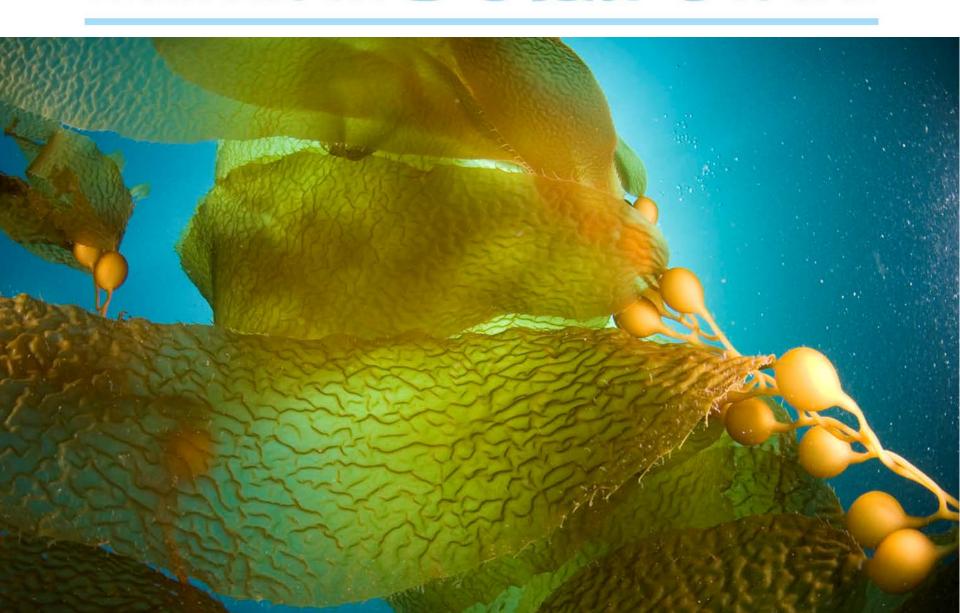
### MARICULTURE





### Alaska Mariculture Initiative

Presented to:
North Pacific Fisheries
Management Count

October 3, 2019

Presented by:

Julie Decker & Heather

McCarty, Mariculture Task

Force







#### **Today's Presentation:**

- 1) What is mariculture?
- 2) Why mariculture?
- 3) Comprehensive planning process
- 4) Recent Developments
- 5) Questions & answers













