"Testing Four Approaches to Small-Scale Primary Seaweed Stabilization & Matching Methods to Markets"

2023/2024 Joint Innovation Project

Project Team & Partners:

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Saltwater Inc.

Salmon Sisters

KACHEMAK KELP

ReGENERATION NoRTH

Alutiiq Pride

CHUGACH REGIONAL RESOURCES COMMISSION

Primary Project Objectives

Identify energy, labor, and cost-efficient methods to stabilize kelp at the community hub/small farm collective scale & match methods to markets.

- Modified High Tunnel
- Alternative Dryers
- Fermentation
- Salting

Modified Solar Dryer/High Tunnel Components

Screened & mechanical vent

2 exhaust & 3 circulating fans

Temperature & humidity controller

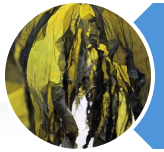
Commercial dehumidifier

Air-to-air heat pump

“Sensor Push” and “Smart” outlet meter

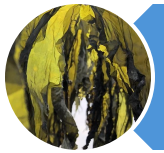
Added lines to increase capacity

Modified Solar Dryer/High Tunnel Outcomes

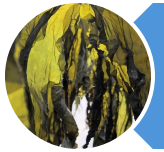


Relatively energy efficient & labor intensive

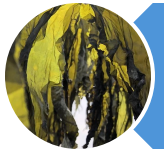
Reduced drying time to ~24 hrs.



Increased volume by ~ 20% with added lines



High quality food- grade product



Relatively strong market

IR Dryer Activities & Outcomes

- Relatively energy intensive
- Relatively low volume
- Moisture content well below target
- Needs further testing

Beltomatic Dryer Activities & Outcomes

www.beltomatic.com

Very limited testing

Considered “too labor intensive”

Not successful

Fermentation Activities

Produced 6 test batches

Monitored 23-30 days ferment

Filtered liquids

Sent for lab analysis

Conducted community workshop

Fermentation Outcomes

- Relatively energy & labor efficient
- Viable, bioactive product
- Refrigerator-stable food product
- Viable for community processing
- Potential to scale for growing markets

Salting Activities

Tested 2 salting methods

Monitored moisture content

Conducted community workshop

Sent for nutritional analysis & mold testing

Provided samples to chefs

Salting Outcomes

Relatively energy & labor efficient

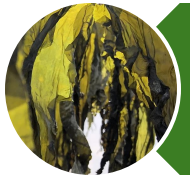
Water activity 0.75 ~ 7 days

Shelf-stable food product

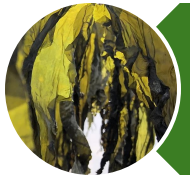
Palatable & adaptable product

Nascent market

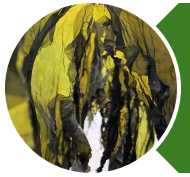
Lessons Learned & Next Steps



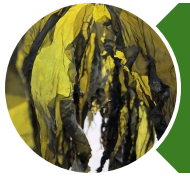
Diversified approaches expanded both capacity & markets



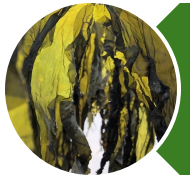
(Almost) all methods tested were energy efficient and varied in labor intensity



Scaling fermentation & salting focus of current work



Continuing focus on building community capacity



Matching markets to each product stream