



Advancing Sustainable Aquaculture to Support Working Waterfronts through Policy and Innovation



NOAA
FISHERIES

Office of
Aquaculture

Susan Bunsick
Laura Hoberecht, PhD

National Working Waterfronts and Waterways Symposium
Tacoma, WA
March 27, 2013



Roadmap

- Aquaculture basics
- NOAA Aquaculture Policy
- Aquaculture Initiatives
- Constraints
- Opportunities

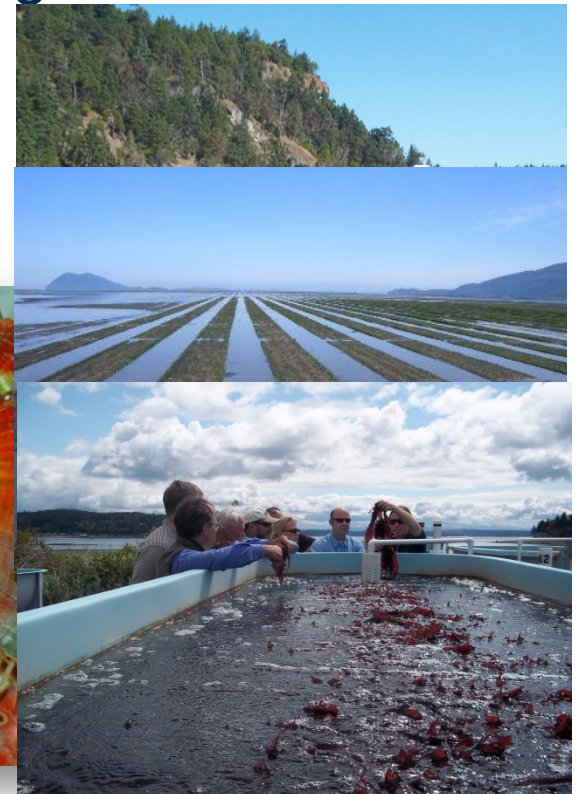


Sablefish culture, NWFSC



What Is Aquaculture?

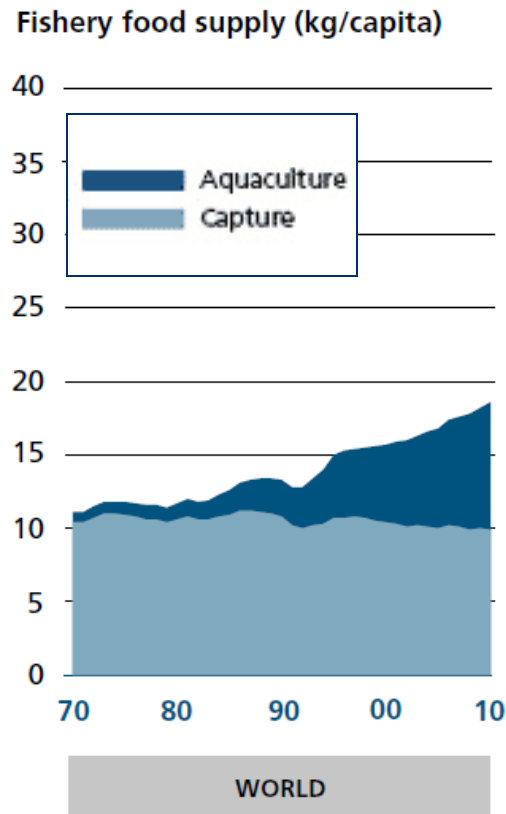
- Propagation and rearing of aquatic organisms
- Enhancement
- Restoration
- Commercial





Why Aquaculture?

