



Native Village of Eyak's Mariculture Program: *Overview, Challenges, and Future Directions*

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Our DENR Team:



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DENR

- Programs and Projects:
 - Native American Lands Environmental Mitigation Program (NALEMP)
 - EPA Brownfield Cleanup
 - Recycling programs





DENR

- Programs and Projects:
 - Marine Debris
 - Water quality monitoring
 - Steller Sea Lion dietary monitoring



Chinook Escapement Monitoring

- 20+ yr program monitoring Chinook salmon in the Copper River
- Salmon collection via fish wheels
- Remote field camps in Alaskan backcountry



Overview

- What is mariculture?
- Permitting
- Current Commercial Farms
- How do you grow kelp?
- NVE's mariculture research program



What is Mariculture?

- Aquaculture – controlled cultivating of aquatic organisms
 - Can happen in a tank in Kansas
- **Mariculture** – cultivation of marine organisms for food and other products **in the open ocean**
 - Can happen in Prince William Sound
- Finfish mariculture (caged salmon farming) is prohibited in Alaska (AS Title 16.40.210)



Contact before you start:

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- Alaska Native entities in your area (tribes and village corporations) as appropriate.
- Your local government/city planners
- Nearby property owners
- Other area users (commercial fishermen, subsistence users, etc.)

Local GOV

ADF&G

ADNR

ADEC

USACE

NMFS

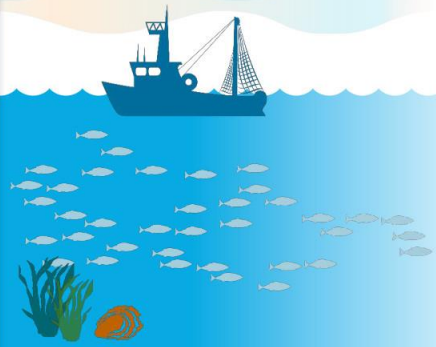
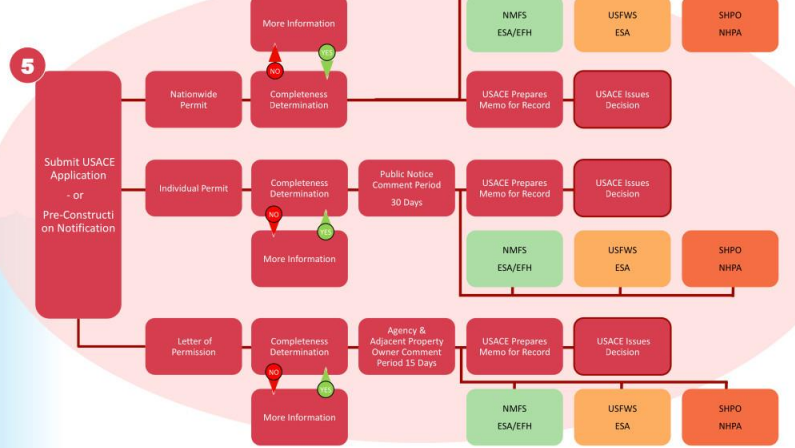
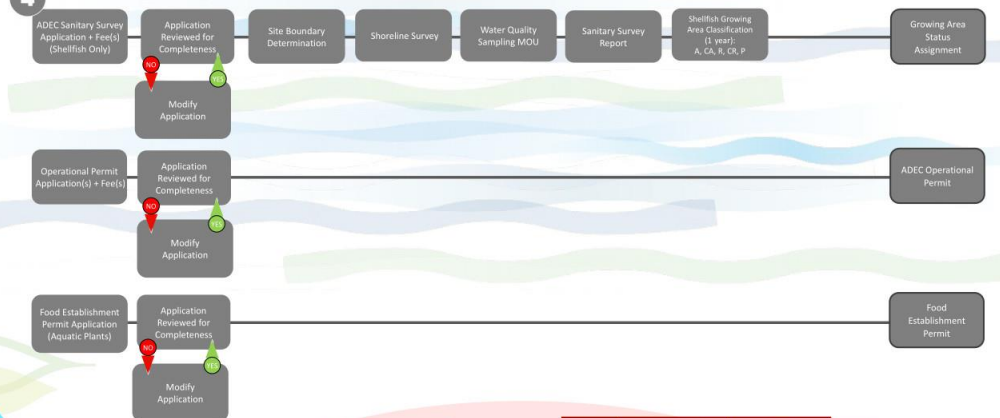
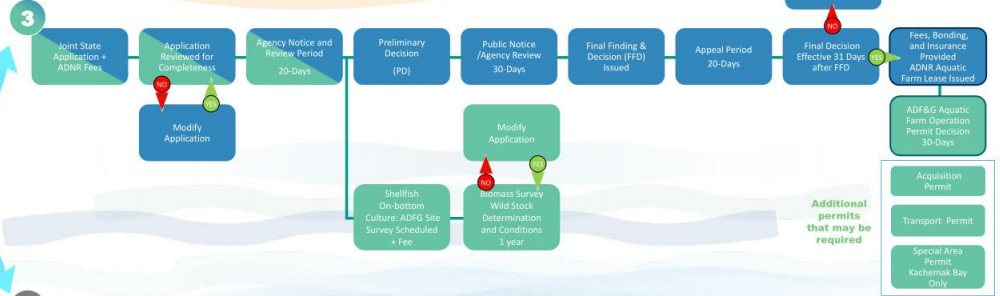
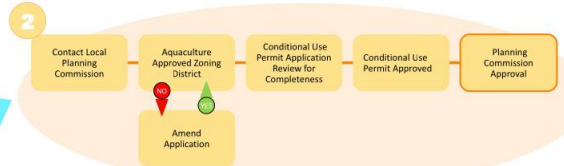
USFWS

