

NOAA's Science to Foster Marine Aquaculture



Page 1 U.S. Department of Commerce | National Oceanic and Atmospheric Administration | National Marine Fisheries Service

Aquaculture Is Expanding Worldwide

- Future seafood supply growth will come from aquaculture.
- Wild fisheries alone cannot meet increasing demand for seafood.
- Aquaculture is critical to the global food supply.

WORLD CAPTURE FISHERIES AND AQUACULTURE PRODUCTION



NOTE: Excludes aquatic mammals, crocodiles, alligators and caimans, seaweeds and other aquatic plants. SOURCE: FAO.



Driving Progress

- Global demand for seafood growing: we will need an additional 40m tons in 20 years
- Federal nutrition guideline: eat 2x more seafood
- Jobs, especially in coastal fishing communities
- Seafood security: ~70% of seafood Americans eat is imported, ½ of that from aquaculture. Growing middle class in Asia and Latin America is competing with us for that seafood.
- Reduce \$16.9B seafood trade deficit and create export opportunities





Top Aquaculture Producers Worldwide

TOTAL PRODUCTION IN RELATION TO LAND AND WATER RESOURCES



total aquaculture production (1 fish = 500,000 metric tons): includes finfish, shellfish, seaweed

FAOSTAT: Land Area Data by Country (FAO, 2017) Fisheries of the United States Report (NMPS, 2018)





Aquaculture as Part of Sustainable Food Systems

From "The Future of Food from the Sea"*

- The ocean plays an important role in global food provision and has the potential to play a much more significant role through increased mariculture
- Under optimistic projections..., the ocean could supply over six times more food than it does today
- Significantly expanding fed mariculture...in a sustainable way is possible but will require major innovations in feed so production is not limited by capture fisheries

* A Blue Paper by the High Level Panel for a Sustainable Ocean Economy (HLP)



Science for Management

- Siting (e.g. Ocean Reports)
- Fish Feeds
- Water Quality/Benthic Models
- Escapes (e.g. Genetic Effects)
- Ecosystem Services







Siting - OceanReports









Fish Feeds



Fish Meal & Fish Oil Inclusion in AquaFeeds

The use of fish meal/oil continues to decrease as alternative feeds are developed.







Water Quality and Escapes

- Water Quality and Benthic Impacts
 - Models
 - NOAA collaboration with EPA
- Escapes
 - Native and naturalized species
 - Genetic models
 - Sterilization



Ecosystem Services





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