- Seafood demand greater than capture fisheries can supply



Source: The State of World Fisheries and Aquaculture 2012, FAO



NOAA's Aquaculture Policy



Puts aquaculture in the context of NOAA's stewardship and economic goals



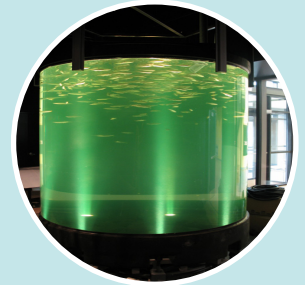
Establishes a national approach to marine aquaculture including, but not limited to, federal waters



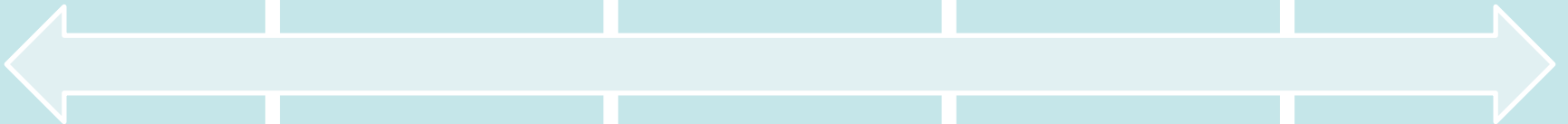
Sets NOAA's priorities – for science/innovation, regulatory improvements, partnerships



Provides guidance only – not a substitute for statutory/regulatory mandates



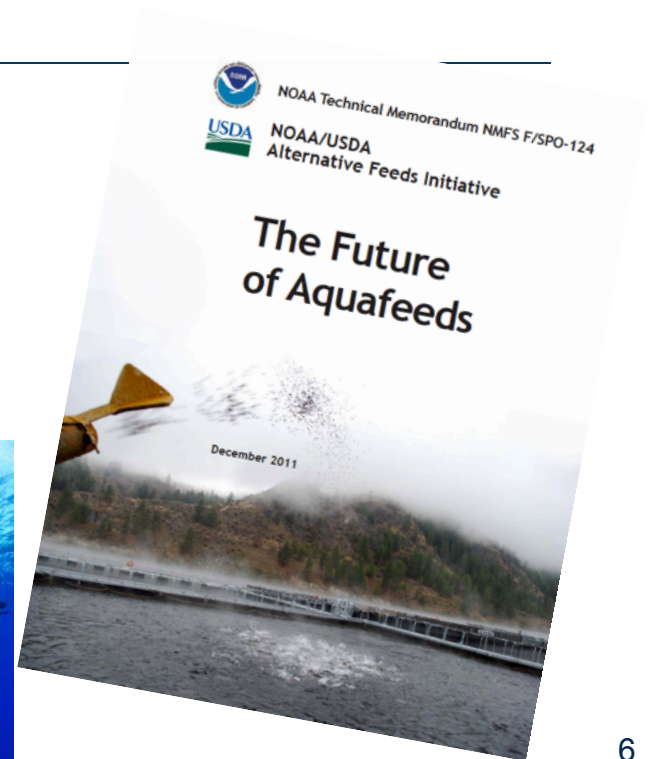
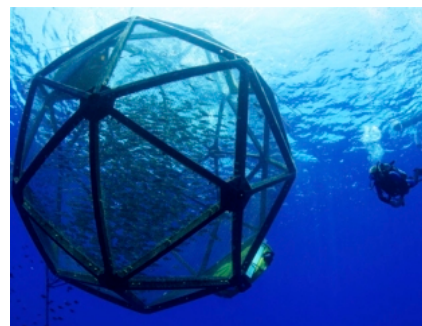
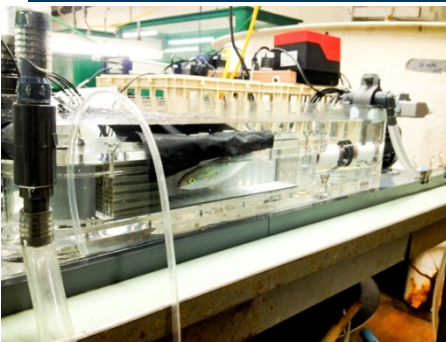
Reflects public input gathered through public engagement

