Perceived Threats about Marine Aquaculture

Competition between Commercial Fishermen and Mariculture: Conflicts between the commercial fishermen and the marine aquaculture industry occur when aquaculture products drive down the price of commercially harvested seafood products.[1] Mariculture offshore of Louisiana would only compete with a very small percentage (<5%) of the existing commercial harvest. The seafood products harvested by commercial fishermen in Louisiana are composed of the five basic species in the table below.

Source: Louisiana Dept. of Wildlife and Fisheries. 2005. The Economic Benefits of Fisheries, Wildlife, and Boating Resources in the State of Louisiana. Prepared by Southwick Associates. Baton Rouge, LA. 34 pp.

Type of Fishing	Vessel Earnings		% of Earnings
Shrimp	$	192,406,098	47%
Oysters	$	47,579,641	12%
Blue Crab	$	47,906,481	12%
Menhaden	$	83,315,959	20%
All Marine Finfish(1)	$	36,310,432	9%
	$	407,518,611	

1. Includes all marine finfish, mariculture would only raise 4-5 of the species included in this category

Table 1. Total and segregated "ex-vessel" revenues received by Louisiana commercial fishermen in 2005.

Mariculture offshore of Louisiana would not culture shrimp, blue crab, menhaden, or oysters. Most of the potential species that have been identified as possible culture species are not harvested by Louisiana commercial fishermen:

Potential Culture Species at Offshore Platforms

Algae	Live rock	Redfish (illegal to harvest)	Red snapper*	Amber Jack*
Coral	Sponge	Scallops	Cobia*	Grouper*
Ornamental fish (15 species)	Bi-valves	Lobster	Red porgy	Mutton Snapper

*Fish that are commercially harvested in Louisiana.

Table 2 Potential indigenous culture species. There are culture finfish species that are not commercially harvested offshore of Louisiana such as Red Porgy and Mutton Snapper which could be raised in net-pens.

Desirable Mariculture Areas are NOT Located on Traditional Fishing Grounds: Conflicts sometimes occur when commercial fishermen and aquaculture ventures compete for the same territory. Most of the considered mariculture systems require deep water (greater than 100ft) and will operate far from shore in federal waters, offshore of traditional shrimp, blue crab, oyster, and menhaden fishing grounds (less than 60 ft). Currently poor federal management is forcing Louisiana commercial fishermen to fish in state waters. In contrast to other Gulf States that have two or three times as many federally licensed vessels, Louisiana only has 1,000 commercial vessels licensed to fish in federal waters. There are about 2,300 vessels licensed exclusively for state waters. The effort to re-build or stabilize our coastline will change the salinity regimes in our bays and estuaries and will create an uncertain future for commercial fishing in state waters. There will be some displacement of fishing grounds in our effort to restore our coastline, and it could alleviate coastal user conflicts if these fishermen could fish/farm in Louisiana federal waters.

[1] Salmon is an example and to some extent, shrimp. Norwegian and Chilean farm raised salmon has kept the price of Alaskan salmon at about $1.00/lb for the last 30 years, however, shrimp has experienced a very gradual increase, punctuated by periodic price drops induced by market flooding by the aquaculture sector, e.g. Chinese farmed shrimp.

Spread of Disease to Wild Populations: Applies only to fish net-pen operations. Diseases are always present in the ocean just like most every where else on the planet. Confining fish in tanks and nets stresses the fish and makes them vulnerable to common diseases. When the fish are taken to the open ocean, they become exposed to common diseases. The diseases come from the environment outside of the net-pens. The unconfined fish do not suffer from the high rates of disease because they are not stressed by overcrowded confining nets. Common Diseases pass from wild fish or the environment to the contained fish. It has been noted that disease rates decrease when mariculture activities move to deep water, swift currents, and far from land.

Non-Native Species: There is no need to raise non-native species. There is a huge market for native species. Our own Louisiana seafood restaurants and dealers often complain they cannot obtain Gulf indigenous species such as snapper, grouper, and cobia.

Escapement of Fish to Wild Populations: The escapement of fish is only a problem if the genetic/health status of stocked fish is different from that of the surrounding wild population. Therefore, it would be recommended that only site-specific brood-stock of appropriate genetic diversity be harvested as hatchery seed-stock. Most stock enhancement and aquaculture programs maintain genetic integrity with a brood stock program of 10-20 individuals. Offshore platforms present ideal hatchery conditions. Thousands of individuals usually reside at the offshore sites. The opportunity for maintaining genetic diversity in seed–stock on an offshore platform fish hatchery is much greater at an offshore platform than any inshore laboratory. Many hatchery options are present at the offshore sites i.e. strip spawning, egg collection, post larval traps, and the standard tank spawning. If fact, a fish hatchery on an offshore platform is being proposed in southern Texas and California.[2] In addition, there are many marine stock enhancement programs in the U.S: Florida, Alabama, Mississippi, Texas, California, Oregon, Washington and several eastern seaboard states.

