SUSTAINABLE MARINE AQUACULTURE

Furthering Job Creation And Conserving The Environment

Aquaculture, also known as fish or shellfish farming, produces about half of all the seafood eaten worldwide. Although the United States is not a large aquaculture producer, it is the world's third largest consumer of seafood and imports 91 percent of its fish and shellfish. Foreign aquaculture accounts for about half of those imports and contributes to a U.S. seafood trade deficit greater than $10 billion each year.

NOAA scientist are developing better tools to provide early and accurate warnings to the risks of a harmful algal bloom or bacterial outbreak affecting shellfish. Such forecasts can help managers protect the West Coast's valuable shellfish resources as well as human and ecosystem health.

THE ROLE OF DOMESTIC AQUACULTURE

Domestic aquaculture can create a local supply of healthy seafood and maintain and grow jobs and economic activity, especially in small coastal communities and working waterfronts. Aquaculture is also a critical component of numerous habitat restoration projects throughout the country. NOAA has actively promoted and developed sustainable aquaculture technologies, from advances in hatchery techniques and alternative feeds to policy development.

In 2011, following an extensive public engagement process, NOAA and the Department of Commerce released new national aquaculture policies. These policies established a framework to enable sustainable U.S. aquaculture and further integrate aquaculture into NOAA's resource management strategy. Since then, NOAA and other agency partners have been working to address the regulatory, technical, and scientific barriers to sustainable marine aquaculture production and engage in several initiatives to support aquaculture, such as the National Shellfish Initiative, a Technology Transfer Initiative, and federal regulatory reform.

Launched in June 2011, the National Shellfish Initiative has been successful in bringing together partners—for commercial

Halibut Fry.

Mussels farmed in coastal areas and in the open ocean are one of the most promising sectors of the U.S. marine aquaculture industry. In this photo, workers from Taylor Shellfish Farms in Shelton, Washington, harvest a mussel raft.

and conservation purposes—to increase populations of oysters, clams, and mussels in our nation's coastal waters. Efforts are underway with partners in several states, including Washington, Maryland, Louisiana, Alabama, and California to expand opportunities for shellfish farming. For example, the initiative launched in Washington state is a comprehensive federal, state, and industry partnership that promotes new economic opportunities, restoration and improved water quality, as well as science on the impacts of ocean acidification on local oysters.

The Technology Transfer Initiative seeks to move NOAA research—such as hatchery techniques, animal husbandry, and alternative fish feeds—to the private sector. NOAA supports research (in its labs and science centers as well as through competitive grant programs) that advances aquaculture science and technologies to produce seafood and restore wild populations of shellfish and finfish. For example, techniques for growing red porgy and sablefish were developed in NOAA labs and have now been transferred to several companies.

An additional focus of NOAA research is on aquaculture feeds, so that operations need not solely rely on wild fish as feed. The Future of Aquafeeds, a joint report from NOAA and the U.S. Department of Agriculture published in 2011, details how aquaculture feeds can be produced with much less fishmeal and fish oil. Further, NOAA's Northwest Fisheries Science Center created a process to stabilize fish processing trimmings for use in feeds—technology that is now in use by a U.S. feed manufacturer.

Finally, NOAA and its partners are streamlining the overlapping, redundant, and sometimes conflicting permitting processes required to begin or expand aquaculture operations. These inefficiencies result in delays and increased costs and reduce predictability for investors. In addition to regulatory streamlining efforts elsewhere, NOAA and other federal agencies are working through the National Ocean Council and the Joint Subcommittee on Aquaculture to implement regulatory reform for aquaculture permitting.

SUPPORTING AQUACULTURE INDUSTRY INNOVATION

In 2010, a NOAA grant helped support the Maine Aquaculture Association's launch of the "Cod Academy," a unique opportunity for fishermen to develop alternative businesses that use their existing skills as fishermen. The program offers free training for 10 to 15 fishermen (per class) in all aspects of cod aquaculture and raises funds to help graduates launch their own pilot-scale cod farms. Fishermen who graduate and want to establish farms are required to invest an estimated 50 percent of the cost. Sponsoring partners will seek grants to fund the remaining 50 percent. Yet to qualify, fishermen must work with business counselors and experienced farm owners to develop a business plan for their own farms, including how they propose to market their fish. This unique partnership was highlighted in Time magazine online.