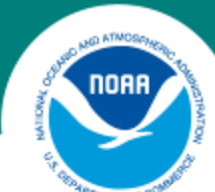




Science

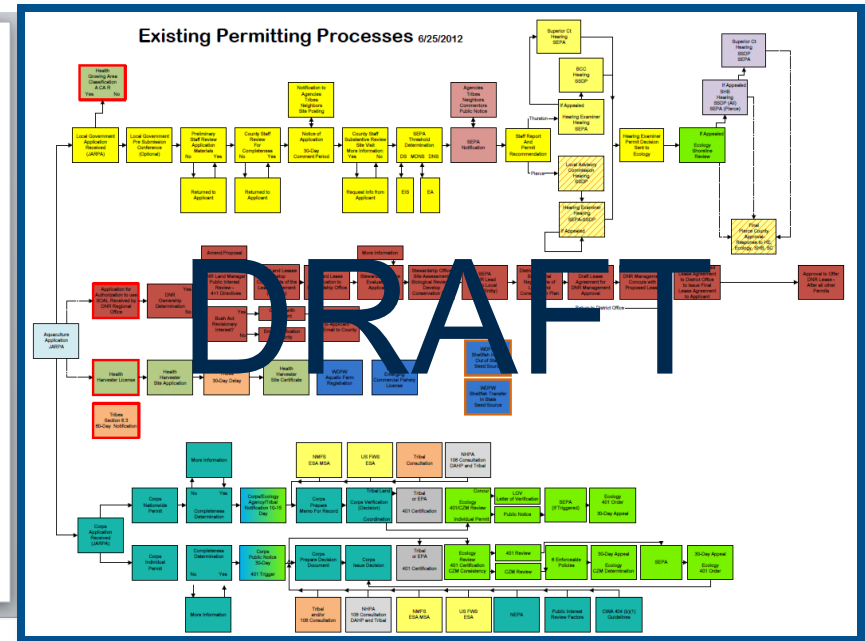
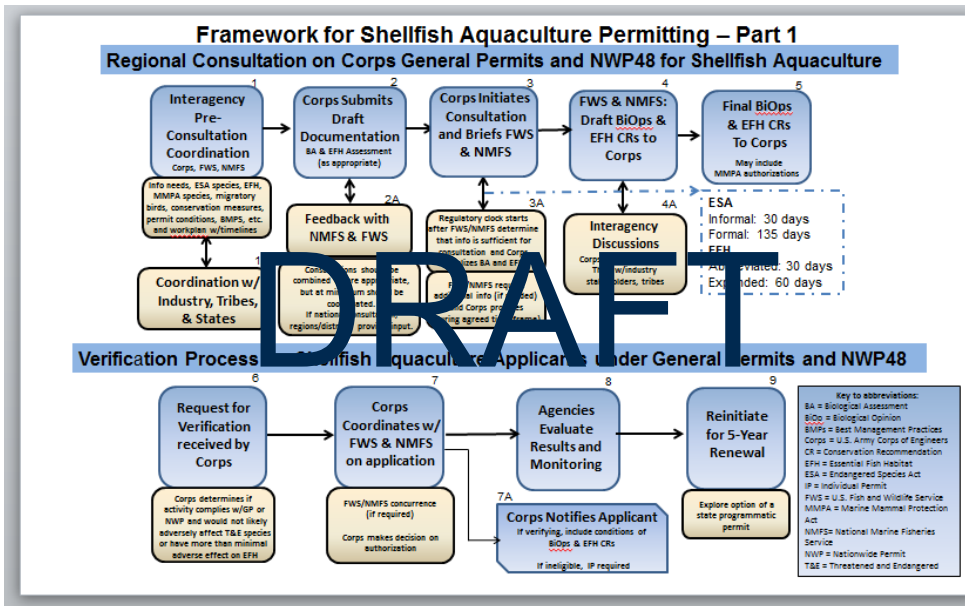
- ❑ Equipment
- ❑ Hatcheries
- ❑ Growout
- ❑ Feeds
- ❑ Escapes models
- ❑ Siting models





Regulation

- ❑ NOP
- ❑ JSA
- ❑ SIP
- ❑ Gulf FMP





Three Policy-Related Initiatives

National Shellfish Initiative

- Work with partners to increase commercial and restoration shellfish production and habitats
- Aim to increase locally-produced seafood, jobs, improved water quality, and restoration of shellfish habitat

