

***Marine Aquaculture:  
Federal – State  
Collaboration on Policy,  
Research & Outreach***

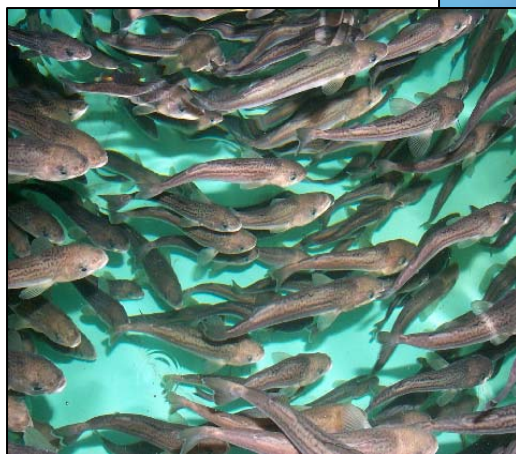
***Dr. Michael Rubino  
Manager  
NOAA Aquaculture Program***

***State Marine Fisheries Directors Meeting  
March 28, 2006***



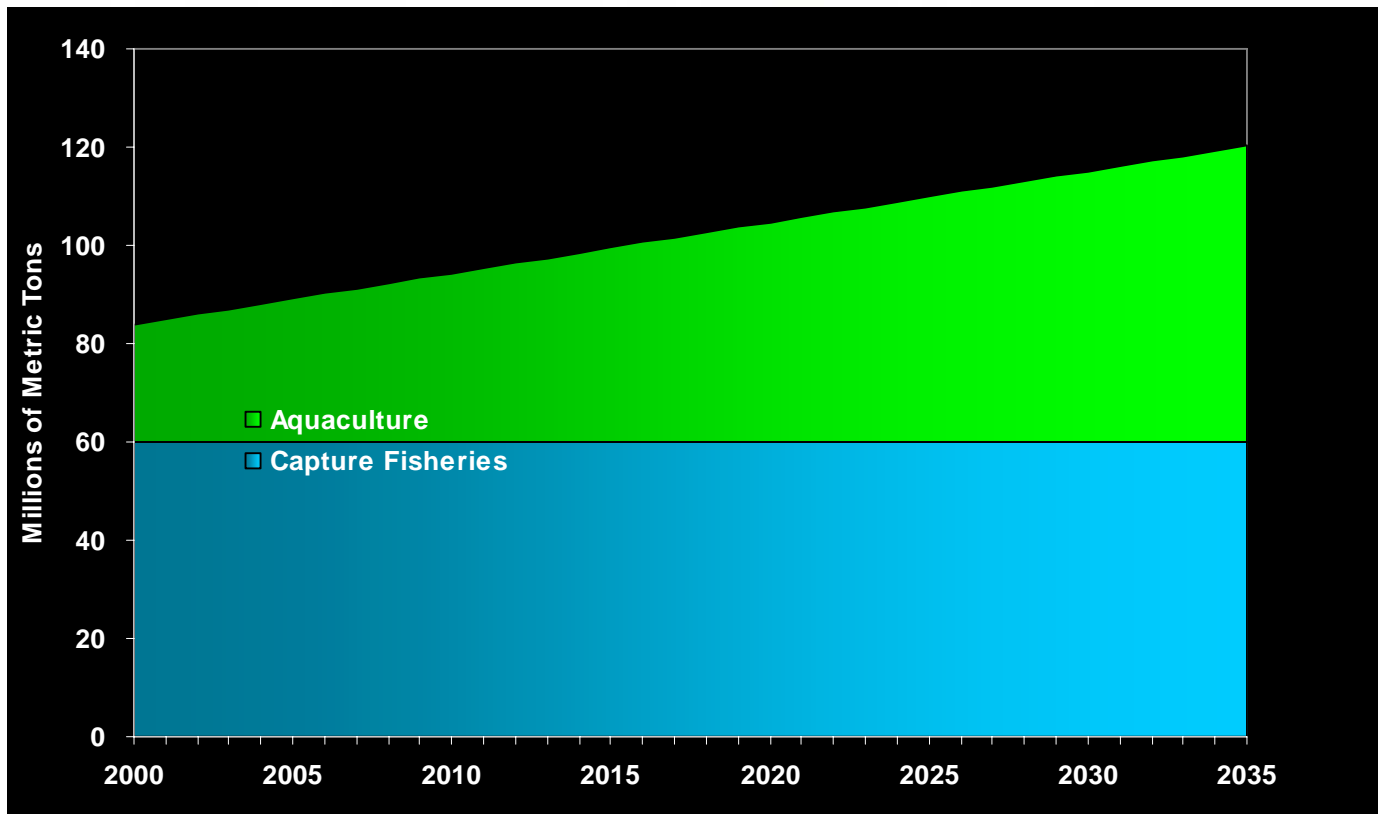
# Overview

- The Context for U.S. Marine Aquaculture
- Regulatory Issues
- Research and Development
- Outreach and Education
- Next Steps



# Where Will Our Seafood Come From?

*Maintain wild fisheries, increase aquaculture*



# Where Will Our Seafood Come From?

## With increasing demand for seafood:

- US aquaculture production: 500,000 mt (whole weight)
- US wild catch 3 million mt (half exported, ~ 20% U.S. mkt)
- Current US consumption: 6 to 7 m mt (75% imported)
- 2025 gap: 2 million mt minimum (\$5 billion, 150,000 jobs)

