Highlighting NOAA's National Marine Aquaculture Initiative

Launched by NOAA in 1998, the *National Marine Aquaculture Initiative* (NMAI) is an example of a successful research funding program. Designed as a competitive program, NMAI channels the growing interest in marine aquaculture toward the development of environmentally sustainable aquaculture technologies, with an emphasis on the enhancement of living marine resources and technology transfer to private sector marine aquaculture.

Funded at a total of $15 million since 1998, the initiative supports research to boost the production of commercially and recreationally valuable marine shellfish and finfish species in the United States. NMAI support for research, technology and policy development has sparked breakthroughs in significant areas and answered key scientific, engineering, environmental, and economic questions for aquaculture. NMAI projects have included research on new species, health and nutrition, best management practices, ecosystems monitoring and management, engineered production systems, and legal and operational frameworks.

NMAI also creates dynamic partnerships with external research communities, which continue today. Based on successes demonstrated by NMAI projects, interest in the initiative remains strong among the nation's marine research community and the U.S. aquaculture industry.

Shellfish Farming

Cultured mollusks such as oysters, clams, scallops, and mussels provide high quality, nutritious seafood. In addition, these mollusks can play a vital role in maintaining and restoring water quality in coastal areas through their filter feeding behavior. But pollution and disease have reduced the harvest of mollusks in the United States. In response to these challenges, NMAI and NOAA Sea Grant Oyster Disease research projects have targeted the development of disease resistant and fast growing hatchery and growout methods for mollusk farming. NOAA has also addressed domestic shrimp aquaculture production issues and helped fishermen – displaced by limits or bans on commercial fishing – undertake shellfish farming.

New Species for Aquaculture

Cutting-edge research has resulted in a number of new candidate species for commercial aquaculture and stock enhancement. Those species include cobia, Atlantic cod, California yellowtail, black seabass, sablefish, and bait shrimp. Funded by NMAI, in partnership with private research consortiums, industry, universities, and Federal, state, local and tribal governments, early life stage research on species resulted in improved hatchery and growout technology, fish nutrition, and health management of several species. The development of innovative production systems – such as closed recirculating systems – is another major achievement driving this type of aquaculture research.

Offshore Aquaculture

Nearly impossible just a decade ago, offshore aquaculture is now a reality based on advancements in engineering, successful research on species, and the development of management practices that eliminate or mitigate the environmental impacts of this type of operation. Widely predicted to be a significant global industry for food production, "offshore" or "open ocean" aquaculture is a new frontier here and abroad for research and technology.

The challenges and opportunities presented by the offshore environment are being addressed by NOAA and its partners as a result of NMAI and other Congressional funding. For example, an initial open ocean aquaculture demonstration project begun in Hawaii in 1998 paved the way for three other demonstration projects in state waters in the Gulf of Mexico, New Hampshire and Puerto Rico. The Hawaii, New Hampshire and Puerto Rico projects continue to demonstrate how to make the offshore an increasingly safe, environmentally sustainable, and profitable location for seafood production in the United States. For example, all of the projects in these locations use indigenous species from unmodified genetic stock to guard against an introduction of non-native species and to reduce the potential for genetic impact on wild stocks in the event of an escape. Five commercial open ocean aquaculture operations are now in business – two shellfish and three finfish operations. All are spin-offs from these NMAI research projects. Five other commercial operations are now in the process of obtaining permits.

Aquaculture Policy Development

NOAA is also working to strengthen U.S. marine aquaculture policy. For example, through NMAI, NOAA and its partners brought together a wide range of stakeholders in a collaborative process to develop an environmental code of conduct for the Pacific shellfish industry. NMAI funding also resulted in the a landmark policy analysis for offshore aquaculture which eventually helped inform the *National Offshore Aquaculture Act*, which was introduced in Congress in June 2005.

Funding History

National Marine Aquaculture Initiative Funding	
Year	**Funding Level**
1999	$ 800,000
2000	$ 800,000
2001	$ 5,600,000
2002	$ 2,600,000
2003	$ 0
2004	$ 700,000
2005	$ 0
2006	$ 4,600,000
Total	**$15,100,000**