### In Alaska, mariculture is NOT...



# Mariculture is... enhancement, restoration and farming of shellfish and seaweeds.





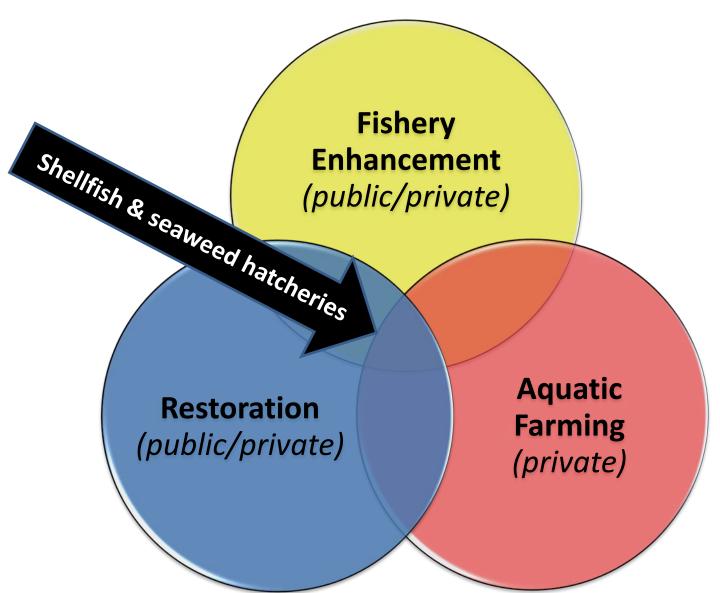








#### Mariculture is...



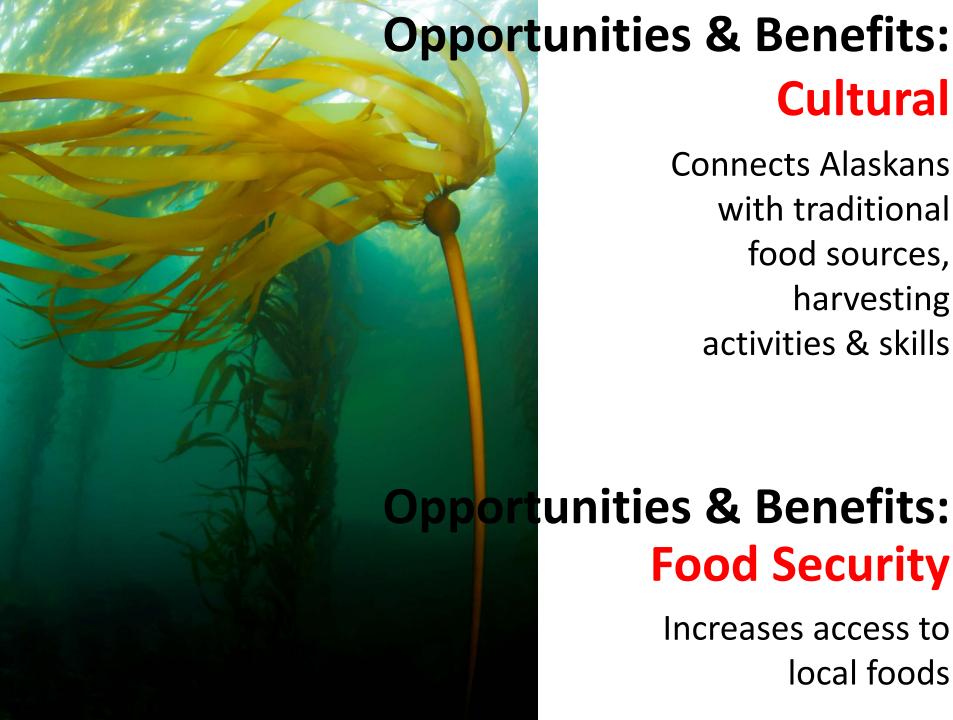




Why

Mariculture?







Salmon hatchery – Prince William Sound

Commercial fishing vessels – Bristol Bay



Compliments & expands existing \$6 billion seafood industry

 Builds on assets – vessels, plants, sustainable fisheries, salmon hatcheries, Alaska seafood brand & ASMI

Processing plant – Kodiak



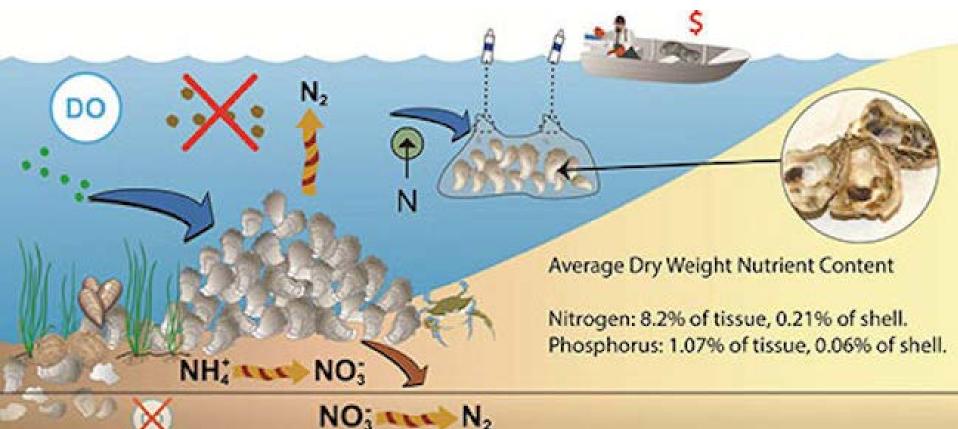




### Opportunities & Benefits: Environmental

Potential climate change mitigation & habitat improvements through ecosystem services

(ie. water filtration, carbon, nitrogen & phosphorus removal)





## Collaborative Planning Process









PACIFIC SHELLFISH INSTITUTE

























































### Alaska Shellfish Farm Size Feasibility Study





#### **KEY FINDING**

"Regardless of farm type, larger farm size scenarios demonstrated better short and long term profitability than smaller farm sizes...new entrants into the Alaska shellfish farming industry should consider investments in medium and large scale farms."

