisheries Service review on a species-specific basis the consequences of unintentional releases and the ecological impacts, including the likelihood of hybridization of escaped fish with local species, as well as the potential for competition between released aquaculture stocks and wild stocks.

### **Interactions with marine mammals and other protected species**

The DEIS discusses the relationship of aquaculture development to marine mammals and other protected species. We agree that possible impacts such as entanglement and attempted predation are serious concerns that should be addressed operationally by frequent on-site monitoring of containment structures from the moment they are deployed, whether or not they are stocked. The anchoring systems for aquaculture pens also may provide hazards for marine mammals. We assume that, in anticipation of hurricane-strength storms, such systems will be substantial. Although the DEIS discusses the possibility of entanglement of smaller cetaceans in the mesh of aquaculture pens, it does not discuss the risk of entanglement of larger cetaceans in these anchoring systems. More analysis of the risk of entanglement of large whales—which has been so amply demonstrated for northern right whales in waters off the northeastern United States—should be provided in future drafts of the EIS. Based on such analyses, measures to avoid such impacts also should be included in design requirements. The Marine Mammal Commission recommends that the

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Gulf of Mexico Fisheries Management Council and the National Marine Fisheries Service revise the DEIS to include consideration of risks related to aquaculture interactions with protected species, including marine mammals, and establish a monitoring regime and database to provide a basis for evaluating the level of interaction. Information gathered through such a system will be crucial for identifying problems as they occur and promoting adaptation of facilities and procedures to reduce future impacts. Along these lines, the Commission would like to see more description of the Service's methods for detecting emerging problems and implementing either programmatic or individual facility-level changes to respond to those problems.

### **Vessel traffic**

Finally, in the discussion of possible impacts, there is no analysis of the scope of additional vessel traffic that may occur in support of new aquaculture operations. Such traffic may bring an increase in noise and disturbance, as well as potential for ship strikes of marine mammals. This issue should be addressed in the DEIS and in individual application materials. The Marine Mammal Commission therefore recommends that the Gulf of Mexico Fisheries Management Council and the National Marine Fisheries Service revise the DEIS to include an analysis of the potential effects of increased vessel traffic resulting from aquaculture operations.

Please contact me if you wish to discuss the Commission's recommendations.

Sincerely,



Timothy J. Ragen, Ph.D.  
Executive Director