Technology Transfer Initiative

- Transfer innovative technology to develop aquaculture in the US
- Develop public-private partnerships that showcase innovative practices

Federal Waters

- Move forward with rules to implement Gulf Council's Aquaculture Plan
- New NOAA Aquaculture Policy and Gulf Council's Aquaculture Plan serve as template for other regions



National Shellfish Initiative

- Spatial planning and efficient permitting
- Research on environmental effects
- Technologies for restoration and farming
- Coordinated and innovative financing



oyster/eelgrass habitat study



shellfish seed sorter



Tech Transfer -- Examples



Mussel farming in New England

Cod Academy in Maine

IMTA in Maine and Washington State

Hatchery technology for finfish and shellfish

Probiotics for hatcheries

Recirculating aquaculture for marine species

Offshore cage design

Use of fish processing trimmings in aquafeeds



Gulf FMP

- Feb 2013 Gulf Council approved changes
- Next steps
 - Undergoing agency review
 - Published in FR





Example: Offshore Mussel Aquaculture in Massachusetts

- An alternative fishing option for fishermen and lobstermen currently displaced by fishery restrictions
- Develop stocking protocols to maximize mussel yields through refinements of seed density and line placement
- NMFS is coordinating the permitting effort



Project helps achieve objectives of the National Shellfish Initiative