#### **Completed by:**







Economic Analysis to Inform the Alaska Mariculture Initiative:

Phase 1 Case Studies

Prepared for

Alaska Fisheries Development Foundation

March 2015

#### **KEY FINDING**

Six key elements for successful mariculture development:

- 1) Pre-existing seafood industry
- 2) Public acceptance & support
- 3) Favorable growing areas
- 4) Existing development plan w/ coordinated R&D strategy
- 5) Successful business plans & growing technology
- 6) Workforce development



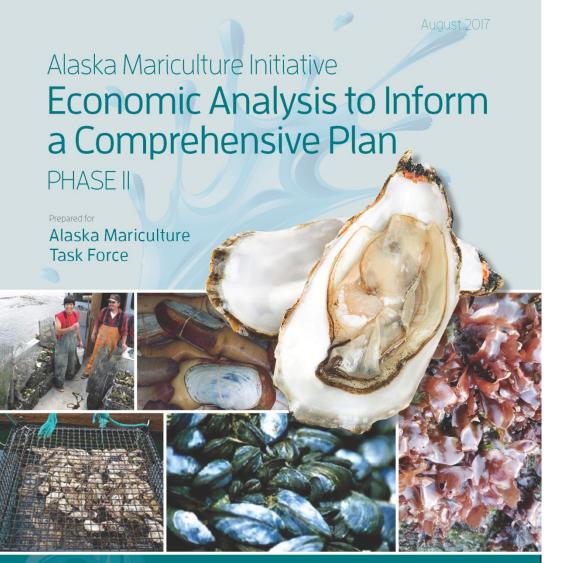
In association with

Pacific Shellfish Institute

Maine Shellfish Research and Development

**Funded by:** 







## **ECONOMIC** FRAMEWORK

- Six primary species
- > 5, 10, 20, 30, 40, 50 yr targets
  - Annual production & value
    - Total economic output:
    - = \$100 million in 20 years
    - = \$275 million in 30 years
    - =\$445 million in 40 years
    - = \$570 million in 50 years not adjusted for inflation

"Growth from the current \$1 million industry to almost \$6 million in five years...may be the most difficult phase along the trajectory..." McDowell Group

#### Funded by:







## ALASKA MARICULTURE DEVELOPMENT PLAN



#### Completed in 2018

Briefs & flash drives available here. Also available at: www.afdf.org STATE OF ALASKA MARCH 23, 2018

#### VISION

Develop a viable and sustainable mariculture industry producing shellfish and aquatic plants for the long-term benefit of Alaska's economy, environment and communities.

GOAL

Grow a \$100 million mariculture industry in 20 years.



#### PRIORITY RECOMMENDATIONS

The priority recommendations of this comprehensive plan are listed below:

Secure seed supply through hatcheries

Pass State legislation to A) help fund hatcheries through the Mariculture Revolving Loan Fund, and B) allow shellfish enhancement

Establish an Alaska Mariculture Development Council

Establish a Mariculture Research Center at the University of Alaska

Fill key positions to enable the growth of the industry: NOAA Aquaculture Coordinator in Alaska and Alaska Sea Grant
Mariculture Specialist

## Mariculture: Latest Developments Personnel



Adding three new mariculture positions in Alaska in policy & research

Adding a mariculture research lead position in Kodiak (on hold due to budget cuts)





Replacing Mariculture Specialist position (on hold due to budget cuts)



#### Mariculture: Latest Developments

#### **AKCRRAB: Alaska King Crab Research Rehabilitation and Biology**



FOCUS: Rehabilitation of depressed king crab stocks in Alaska, particularly Red King crab in Kodiak & Blue King crab near Pribilof Islands

#### **Activities:**

- Hatching & rearing at AlutiiqPride hatchery
- Experimental releases near Kodiak (2 yrs)
- Planning releases near PribilofIslands
- •NEXT: Economic analysis



