



Mariculture

The Farming of Marine Organisms



Why Mariculture

Massive opportunity for Alaska

Increase world food production

Alaska Status

- In 2019
 - 58 aquatic farms were operating in the state,
 - 41 of the farms documented production in 2017
 - 5 hatcheries, and
 - 7 nurseries
- Oysters the most widely grown product,
- Kelp is gaining ground,
- Production 16,570 pounds of ribbon and sugar kelp

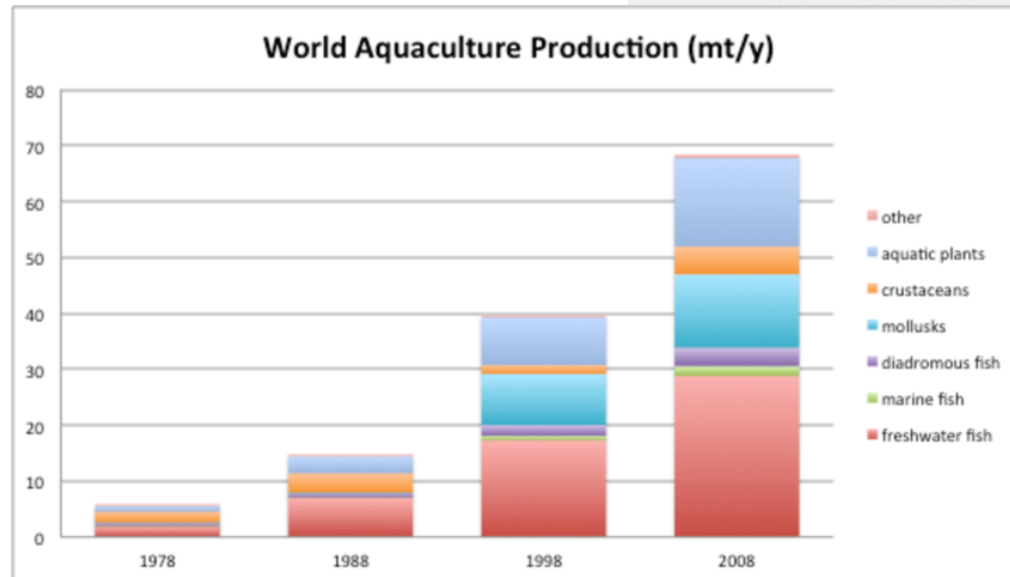
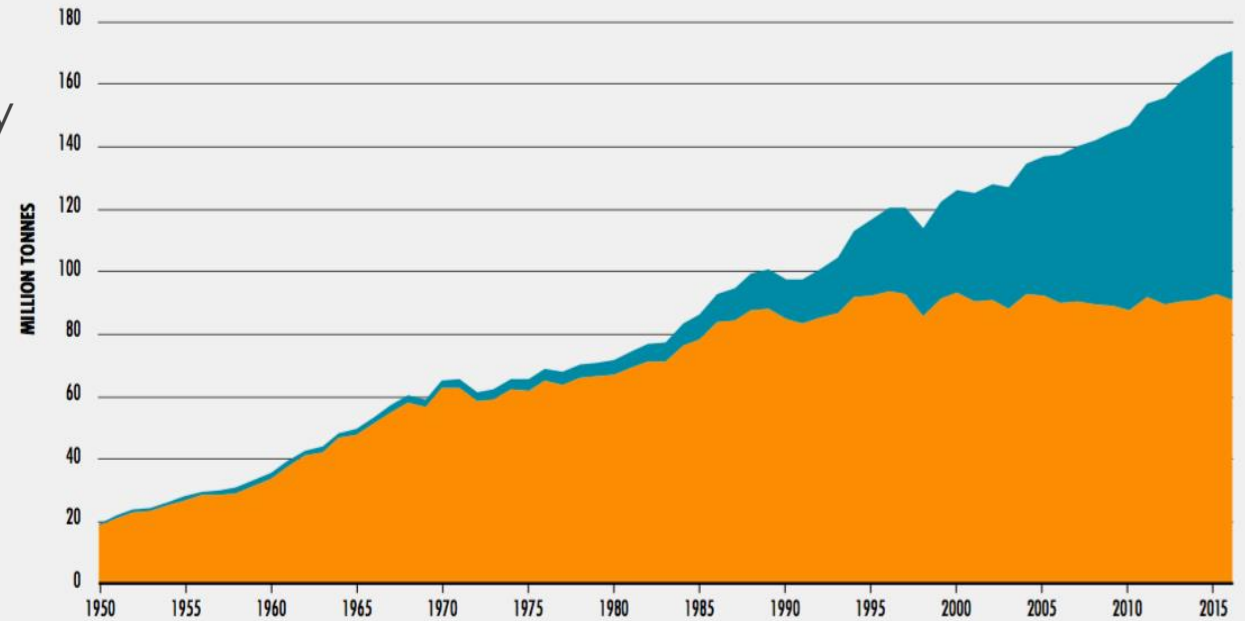
Global Currents