SHPO

Alaska Aquaculture Permitting Process

Permitting Portal

Pre-Application Meetings



Commercial Kelp Farms in Eastern PWS

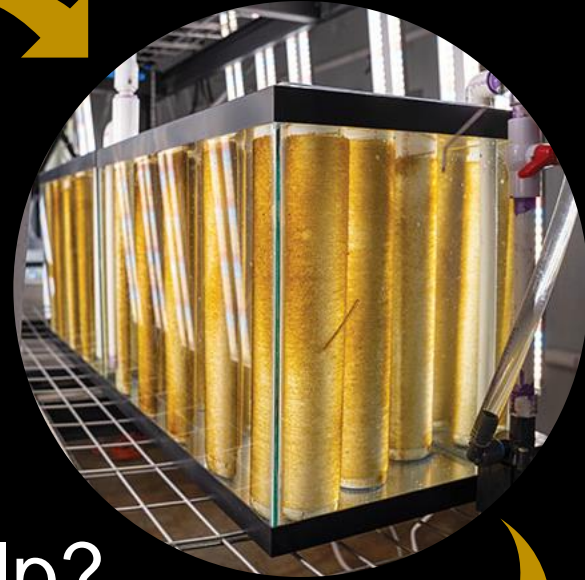


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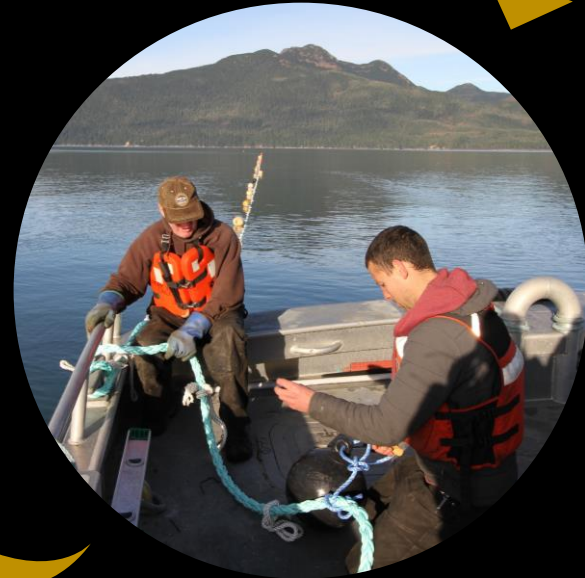
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Cordova

