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NOAA Aquaculture: Next Steps

Marine Fisheries Advisory Committee Briefing
November 28, 2017





Take-away Messages

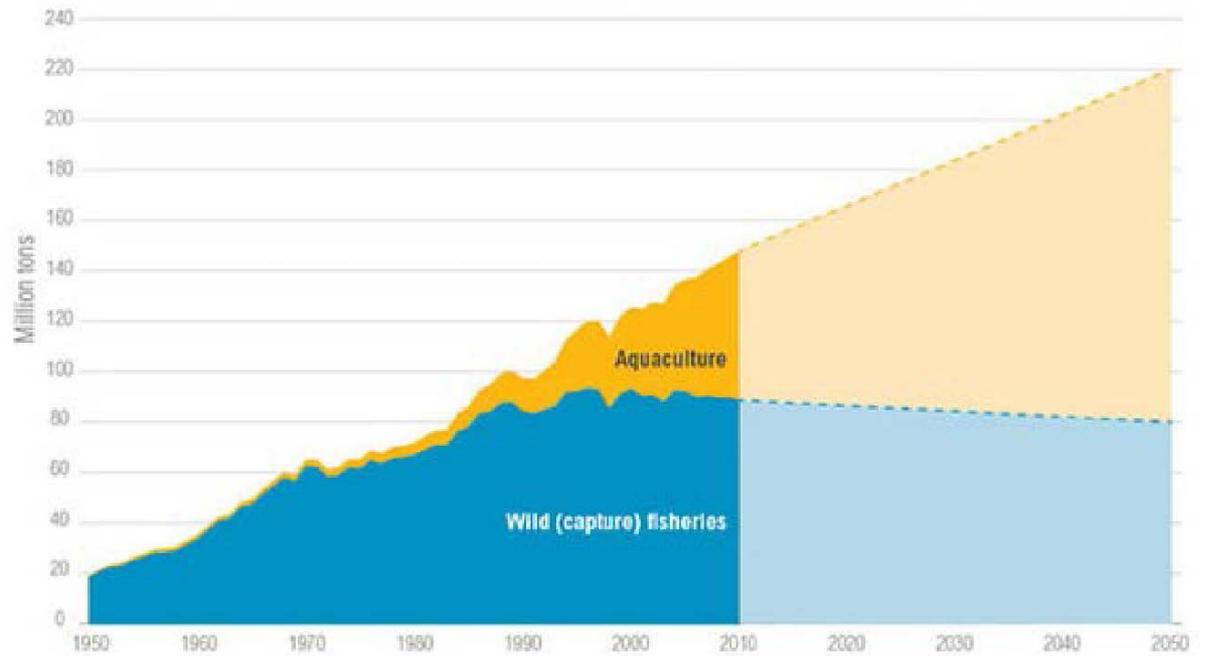
- Secretary Ross highlighted his desire to “correct” the \$14 billion seafood trade deficit. The U.S. imports ~80% (by value) of the seafood we eat.
- The U.S. could significantly increase marine aquaculture production.
- Stakeholders are asking NOAA to help expand seafood farming.
- A national aquaculture initiative would address key constraints, regulatory streamlining, and help jump start domestic production.
- Aquaculture, done right, benefits communities and the environment.
- Implementing NOAA aquaculture initiatives in era of tight budgets is a challenge.



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Aquaculture Is Expanding Rapidly Worldwide

Historical and Projected Global Aquaculture and Fisheries Production



- Aquaculture: future seafood supply growth
- Wild fisheries alone cannot meet increasing demand for seafood
- Aquaculture is critical to the global food supply



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Aquaculture Drivers

- Global demand for seafood growing: need additional 40m tons in 20 years
- Federal nutrition guideline: eat 2x more seafood (~6m tons more per year)
- Jobs, especially in coastal fishing communities
- Seafood security: ~80% of seafood Americans eat is imported, ½ from aquaculture. Growing middle class in Asia is competing with us for that seafood.
- Reduce \$14b seafood trade deficit and create export opportunities
- Healthy oceans: US practices responsible aquaculture
- Restoration of species and habitats using aquaculture