Organisms

Trends

- More than 170mm metric tons farmed annually
- Over 20% of that is seaweed
- Less than 2% marine fish
- Majority
 - mollusks,
 - clams,
 - oysters,
 - abalone,
 - scallops, &
 - Mussels

FIGURE 1
WORLD CAPTURE FISHERIES AND AQUACULTURE PRODUCTION



Aquaculture production

ators and caimans, seaweeds and other aquatic plants

Top Mariculture Countries

COUNTRY	Species Produced
1. China	Mussels & Shrimp
2. Japan	Algae, mollusks, yellowtail, sea bream
3. Taiwan	Mussels, shrimp, & eel
4. Philippines	Algae, shrimp, & milkfish
5. USA	Mollusks, shrimp, Atlantic salmon, & red drum
6. Norway	Salmon
7. Ecuador	Shrimp
8. Republic of Korea	Algae & mollusks
9. Indonesia	Algae, shrimp, & milkfish

Aquaculture Production **Highlights, 2017**

Marine and
Freshwater
National
Totals

VALUE

\$1.5
billion

+1.2% from 2016

MARINE	FRESHWATER
\$397 million	\$707 million

21%
of U.S. seafood
production & fishery
products by value

PRODUCTION

626
million pounds

-1.2% from 2016

MARINE	FRESHWATER
82 million pounds	543 million pounds

17th
in global
aquaculture
production



Marine Species Totals

OYSTERS



\$186 million

36 million pounds

CLAMS



\$129 million

9 million pounds

SALMON



\$61 million

32 million pounds

MUSSELS



\$10 million

0.9 million pounds

SHRIMP

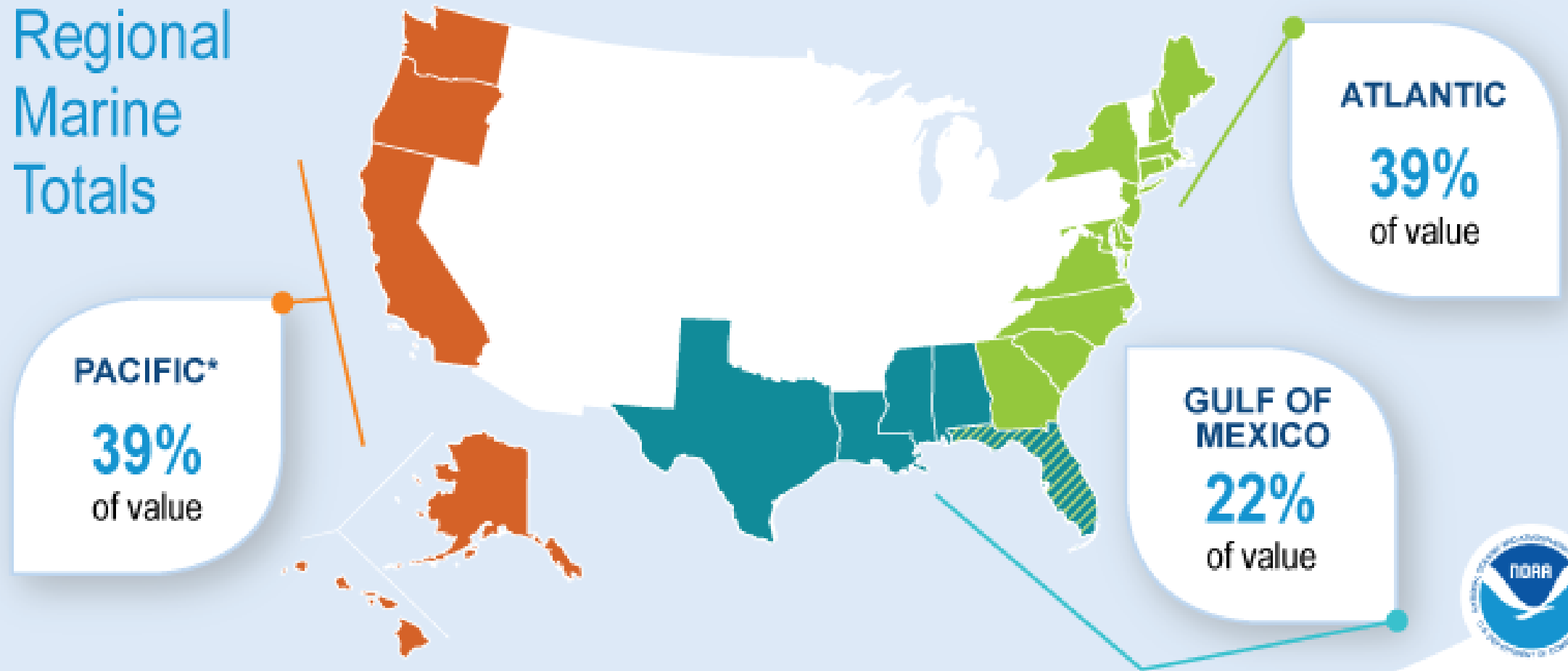


\$10 million

4 million pounds



Regional Marine Totals



* Alaska and Hawaii are included in the Pacific region for aquaculture production.