***Our choice: Imports or domestic aquaculture?***



# U.S. Marine Aquaculture

**U.S. Marine Aquaculture is 20% of US Industry ~ 1.5% of US seafood supply**

- Shellfish ~ oysters, clams, mussels
- Finfish
- Shrimp
- Ornamentals
- Aquatic Plants ~ algae, grasses



**Services global production ~ feed, broodstock, equipment, processing, marketing, investment**



# U.S. Marine Aquaculture: *Stock Enhancement*

- Commercial fisheries: salmon, oysters, king crab, blue crab
- Recreational: redfish, Pacific rockfishes
- Habitat restoration: oysters



# Convergence of Fishing and Aquaculture

Private property and fisheries (limits, quotas, regulatory constraints)

Hybrid production: salmon and oyster hatcheries, tuna fattening, fish meal and oil to aquaculture, feeding and holding lobsters,

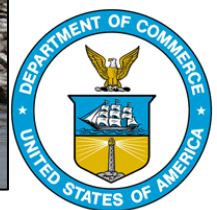
Coastal communities integrate wild harvest, aquaculture

Employment of fishermen, boat owners for habitat restoration and enhancement



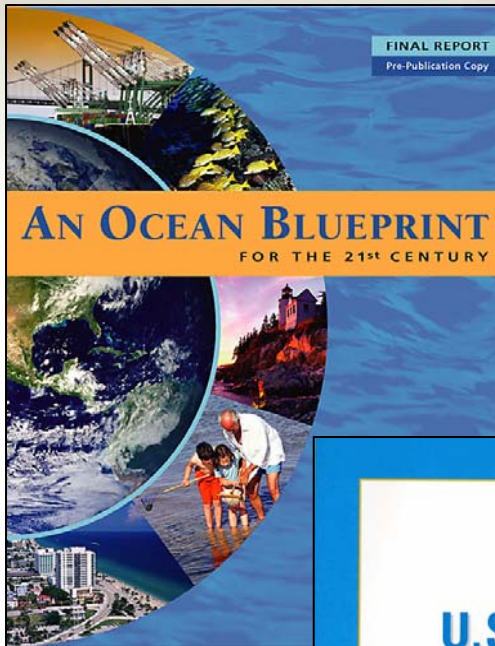
# Why Momentum Now?