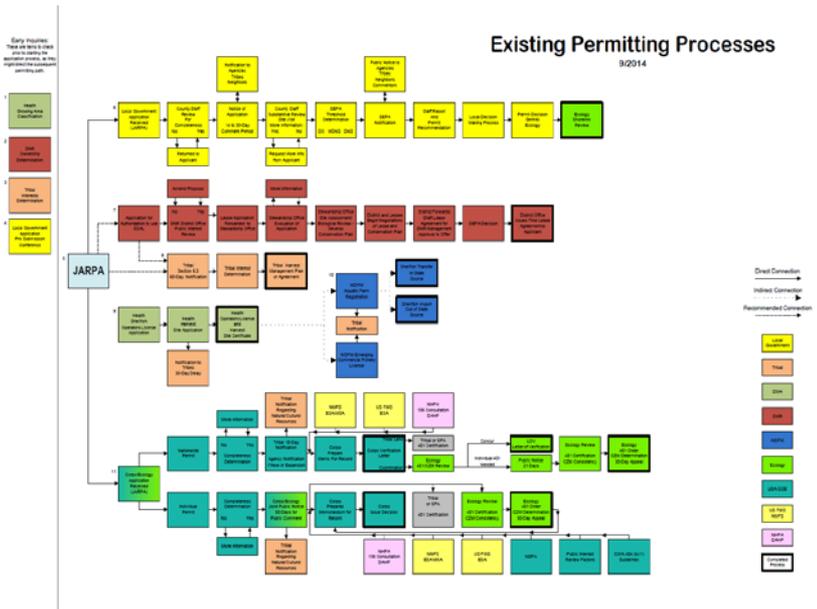
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Key Constraints