Hawkins Island

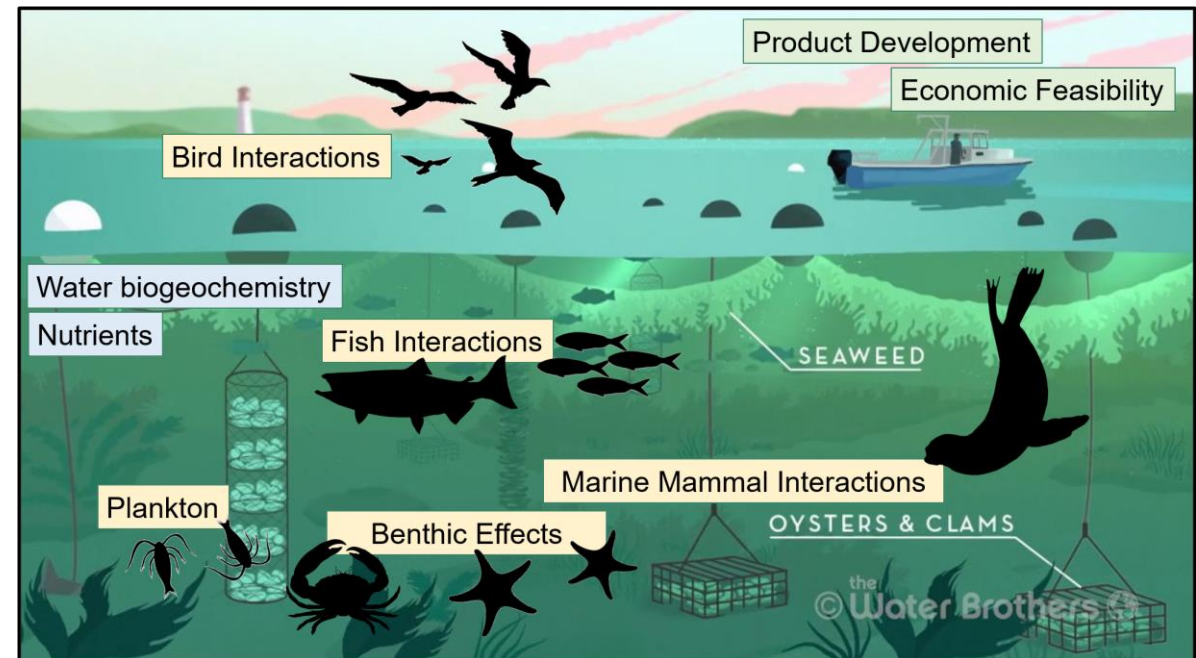
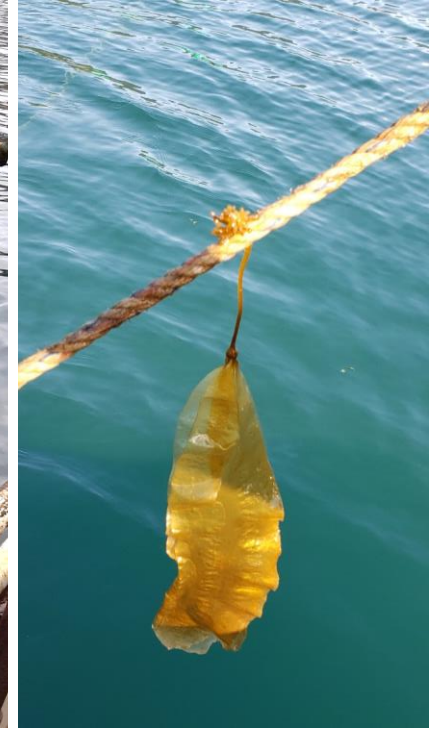


How do you grow kelp?