- Growing global demand for seafood
- Coastal communities/seafood industry need supply, jobs, economic opportunities
- Health benefits of seafood
- New species, technology
- Need for restoration/enhancement



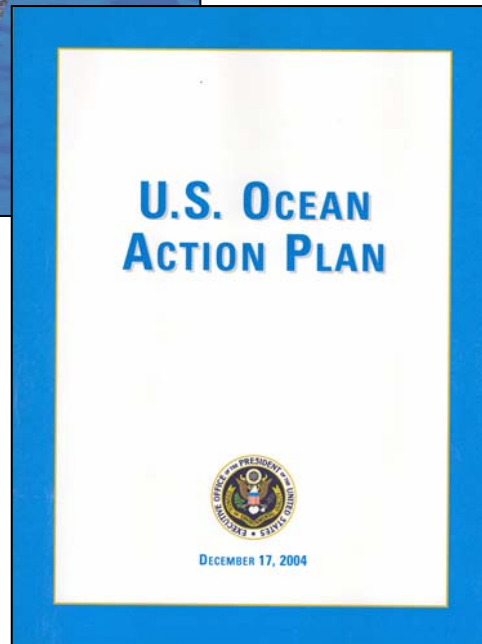


# Aquaculture Gets Attention



## U.S. Commission on Ocean Policy

NOAA should expand marine aquaculture research, development, training, extension, and technology transfer ... set priorities for research and technology



## President's Ocean Action Plan

U.S. Ocean Action Plan, made a commitment to transmit to the 109th Congress legislation to establish a regulatory structure for offshore aquaculture



# Statement by U.S. Secretary of Commerce Carlos Gutierrez

*“I am convinced that the United States must explore the potential of offshore aquaculture to help meet the growing demand for seafood in this country and to create jobs and economic opportunity for coastal communities.*

*To support that, we are making the National Offshore Aquaculture Act of 2005 a priority for this department and this country.*

*We need to create this opportunity now.”*

*February 13, 2006*



# Likely Sources of 1 MMT Production Increase in U.S. Aquaculture

Source: Nash (2004)

Group	Sub-group	Current U.S. Production	Increase	Target for 2025
<b>Mollusks</b>	All	100,000	<b>245,000</b>	<b>345,000</b>
<b>Crustaceans</b>	All	18,000	47,000	65,000
	Crayfish	14,000	35,000	49,000
	Shrimp and Prawns	5,000	11,000	16,000
<b>Fish</b>	All	340,000	760,000	1,100,000
	Freshwater	315,000	70,000	385,000
	Anadromous	25,000	100,000	125,000
	<b>Saltwater</b>	<b>&lt; 1,000</b>	<b>590,000</b>	<b>590,000</b>
<b>TOTALS</b>		<b>458,000</b>	<b>1,052,000</b>	<b>1,510,000</b>



# Challenges to Aquaculture

- U.S. laws are cumbersome or non-existent ~ **We need a better regulatory framework**
- Divergent views ~ **We need to build political will**
- Lack of understanding about health/safety, environmental and economic effects ~ **Public needs accurate information**
- **Need infrastructure, R&D**



# NOAA's Aquaculture Program

## Purpose of Program

- Well managed and productive marine aquaculture in the U.S.
- Worldwide adoption of environmentally sound marine aquaculture
- Well informed public

## Major Activities

- Regulation
- Science, R&D
- Outreach & Education
- International



# NOAA's Aquaculture Program: *Regulations*

- **Coastal:** Do a better job of review, coordination under existing laws
- **Federal:**
  - Offshore legislation
  - Gulf of Mexico FMC amendment



# NOAA's Review of Permits in Coastal Waters

- **Guidance and Tools for NMFS Regional Offices:**
  - Environmental risk management guidelines for aquaculture
  - Water quality and genetics/escapes models
  - Genetic sampling of broodstock
  - Review of regulations in states and other countries
  - Aquaculture in ecosystem management: forthcoming book
  - BMPs in aquaculture: forthcoming WAS book with contributions by NOAA staff
- **Coordination with other Federal agencies**



# Offshore Aquaculture: Millions of Square Miles





# Frontier of Technology



# Past Preparations for Offshore Aquaculture

- National commissions
- *National Aquaculture Act of 1980*
- DOC/NOAA policies
- Stakeholder and expert consultations
- University of Delaware study
- R&D, hatchery, and environmental monitoring work sponsored by NOAA competitive grants and Congressional appropriations