Fish Feed and Fecal Wastes: Applies only to fish net-pen operations. Pollution problems have occurred inshore in bays and estuaries; however, they have been virtually eliminated when the net-pens have been moved offshore. Fish fecal materials specific density is not much greater than the water and the amount of currents required to re-suspend and dilute mariculture waste are present at the candidate aquaculture sites (>100ft depth). Moving mariculture activities to deep water, swift currents, and far from land, to minimize impacts to the local environments. Fish net-pens have proven to increased species diversity and fish populations at offshore sites. Raising filter feeders, i.e. live rock, sponge, bi-valves, etc. clean the water. It has been that placing artificial reefs with attaching filter feeders around net-pens have significantly reduced levels of organic debris.

National Offshore Aquaculture Act (NOAA)

US Fishery regulations are not designed to accommodate marine aquaculture, sea farming, or any form of fish husbandry. The Magnuson-Stevens Act manages fishing activities in federal waters but was drafted at a time when fishing wild populations required strict regulation. At that time, the concept of aquaculture in an open ocean environment was not even being considered. The National Offshore Aquaculture Act addresses many of the confounding regulatory and legal issues facing marine aquaculture in federal waters. If approved, the NOAA legislation would be a significant advancement in mariculture management. Moreover, and equally important, the new regulations will exempt mariculture activities from the Magnuson-Stevens Act

Mariculture in Louisiana: Benefits to Fishermen

There are only 1,000 fishing vessels domiciled in Louisiana that are licensed to fish in federal waters and there are 3,600 oil and gas platforms in federal waters. Each of these platforms could employ 1-2 offshore fishing vessels in marine aquaculture and collectively employ 18,000-30,000 commercial fishermen; and in turn, create 100,000-150,000 secondary jobs in the seafood and offshore vessel and platform support industries. Louisiana can benefit from the legislation that is currently being considered in the U.S. congress. One helpful provision in the Aquaculture Bill is an

[2] In Texas, the Gulf Marine Institute of Technology submitted a proposal for a fish hatchery on a platform with Oceanic and Atmospheric Research (OAR) NOAA Aquaculture Program. In California, Hubb's SeaWorld is currently trying to obtain operational permits for an offshore fish hatchery on the (Grace Platform).

exemption to mariculture activities from the Magnuson-Stevens Act. Currently, there are three platforms for every one fishing vessel licensed to fish in federal waters.

Mariculture is the next logical step for the future of marine fisheries in the United States and specifically in Louisiana. The transformation to mariculture will represent the same change in the marine environment as occurred thousands of years ago in the terrestrial environment when many societies turned from using "hunter-and-gatherer" techniques for obtaining food to "agricultural" ones, raising the plants and animals they needed. More recently, about 125 years ago, the timber industry evolved from clear-cut with no replanting, to tree husbandry. These agrarian methods of tree harvesting are now called silviculture and are used in all developed countries.

The key to the plan is to offer new agrarian fishing grounds offshore in federal waters. There are far more platforms than commercial fishing vessels. If we were able to utilize these platforms for fisheries, there would be more than $5 million worth of artificial reefs available for each licensed commercial fishing vessels, state and federal, in Louisiana. Please note that catch from the menhaden fleet could be used feed the cultured fish. Mariculture ventures could also utilize the discarded fish from trawling operations and eliminate what is commonly called "by-catch" and the need to utilize by-catch reduction devices (BRDs).

HR 4761 "Domestic Energy Production through Offshore Exploration and Equitable Treatment of State Holdings Act of 2006"

This Bill was presented by Congressman Bobby Jindal to the House Energy and Minerals Resource Committee in April 2006. It contains a OCS royalty sharing proposal that will bring billions of dollars to Louisiana. In addition, Section 21 addresses many of the critical issues in the utilization of retired platforms for mariculture and other purposes. It provides a mechanism to transfer liability from oil and gas operator to mariculture ventures. Secondly, the HR 4761 Bill creates a new Federal Energy Natural Resources Enhancement Fund (Section 14) that could provide for long-term care of platforms for mariculture purposes. Currently, OCS royalties revenues produce $6-$8 billion/yr. Finally, HR 4761 provides a technical training and education fund for petroleum engineering and other resource management disciplines (Section 23, 4, 5, & 6). The Bill also includes scholarships and fellowships (Section 7) for education and training.

Conclusion

Mariculture products would compete with about 5% of the existing commercial harvest. A number of relatively straightforward actions could be pursued to help alleviate or minimize environmental concerns. These include: culture only native fish, establish Best Management Practices (BMPs), and move mariculture activities to sites offshore to deep water, swift currents, and far from land. There is currently $14 billion worth of highly productive artificial reefs off our shores in the form of oil and gas platforms. The Louisiana fishermen are uniquely positioned to develop an agrarian offshore fishery; this change will not be possible, however, if the mariculture vessels are subjected to the Magnuson-Stevens Act. If the commercial fishermen could transform from predatory methods to agrarian methods, it may be possible to permit the vessels with special aquaculture licenses. Please encourage state agencies to endorse utilization of retired oil and gas platforms.