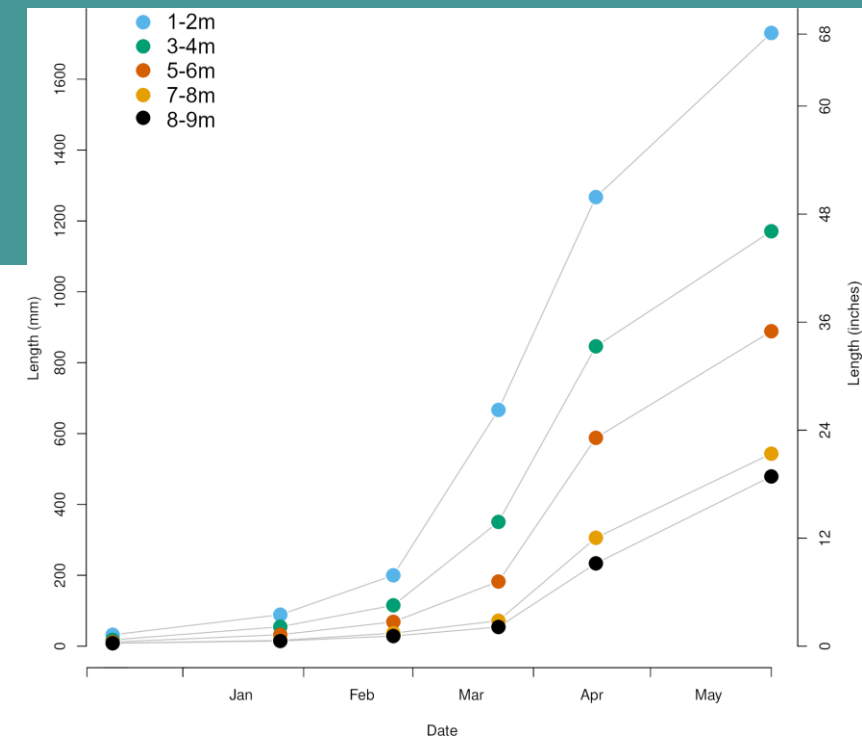
NVE's Research Program

- Research only – no commercial sale of kelp
- Other ways to grow kelp?
 - MACR vs common catenary arrays
- How does bull kelp grow?
 - Joint Innovation Project
- Ecosystem impacts
 - AK Sea Grant and PWSSC led Mariculture Recon project partner