# Summary of Legislation

## ***Grant NOAA authority to issue offshore permits***

- c NOAA coordinates permit process (other permits still required)
- c Aquaculture products not subject to fishing definitions that restrict size, season, and harvest methods
- c NOAA to ensure that aquaculture operations do not interfere with wild stock conservation and management

## ***Provide environmental and other safeguards***

- c Environmental requirements, monitoring, enforcement
- c Authority to suspend, modify, revoke permits
- c Bonds or other financial guarantees
- c Consultations with FMCs, states, federal agencies, stakeholders
- c Consistency with state plans

## ***Support development of offshore aquaculture***

- c R&D industry partnerships
- c Biological, social, production and economic data collection



# Offshore Legislation and State Role

- Onshore hatchery and landing facilities
- Product landed and marketed in states
- CZM consistency provision
- Consultation with states on permits and design of regulations
- State opt out amendment



# Current Preparations for Offshore Aquaculture

- Current regulatory work: especially development of internal guidelines and tools
- Gulf of Mexico FMC amendment: rule making, regional EIS
- Working with FMC, Commission chairs to outline consultation process
- Mapping: Gulf, New England
- Economic analysis



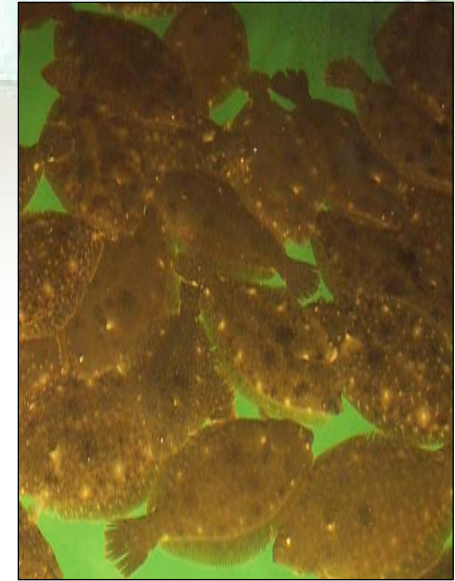
# Steps to Develop Offshore Regulations if Law is Enacted

- Programmatic EIS
- Regional mapping
- State, FMC, stakeholder and expert consultations
- Interagency consultations
- Draft permit requirements
- Federal Register process
- Stepped up R&D program



# Research and Development in FY06

- **NOAA science (labs)**
  - Hatchery work, stock enhancement
  - Feed, nutrition, aquatic health, genetics
  - Support regulatory work
- **External grants**
  - National Marine Aquaculture Initiative
  - Small Business Innovation Research program
  - Sea Grant College Program (coordinated with NOAA Aquaculture Program)
- **Congressionally funded programs**
  - Stock enhancement (finfish, shellfish)
  - Commercial aquaculture



# Current Outreach & Education: *Examples of Other Work*

- Work on National Aquatic Animal Health Plan
- Stakeholder consultations
- Consultations with FMCs, state agencies
- Plant based feeds R&D strategy
- Hosting 3<sup>rd</sup> International Stock Enhancement Conference in Seattle in Sept 06
- New website coming





# Next Steps:

- Improve regulatory review process
- Work with Congress on offshore legislation
- Foster R&D partnerships
- Address socioeconomic and BMP issues
- Learn by doing
- Broadcast results



# Key Messages

- Enhance domestic supply with safe, healthy seafood to meet growing demand
- Opportunity for coastal communities
- Enable aquaculture within context of stewardship
- Strong role for states, FMCs, stakeholders
- Strong environmental guidelines used in NOAA's current review of permits and in the offshore bill
- Expand research on relationships between fishing, habitat, stock enhancement, and aquaculture
- Not a rush to offshore, balanced program



**To Find Out More ...**

**[www.aquaculture.noaa.gov](http://www.aquaculture.noaa.gov)**

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