



# Seafood Processing Pilot Project: Kelp Processes and Product Forms

Partners include PNNL, Southwest Alaska Municipal Conference (SWAMC), and Blue Evolution

▪ **PNNLs Role:**

- ✓ Conduct Alaskan kelp processing and characterization studies
- ✓ Complete Techno-economic analyses for use cases
- ✓ Address the need for modular systems for processing and marine energy integration.
- ✓ Cursory comparative greenhouse gas life cycle assessments
- ✓ Address sustainability for the unique Alaskan coastal environment

▪ **SWAMC's Role:**

- ✓ Lead the Steering Committee of cost share partners/stakeholders from Alaska to provide input/guidance.

▪ **Blue Evolution's Role:**

- ✓ provide samples of Alaskan kelp for characterization

Project Funding Information	Funding
Total Project	\$450K
AMO and 20% Cost Share	\$375K
WPTO – MRE Integration	\$75K



PNNL's main campus and the Marine Sciences Laboratory



SWAMC – an Alaskan non-profit representing a vast coastal area



Blue Evolution – a commercial kelp processing company with Alaskan facilities

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**Challenge:** *The seasonal nature of Alaskan fisheries and processing creates significant down time for industrial capacity.*

## Goals

- Consider opportunities for use of excess Alaskan processing capacity to support kelp processing
- Assess Marine Renewable Integration opportunities

## Objectives

- Determine common and unique kelp processing methods
- Assess modular manufacturing needs for kelp processing
- Conduct Techno-economic analysis for several use cases
- Ensure that kelp processing addresses unique environmental and socio-economic Alaskan needs

## Benefits

- Potential for up to 25% increase in process equipment use time
- Potential for more than 30% increase in additional full-time jobs for kelp processing
- Provide economic and environmental assessment/recommendations

Seafood Industry Impact on Alaska's Economy, 2015/2016 Avg.

Direct Impacts	Number of Workers	Labor Income (\$Millions)	Total Impacts	
Commercial Fishing	29,200	\$824	FTE (Full-Time Equivalent) Jobs	36,800
Processing	24,500	\$467	Labor Income	\$2.0 Billion
Management/Hatcheries/Others	3,200	\$228	Economic Output	\$5.2 Billion
<b>Total</b>	<b>56,800</b>	<b>\$1,518</b>		

Note: Figures may not sum due to rounding.

Fisheries are Alaska's largest provider of non-government jobs



Algal (ARPA-E), bio-based processing (BETO), and modular manufacturing (RAPID) capabilities are a unique capability at PNNL