



NOAA FISHERIES

Office of Aquaculture

We work to foster marine aquaculture that creates employment and business opportunities in coastal communities, provides safe and sustainable seafood, and supports healthy ocean populations and ecosystems.

Aquaculture is one of a range of technologies needed to meet increasing global demand for seafood, support commercial and recreational fisheries, and restore species and marine habitat.

Online at

- www.fisheries.noaa.gov/topic/aquaculture

Marine Aquaculture in the U.S.



What is marine aquaculture?

Marine aquaculture is the breeding, rearing and harvesting of marine plants and animals. U.S. marine aquaculture produces primarily oysters, clams, mussels, shrimp, salmon and some other marine fish. Marine aquaculture can take place in the ocean or on-land in tanks and ponds.

What can marine aquaculture do for the economy?

Marine aquaculture creates jobs, supports resilient working waterfronts and coastal communities and provides new international trade opportunities. As aquaculture has grown to complement our wild fisheries, current and former fishermen are using aquaculture to supplement and support fishing livelihoods. Farmed seafood products already make up half of the world's seafood supply, but U.S. production lags behind much of the world, leading to a \$14 billion seafood deficit in the United States. Aquaculture currently accounts for over 20% of the value of domestic fisheries landings. Doubling current production could result in tens of thousands of jobs in coastal communities.

Why is aquaculture needed to increase seafood supply?

Shellfish, finfish and seaweed farming is a steady source of safe, nutritious, sustainable seafood for consumers in the United States and worldwide. Today the United States imports about 80% of the seafood we eat by value – more than any other country. Global and domestic demand for seafood is poised to grow. Even as we maintain and rebuild our wild harvest fisheries, we cannot meet increasing domestic demand for seafood alone through wild-caught fisheries. Marine aquaculture provides a domestic source of economically and environmentally sustainable seafood that complements and supports our wild fisheries production.

Is marine aquaculture being done sustainably in the U.S.?

Yes. Over the last 30 years we have learned how to manage aquaculture sustainably. The practices and technologies available today are significantly improved over what was available during the industry's early years. NOAA, with its partners and collaborators, has developed economically and environmentally sustainable marine aquaculture practices in U.S. waters.

Marine Aquaculture in Your Region

Northeast and Mid-Atlantic

The Northeast has a vibrant commercial marine aquaculture industry supported by a world class research and technology sector. The region primarily grows salmon, oysters, clams, mussels, and sea vegetables. In the Northeast (Maine through North Carolina), the landed value of aquaculture products was \$219 million in 2013—the third largest of any seafood category landed in the region, eclipsed only by scallops and lobsters. The cold waters of Maine provide excellent conditions for salmon farms, shellfish, and seaweed farms. In Virginia, rapidly growing oyster farms supply the oyster half-shell market while supporting resilient working waterfronts and coastal communities. Some of the larger Virginia companies, like Cherrystone Aquafarms, grow both oysters and clams.

Northwest

In the Pacific Northwest, the shellfish industry injects an estimated \$270 million a year into the region's economy, bringing jobs to over 3,200 people, primarily in coastal communities. This region is home to Taylor Shellfish and Coast Oysters (owned by Pacific Seafoods), two of the largest shellfish producers in the nation, as well as many other smaller shellfish farms. The Washington State Shellfish Initiative has been successful in bringing together industry, government agencies, tribes, stakeholders and academic institutes under a common goal to expand native shellfish restoration, streamline aquaculture permitting, and address ocean acidification. By leveraging partnership, NOAA and collaborators opened the Kenneth K. Chew Center for Shellfish & Restoration in Washington to produce native Olympia oyster seed. Salmon have been grown commercially in the state of Washington for about 40 years.

Pacific Islands

Hawaii has been a test bed for cutting edge research and development on new aquaculture gear and technology including open ocean finfish aquaculture. Blue Ocean Mariculture off Hawaii's big island has demonstrated that offshore fish farming is environmentally sustainable. Blue Ocean Mariculture has recently announced plans to expand their production in the region to 1,200 tons of fish a year. Additionally, efforts are underway to establish a regional permitting process to manage the development of an environmentally sound and economically sustainable Fishery Management Plan to guide and expand offshore aquaculture in the region.

Southeast and Gulf of Mexico

Louisiana, a longtime leader in traditional on-bottom oyster culture, is continuing to recover from hurricane and oil spill damage. All of the states in the region are expanding off-bottom oyster cultivation for the growing half-shell market. The Gulf of Mexico Fishery Management Plan for Regulating Offshore Marine Aquaculture is the first regional plan for offshore aquaculture in the U.S. The plan creates a permitting process to authorize and manage an environmentally sound aquaculture industry in the Gulf of Mexico, allowing an estimated 5 to 20 offshore aquaculture operations to be permitted over a 10-year period. Florida also boasts an expanding ornamental fish trade, a thriving clam aquaculture industry in the Cedar Key area, and several new or planned land-based fish farms designed to raise marine fish and salmon.

Southwest

California has several established oyster farms such as Hog Island as well as abalone, mussel, and sturgeon farms. Catalina Sea Ranch is currently farming mussels in federal waters and this shellfish became the first aquaculture product harvested from federal waters in the U.S. Elsewhere, California continues to develop its State shellfish initiative to expand shellfish farming and restoration. The Humboldt Bay Harbor District and Ventura Port District are pioneering pre-permitting projects for the expansion of shellfish farming in their areas. The Port of San Diego is also looking to expand their aquaculture capabilities by working with agencies on pre-permitting projects.

Alaska

Alaska has been exploring the opportunities of expanding mariculture in the state. The Alaska Mariculture Initiative lays out a plan to expedite the development of shellfish and seaweed mariculture to grow a \$1 billion industry over the next 30 years. The Alaskan King Crab Research, Rehabilitation and Biology Program has been developing strategies for hatching and rearing king crab broodstock for enhancement of the king crab industry. Along with shellfish, seaweed and crab mariculture an estimated 40% of the state's salmon catch benefits from aquaculture practices as they are hatched and reared in hatcheries before being released into the wild.