#### Mariculture: Latest Developments



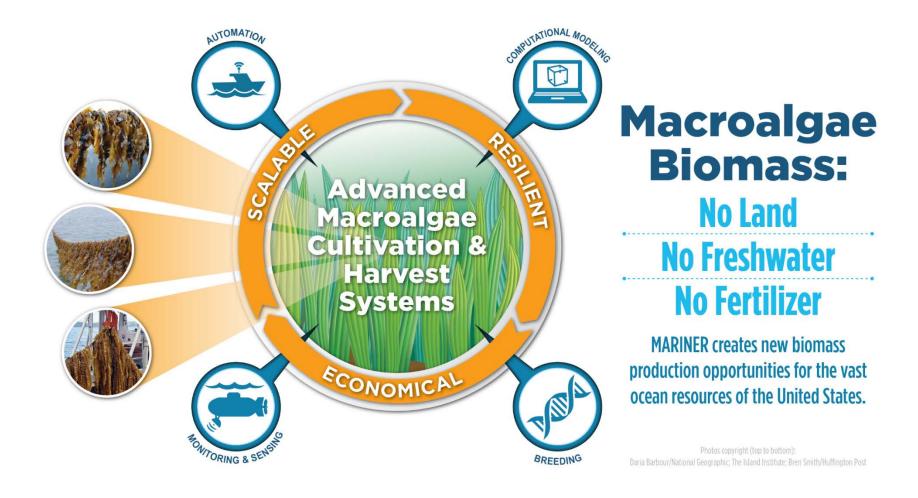








### Mariculture: Latest Developments

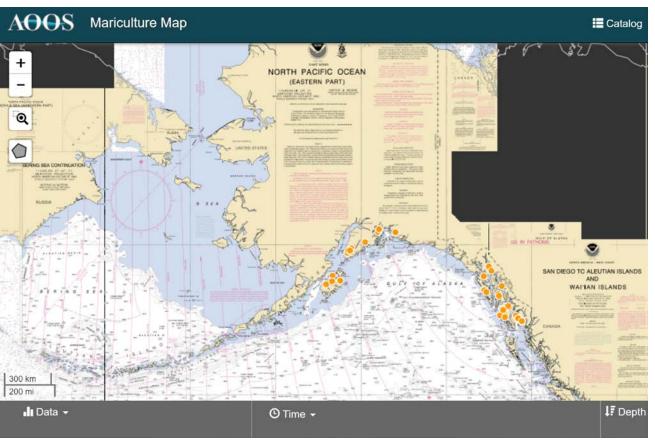


**ARPA-E 2019**: UAF Team receives \$2.5 M to focus on growing and harvesting seaweed efficiently & cost-effectively.

Demo farm and vessels in Kodiak!

#### Mariculture Map v1.0

https://mariculture.portal.aoos.org/









- Phase 2 = version 2.0, to be completed August 31, 2020
- Complements NOAA's EEZ mapping tool: <u>National AquaMapper</u>

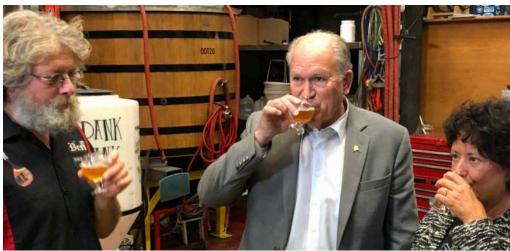
## Mariculture: Latest Developments New Food Products











Kelp Beer from Kodiak!



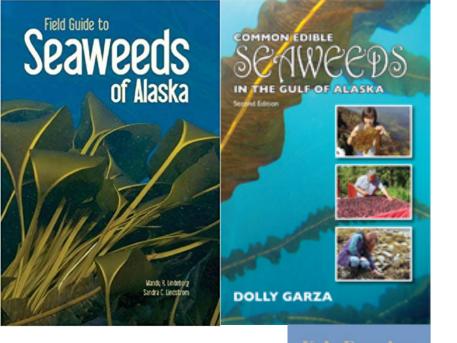








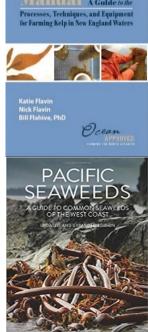




#### Seaweed Farming in Alaska







## Seaweed Farming 101: Workshops for Fishermen

- Workshops will occur in Ketchikan, Sitka & Kodiak in 2020 & 2021
- Project Partners: GreenWave, OceansAlaska, Alaska Longline Fishermen's Association and Blue Evolution
- Funded by NOAA
- Goal provide initial training to 60 fishermen



