Kelp Supply Chain Analysis: Summary of Findings

Rhode Island Sea Grant & Coastal Resources Center, University of Rhode Island

Seaweed, primarily sugar kelp, is increasingly grown on aquaculture farms in the Northeast (New York to Maine) as either a supplemental winter crop on oyster farms or as stand-alone product. While some growers have successfully brought their nutritious local products to market, this work is in its infancy and many more are unsure about whether and how to either access existing markets or create new ones.

To examine this issue, the University of Rhode Island Coastal Resources Center/Rhode Island Sea Grant conducted an analysis, with U.S. Department of Agriculture funds, of existing and potential seaweed supply chains in the Northeast. Several focus groups and more than 145 consumer surveys were applied, as well as informant interviews, to produce a report (Engle-Stone Aquatic$ LLC, Carole Engle, Ph.D and see the report at link). A summary of the findings follows:

Growing Kelp

- Farming seaweed can be attractive if done in a small area with high production potential (5-10 pounds per foot of line but reported production was only 1.5-4 pounds per foot of line). However, there are only a few seaweed producers in the northeast.
- Availability and quality of seed spools is a constraint.
- Nursery seed production is expensive.
- Production success is more site specific than previously thought and locating a good site can be a constraint.
- Optimal planting time remains unclear, with constraints due to availability of seed spools and higher cost due to longer time in the nursery phase.
- Biofouling presents production and marketing challenges.
- Harmful Algal Blooms, seen more frequently in recent years in the Northeast, pose a risk to seaweed production.

Processing Kelp

- Infrastructure for certain types of kelp processing (blanching, noodles, frozen, etc.) is limited and costly for most small-scale, new growers.
- Development of efficient and safe processing protocols (cleaning, washing) is needed.
- Chefs prefer fresh products but shelf life limitations for fresh kelp present challenges for the industry and restaurants.

Preparing Kelp for Consumers

- A better understanding is needed of optimal color of the kelp product to suit consumer palates.
- Restaurants are eager to serve local kelp products but need a stable supply and established recipes to maintain its presence on the menu.
- A broader suite of kelp products tailored to consumer preferences is needed, as is research on how best to produce and market these products.
- Consumers are interested in trying seaweed salad as their first kelp product choice, with taste and nutrition driving decision-making.
- Kelp growers need to position and distinguish their product in a way that does not compete with lower-priced imported seaweed from Asia.

Marketing/Supply Chain Considerations

- There is a critical need for a more stable supply of kelp product in the region to supply the larger market chains.
- Price to growers is highly variable and more data using bigger quantities of kelp is needed to determine price trends.
- There are currently few intermediaries actively buying and selling farmed seaweed products. Growers can benefit from personal relationships with restaurants, wholesalers, and larger, more established institutional buyers to encourage markets.

Regulatory Framework

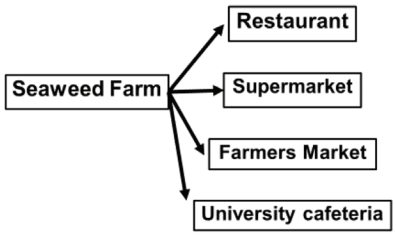
- Some states do not yet have an existing regulatory framework specific to growing and marketing seaweed, so few support services are available and there is reliance on the shellfish regulatory process.

Research Questions Going Forward:

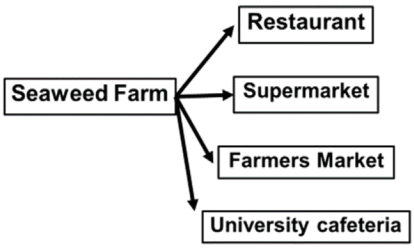
- What are the specific combination of variables (water temp, nutrients/productivity, water depth, water current) necessary to reliably produce a good crop of sugar kelp?
- Does the type of rope or rope treatment affect growth of seaweed?
- What causes the different colors of sugar kelp and does it make a difference to consumers?
- Is it more effective to wash kelp with fresh or salt water?
- What are the most effective ways to avoid biofouling? Where biofouling is unavoidable or difficult to mitigate, can these seaweed products profitably be used to make liquid fertilizer?
- What are the product forms most appealing to consumers? In-depth market testing is needed.
- Can consumers differentiate between kelp harvested and grown in different areas? If so, would product branding be helpful to push product through the market?
- What are processing and packaging alternatives that meet restaurant needs while considering the low shelf life of fresh seaweed products?

Existing & Potential Seaweed Supply Chains

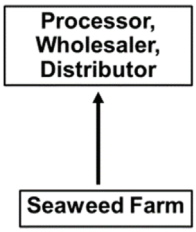
Direct Sales of Fresh Seaweed



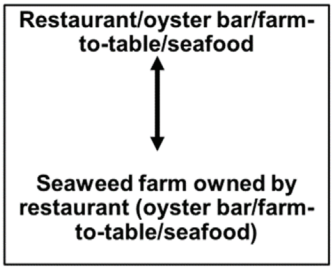
Direct Sales of Processed Seaweed



Sales to Processor, Wholesaler, Distributor



Vertically-Integrated Supply Chain



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