Conflicting coastal uses, social license

Regulatory

Aquaculture industry is diverse, no unified voice or lobbying

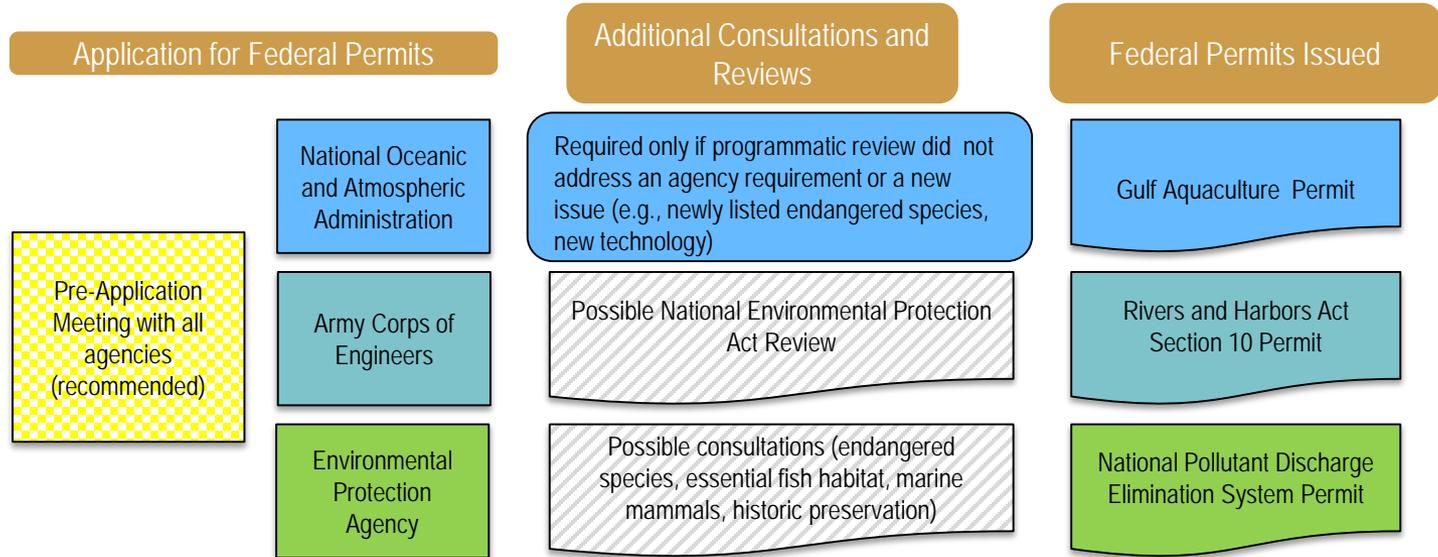


Current Marine Aquaculture Permit Process

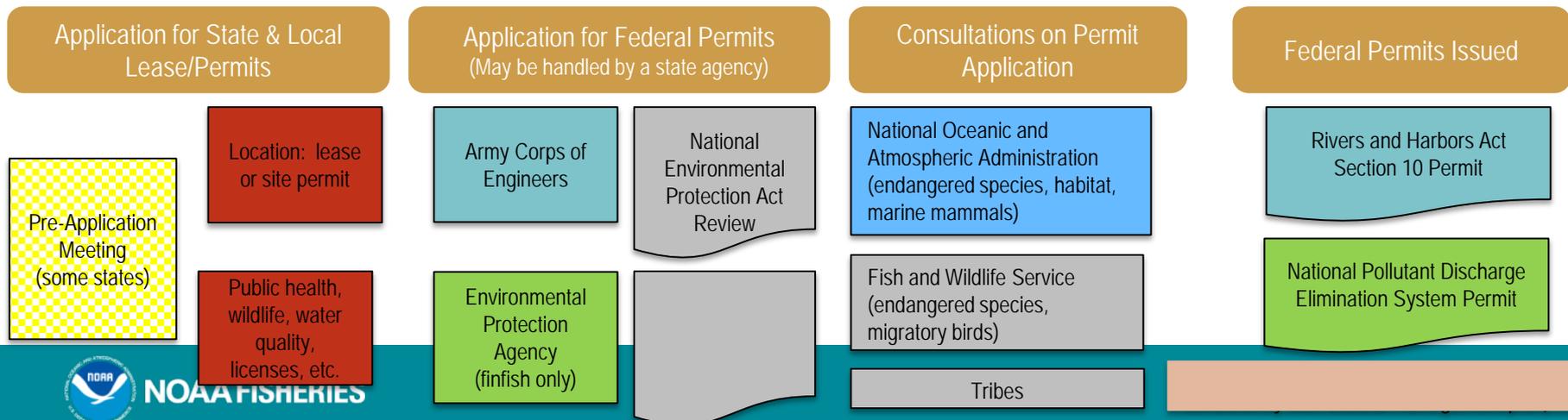
Federal Waters – Gulf of Mexico Fishery Management Plan

(a model for future actions by other Regional Fishery Management Councils)

Regulatory Program:
 - Programmatic Environmental Impact Statement and consultations on species and habitat impacts already completed by National Oceanic and Atmospheric Administration.
 - Signed Memorandum of Understanding commits federal agencies to a coordinated application and review process.



State Waters





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National Marine Aquaculture Initiative (Proposed)

Key elements:

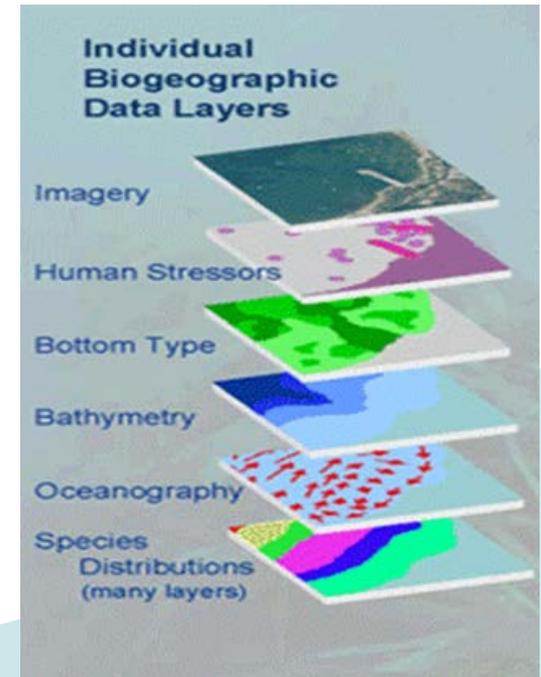
1. Regulatory streamlining
2. National legislation (federal waters, R&D program)
3. Regional partnerships, pilot projects
4. Science, R&D, technology transfer, and extension to accelerate production



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1. Regulatory Streamlining

- Potential executive order
- NOAA as lead agency to coordinate federal permitting and work with state agencies
- Programmatic approaches to endangered species and fish habitat consultations with Army Corps of Engineers
- Siting analyses and NEPA review: identify suitable areas and complete regional reviews for mollusk, fish, and seaweed farming



Federal Waters: Current



Gulf of Mexico Rule (2016):

- Plan developed by the Gulf Council under authority of the Magnuson-Stevens Act
- Coordinated permit process
- Outstanding lawsuit
- No permit applications to date

Framework for other regions:

- W Pacific, NE/Mid Atlantic Council action
- S California permit application





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2. Federal Waters: Legislation

DRAFT SENATE BILL:

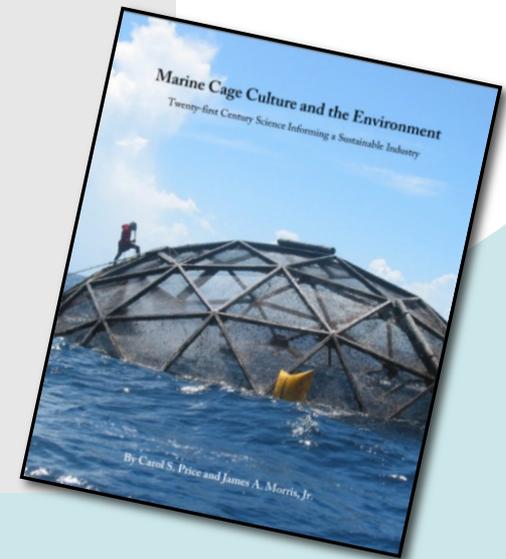
- Remove aquaculture from MSA definition of fishing
- 20-25 year permit or lease issued by NOAA (security of tenure)
- NOAA lead agency, coordinates federal permitting
- Regional NEPA analyses led by NOAA
- Existing requirements apply (e.g., Army Corps, EPA, BOEM)
- Specify additional environmental and monitoring requirements
- Enforcement requirements and civil and criminal penalties
- Mechanism for potential state objections ("opt out")





Science for Management

- Regional Siting Models
- Water Quality/Benthic Models
- Genetic Effects of Escapes - OMEGA model
- Ecosystem Services of Shellfish Farming
- Effects of Ocean Acidification, Changing Ocean Conditions
- Pathogen and Parasite Vectors





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3. Partnerships, Pilot Projects

- Largely funded by private sector
- NOAA grants leverage additional private, state, and foundation funding
- NOAA contributes science, siting, regulatory streamlining, tech transfer, extension
- \$1.5 million to Interstate Marine Fisheries Commissions for pilot projects in FY17





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4. R&D, Technology Transfer, and Extension Examples

- Shellfish Hatchery Techniques, Algae Starters, Probiotics
- Sablefish and Yellowtail Farming
- Marine Feed Ingredients
- Abalone and Native Oyster Restoration
- Fisheries enhancement
- Seaweed Farming
- Genetics



Staffing and Resource Implications

- Regulatory Streamlining as a Staffing Priority
- NMFS, NOS, and OAR Collaboration
- Outreach/Engagement by All Offices
- Maintain FY16 Budget and Staffing Levels for Aquaculture Science (especially at NW and NE Centers)
- Continue Strategic Grant Use (SK, SBIR, Sea Grant)
- FY19, FY20 Budget Planning



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NOAA Aquaculture Funding

	FY15	FY16	FY17
NMFS			
Aquaculture PPA*	\$5,700	\$6,300	\$9,300
Fisheries Research and Management**	\$2,571	\$2,441	\$2,961
Product Quality and Safety**	\$1,873	\$1,696	\$1,791
Subtotal NMFS	\$10,144	\$10,437	\$14,052
OAR/Sea Grant - Marine Aquaculture *	\$4,500	\$9,000	\$9,500
NCCOS ***	\$750	\$750	\$750
TOTAL NOAA Aquaculture Program	\$15,394	\$20,187	\$24,302
* Appropriated/Pres Bud			
** Project funds (post overhead recissions etc.)			
*** Approximate			
figures in thousand dollars			



Leveraging Other Funding

- Federal Agencies
 - DOE funds to NOAA develop GIS/siting capabilities for seaweed
- Foundations
 - Paul Allen Foundation award to Puget Sound Restoration Fund and NMFS Manchester Lab to mitigate ocean acidification via seaweed and shellfish culture
- Cooperative Research and Development Act Agreements (CRADAs)
 - Puget Sound Restoration Fund native shellfish restoration at Manchester Lab
 - Development of shellfish probiotics at Milford Lab
 - Other agreements to transfer NOAA fish hatchery and feeds technology



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Building Stakeholder Coalitions

- National Shellfish Initiative with associated state shellfish initiatives in e.g., WA, AK, CA, CT, RI, and Gulf
- Gulf Seafood Roundtable, Gulf stakeholder trip to Maine
- Marine Resource Education Program (MREP) for aquaculture in Gulf
- New seafood/aquaculture industry effort





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MAFAC Aquaculture Engagement Ideas?

Examples

- National aquaculture initiative ideas
- Future work of MAFAC Aquaculture Task Force
- Identify R&D, grant, and pilot project priorities
- Revisions to Office of Aquaculture strategic plan



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