## Mariculture: Latest Developments DNR Lease Applications in 2017-19

#### Important take-aways:

- # of new farm applications = 47
- # of new nursery/hatcheries = 5
- # of new farm acres = ~2,100
- # of new farms over 100 acres = 10
- # of new farms 25-100 acres = 7
- # of large Alaska seafood processors =
- # of regions in Alaska = 3 (SE, PWS, SW/Kodiak, from Ketch. to Sand Point)
- Species = Pacific oysters & seaweeds
- New stakeholders interested

#### STATE OF ALASKA Aquatic Farming Application Summary 2017 thru 2019

Generated on 5/21/2019 by ADF&G and DNR

nui et. Cynthia Ming Hum (907) ADHSE Aque le Finning Coordine (vr.) (907) 455-615 Karan Cougar, UN CAcactio Hum Program Coordine (vr.) (907) 869-1548

#### Table 3: Status of New Proposed Aquatic Farming Projects

Application Year			STATUS					
	Application Type	Total Applications	Application Waiting to Be Reviewed*	Application Withdrawn	Application Under Review	Active and Authorized		
2017	Aquatic Farm New	16		4	4	8		
	Aquatic Farm Amendment	3			2	1		
	Hatchery / Nursery New	1				1		
	TOTAL	20	0	4	6	10		
2018	Aquatic Farm New	14	D		14			
	Aquatic Farm Amendment			-		-		
	Hatchery / Nursery New	2		1		1		
	TOTAL	16	0	1	14	1		
2019	Aquatic Farm New	12	5	D	7			
	Aquatic Farm Amendment	3	3	-	-	-		
	Hatchery / Nursery New							
	Hatchery / Nursery Amendment	1	-	-	1	-		
	TOTAL	16	3	D-	8	0		
	TOTAL FOR 2017 thru 2019	52	8	5	29	11		

#### Table 4: New Proposed Aquatic Farming Project Locations by Region

(Includes Amendments to Add Acres to Existing Aquatic Farming Operations)

Application		Total	REGION LOCALION					
Year	Application Type	Applications	Southcentral Region	Southeast Region	Western Region	Unknavn		
2017	Aquatic Farm New	16	5	6	5			
	Aquatic Farm Amendment	3	1	2		-		
	Hatchery / Nursery New	1			1			
	TOTAL	20	6	8	6	0		
2018	Aquatic Farm New	14	3	9	2			
	Aquatic Farm Amendment			-				
	Hatchery / Nursery New	2	1	1	-			
	TOTAL	16	4	10	2	0		
2019	Aquatic Fami New	12	2	4	5	1		
	Aquatic Farm Amendment	3	1	2				
	Hatchery / Nursery New			-				
	Hatchery / Nursery Amendment	1		1				
	TOTAL	16	3	7	5	1		
	TOTAL FOR 2017 thru 2019	52	13	25	13	1		

#### Table 5: Organisms Proposed For Culture

Amendments to Add Acres to Existing Aquatic Farming Operations)

Application Year		Total Applications	CULTURE ORGANISMS					
	Application Type		Pacific Oysters		Pacific Oysters and Kelp			
2017	Aquatic Farmi New	16	7	7	2			
	Aquatic Farm Amendment	3	3					
	Hatchery / Nursery New	1		1				
	TOTAL	20	10	3	2	0		
2018	Aquatic farm New	14	5	6	3	-		
	Aquatic Farm Amendment					-		
	Hatchery / Nursery New	2	2			-		
	TOTAL	16	7	6	3	0		
2019	Acuatic Farm New	12		8	3	1		
	Aquatic Farm Amendment	3	2	1				
	Hatchery / Nursery New			-				
	Hatchery / Nursery Amendment	1			1			
	TOTAL	16	2	9	4	1		
	TOTAL FOR 2017 thn : 2019	52	17	14	5	9		

#### STATE OF ALASKA wattic Farming Application Summary

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### Mariculture Development: Immediate Challenges

- Seed security during early stage
- Reduce backlog of permit applications at ADNR
- HB 41/SB22 shellfish enhancement
- Coordination across stakeholders
- Mariculture Research Center
- Increase public & private investment

GOOD NEWS: excellent interest, investment & cooperation from Federal, State govs & private industry!