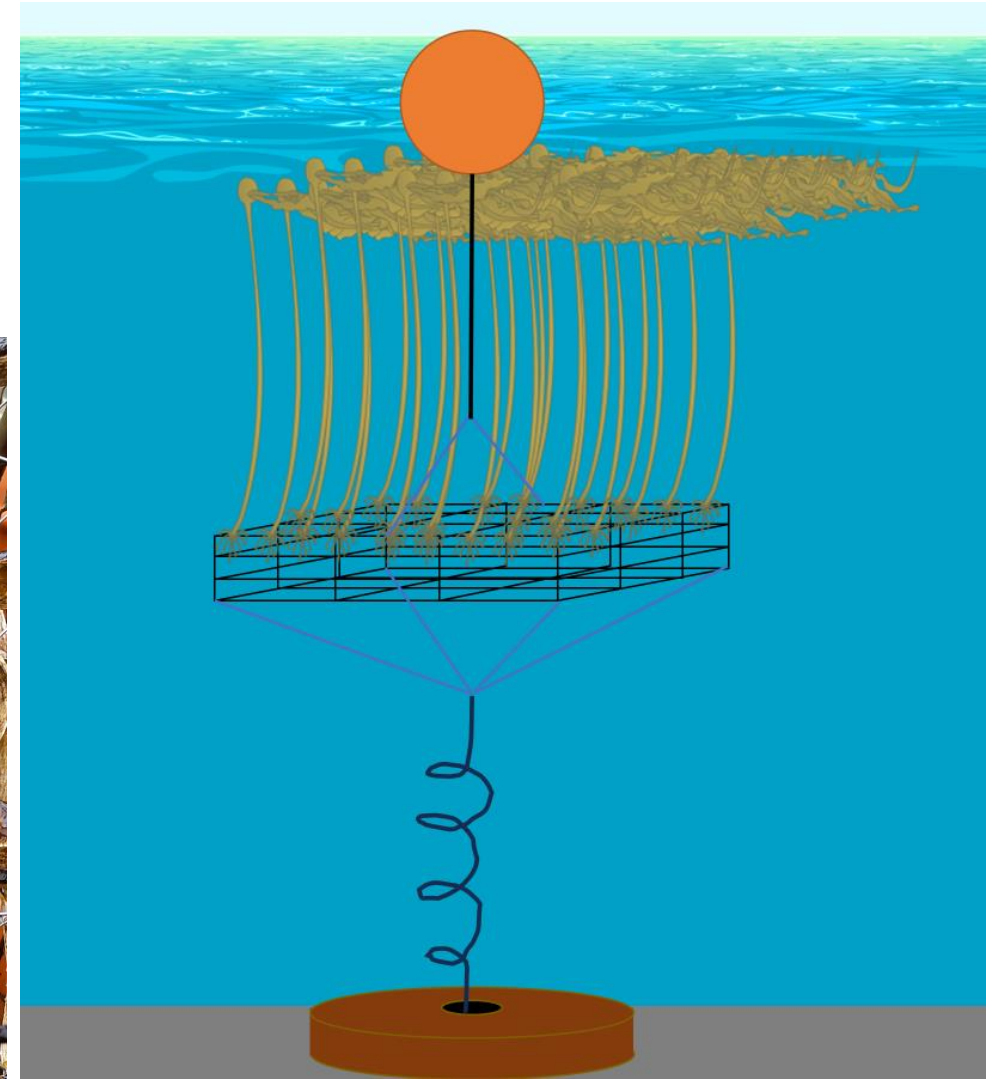
Other ways to grow kelp?

- MACR grows a lot of kelp!
- Most growth from March thru April
- Cannot grow sugar kelp year-round
 - Too much biofouling



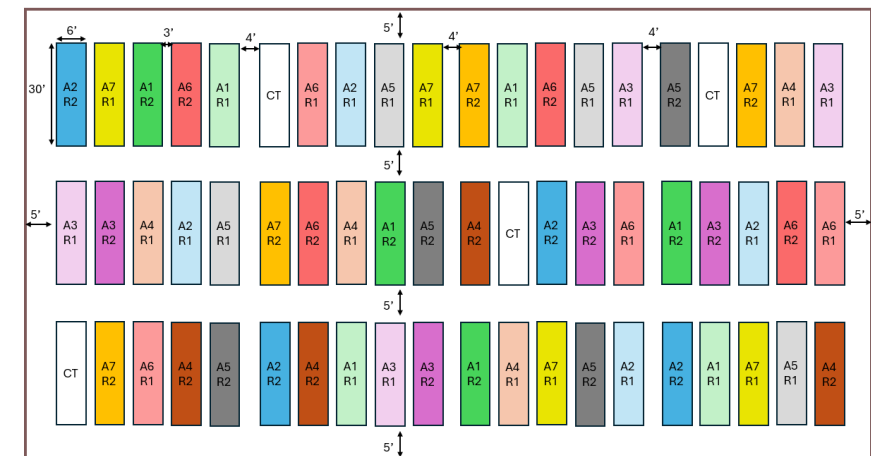
How does bull kelp grow?

- Crab pots converted to “kelp pots”
- Potential nutrient limitations – nutrient analysis pending



Next Steps for NVE's Mariculture Program

- Agriculture testing
 - USDA and Washington State Uni.
- Compost projects
 - Kelp, Sawdust, Shredded cardboard boxes
 - Amazon (paper tape)





Questions?