Constraints to marine aquaculture

Social
license

High coastal
land values

High costs
of
recirculating
systems

Complicated
costly
regulatory
process



Traditional
agency
mandates

No
regulatory
framework
for federal
waters

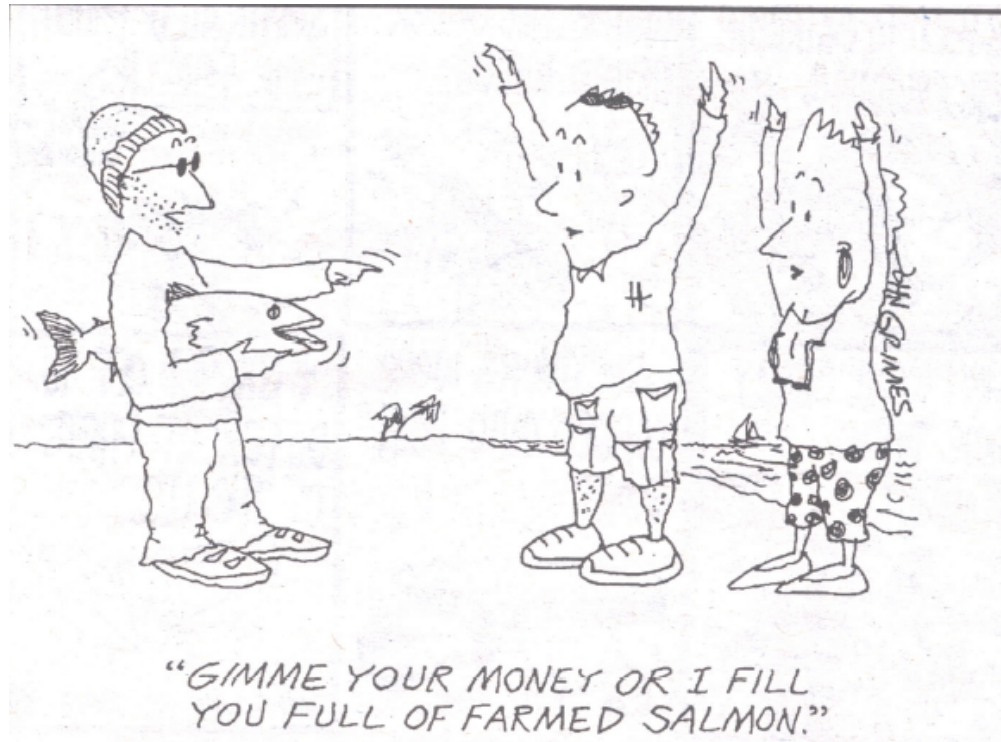


Constraint: Crowded Coastlines

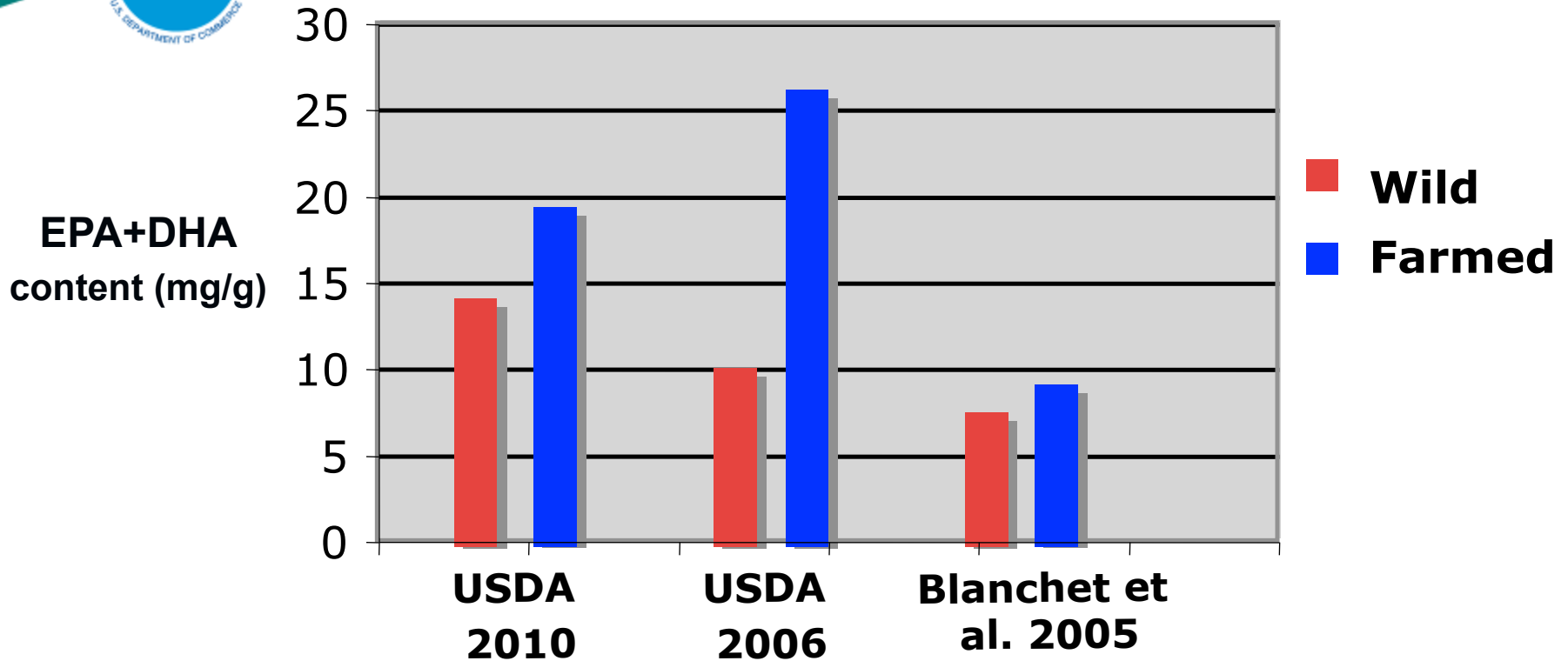




Constraint: Misinformation




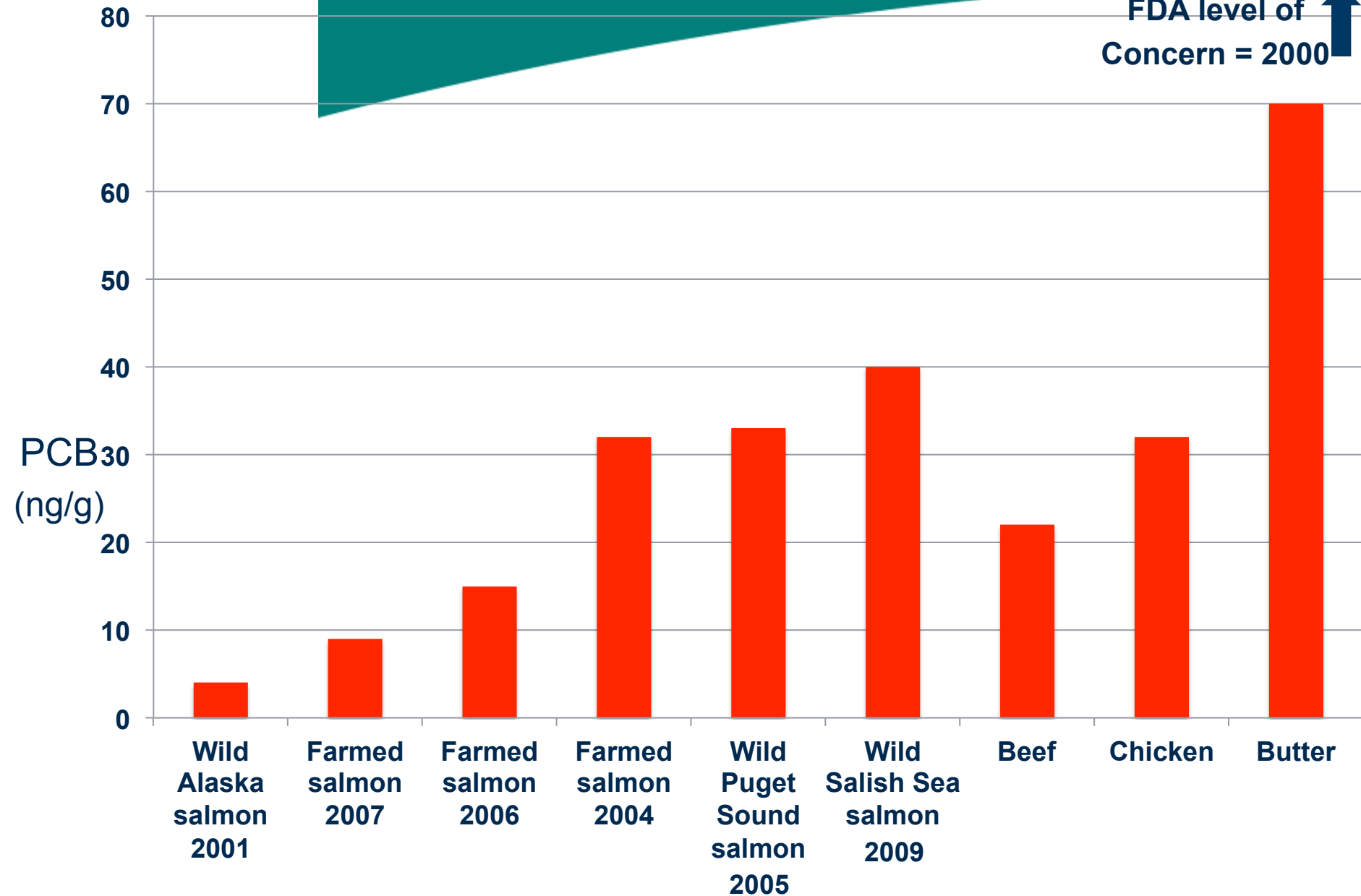
Concentrations of EPA and DHA in wild and farmed Atlantic salmon



Farmed salmon have higher levels of EPA+DHA, but differences vary over time and source

Contaminants (PCBs) in foods

FDA level of
Concern = 2000 





What's NOAA doing about it?