NOAA
FISHERIES



An underwater photograph showing a dense forest of seaweed. Long, thin, brownish-green stalks of seaweed hang vertically from the top of the frame, creating a series of parallel lines. The water is a deep, slightly murky blue-green. The lighting is soft and diffused, coming from above. The overall composition is vertical and textured.

Let's talk about seaweed

Seaweed

- Food Product
 - Rich in Iodine
 - Antioxidant rich
 - Supports gut health
 - Absorbs fat
 - High in Iron
 - Reduces gas – great animal feed
 - Filters toxins



Seaweed

- Medicine
 - Respiratory Treatment
 - Antiviral
 - Anti-HIV
 - High in hormones
 - Thyroid support
 - Melatonin sleep support
 - Essential fats & Vitamin A, B, C, & Omega-3
 - Minerals



Seaweed

- Other

- Agar
- Alginate
- Textile printing
- Carrageenan – Binding agent and texture
- Wastewater treatment
- Fertilizers
- Animal feed
- Cosmetics
- Biomass
- Paper & Plastics



Seaweed

- Bioplastics & Paper
 - Replace wood paper
 - Replace oil-based plastics



Bioplastics



10 Seconds



3 Hours



3 Days



9 Days



14 Days



21 Days



Ocean biodegradation
In 4 weeks



Home Compostable
10-12 weeks



Suitable for household
food waste bins



Bio-digestible by animals
Safe for marine life

What does the future hold

- Alaska Mariculture Task Force
- Alaska Department's of Fish & Game and Natural Resources
- Legislature
- Governor's office



THANK YOU