- Regulatory efficiency
- Science, R&D
- Financing, grants
- Outreach, communication
- Sea Grant extension
- International

www.aquaculture.noaa.gov
www.fishwatch.gov

The screenshot shows the NOAA FishWatch website interface. At the top right, there are navigation links: About FW, FAQ, News, Glossary, Features, and Contact Us. Below these is a search bar and radio buttons for 'This site' and 'All of NMFS'. A horizontal navigation bar contains five tabs: SEAFOOD PROFILES, WILD-CAUGHT SEAFOOD, FARMED SEAFOOD, BUYING SEAFOOD, and EATING SEAFOOD. The main content area features a 'FISH FINDER' sidebar with a vertical alphabet index (A-Z) and illustrations of three fish species: Anchovy, Bass, and Bluefish. To the right of the fish finder is a large image of a fishing boat deck with orange trawl nets, accompanied by the headline 'Modifying Trawl Gear, Preserving Fish Habitat in the Bering Sea' and a 'MORE...' link. At the bottom, there are three columns: 'SEAFOOD NEWS' with two news items dated 8.1.12, 'SUSTAINABILITY FACTS' with the title 'The King (Crab) of Sustainable Seafood' and a paragraph about sustainable fisheries, and 'SCIENCE BEHIND SEAFOOD' with an image of a scallop.



Opportunities

- Enable domestic production of seafood
- Create employment and business opportunities
- Maintain healthy marine ecosystems



Olympia oysters



Support Working Waterfronts

- Utilize existing infrastructure
- Maintain cultural identity



'wild' salmon harvester

Jobs and working waterfronts





NOAA
FISHERIES

Office of
Aquaculture

Questions?

THANK YOU!!!!

Laura Hoberecht – Laura.Hoberecht@noaa.gov

Susan Bunsick - Susan.Bunsick@noaa.gov

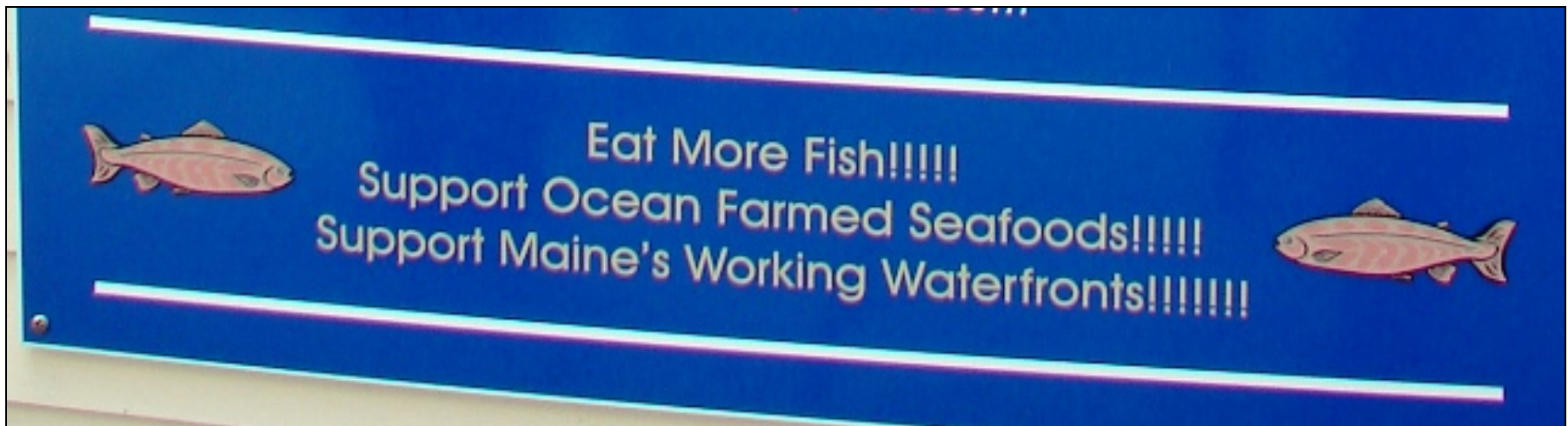
Chris Botnick – Chris.Botnick@noaa.gov

<http://aquaculture.noaa.gov>





Rebranding aquaculture





Rebranding

Local food – social connection – healthy



New partners



- ❑ Chefs
- ❑ Seafood companies
- ❑ Commercial fishermen
- ❑ Recreational fishermen
- ❑ Aquariums
- ❑ Offshore wind, energy

