

# Welcome!

## **Seaweed Cultivation Workshop**

January 26, 2017

Organizing Committee:

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# What we want to accomplish today

Main goal: **Identify the potential for seaweed aquaculture in Nova Scotia**

- What has been done here and elsewhere?
  - Positives
  - Negatives
- What do WE need to do to succeed?
  - What are potential products?
  - What do we need to start?
  - What are potential roadblocks?
    - Infrastructure
    - regulatory

# A bit of history (2015-2017)

- AANS requested a study to examine the potential of seaweed aquaculture in Eastern Shore, NS (2015)
- Bill and Stanley Oysters hosted a trial on their site in 2015/16
- AANS developed a proposal for funding (NS-DAF) to develop a plan for a comprehensive study of viability of seaweed culture at a number of sites in NS (2016-2017)

# Survey of candidate seaweed species for aquaculture in Eastern Nova Scotia (2015)



Dr. Neil Ross (Ross Scinergy Inc.)

Dr Thierry Chopin (Professor, University of New Brunswick Saint John)

# Survey of commercial seaweed species in Nova Scotia with promise for aquaculture

Species	Common name	Market	Value (High/Medium/Low)	Readiness for culture	Other comments
<b>Saccharina latissima</b>	Sugar kelp	Food	\$10-14/kg	Ready (T. Chopin – UNBSJ)	Formerly Laminaria saccharina. Annual crop
<b>Alaria esculenta</b>	Winged kelp	Food	\$10-14/kg	Ready (T. Chopin – UNBSJ)	Annual crop
<b>Palmaria palmata</b>	Dulse	Food	\$10-14/kg	In progress (T. Chopin – UNBSJ)	Annual crop
<b>Pyropia umbilicalis and P. purpurea</b>	Nori	Food	-	Non-local species of Pyropia are cultivated in Asia. Would need to develop cultivation methods and markets for these local species.	Formerly Porphyra umbilicalis and P. purpurea

# Survey of commercial seaweed species in Nova Scotia with limited promise for open ocean aquaculture

Species	Common name	Market	Rationale for exclusion	
<b>Chondrus crispus</b>	Irish moss	Food	Tank cultivation of a specific strain for food for the Asian market. Much of the wild harvest reduced years ago, due to cheaper tropical sources of carrageenophytes.	
<b>Ascophyllum nodosum</b>	Rockweed	Food, agricultural products	Large tonnage of wild harvest and lower price for product.	
<b>Fucus vesiculosus</b> <b>Fucus spiralis</b>	Bladderwrack	Food, agricultural products	Abundance in wild and co-location with A. nodosum, along with no defined specific product.	
<b>Ulva lactuca</b>	Sea lettuce	Food, animal feed	Often considered a nuisance species, so growers may encounter resistance to its cultivation at high densities.	

# 2015 - List of regional companies that purchase, produce/process and/or sell seaweed products

Company	Website/contact info	Location	Sector	Current Products
<b>Acadian Seaplants Ltd.</b>	<a href="http://www.acadianseaplants.com/">http://www.acadianseaplants.com/</a>	Dartmouth, NS	Food, agricultural products, nutraceuticals/ cosmetics	Chondrus crispus (Irish moss) – food; brewing agent Ascophyllum nodosum (Rockweed) – crop and animal enhancement Red and brown seaweeds – functional ingredients, cosmetics
<b>SeaBoost</b>	<a href="http://www.seaboosta/">http://www.seaboosta/</a>	Lower Sackville, NS	Food, animal and garden products	Palmaria palmata (Dulse) – Food Chondrus crispus (Irish moss) – Food “Kelp meal” (most often A. nodosum) – Food Saccharina japonica (Kombu) – Food Alaria esculenta – Food Ulva lactuca (Sea lettuce) – Food Pyropia sp. (Nori) – Food Seaweed blend – Horse feed supplement Seaweed meal – soil conditioner
<b>Atlantic Mariculture</b>	<a href="http://www.organicdulse.com">www.organicdulse.com</a>	Grand Manan, NB	Food	Palmaria palmata (Dulse) – Food Ulva lactuca (Sea lettuce) – Food Alaria esculenta – Food Pyropia sp. (Nori) – Food
<b>Roland’s Sea Vegetables</b>	<a href="http://www.rolandsdulse.com/">http://www.rolandsdulse.com/</a>	Grand Manan, NB	Food	Palmaria palmata (Dulse) – Food Pyropia sp. (Nori) – Food “Kelp meal” – Food
<b>Slocum &amp; Ferris</b>	<a href="http://www.dulse.com/">http://www.dulse.com/</a>	Saint John, NB	Food	Palmaria palmata (Dulse) – Food
<b>Louisbourg Seafoods</b>	<a href="http://www.louisbourgseafoods.ca/Home">http://www.louisbourgseafoods.ca/Home</a>	Louisbourg, NS	Agricultural products, interest in food	No products at moment. Developing soil conditioner/remediation.
<b>Ocean Nutrasciences</b>	<a href="http://www.oceannsc.ca/">http://www.oceannsc.ca/</a>	Matane, QC	Bioactives	No products at moment. Investigating bioactives from marine biomass.
<b>Cooke Aquaculture Inc.</b>	<a href="http://cookeaquaculture.com/">http://cookeaquaculture.com/</a>	Blacks Harbour, NB	Novel products	Saccharina latissima and Alaria esculenta. Developing seaweeds for human food, cosmetics, animal feed, biochar. Organically certified kelps.

Natural Ocean Products		Halifax, NS	Functional ingredients	No products at moment. Developing processing technologies for seaweeds and other products.
Ocean Nutrasciences	<a href="http://www.oceanns.ca/">http://www.oceanns.ca/</a> 418 562 4700	Matane, QC	Bioactives	No products at moment. Investigating bioactives from marine biomass.
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# Some Irish literature (2015)

- Aquaculture explained, No. 26: Cultivating *Laminaria digitata* (2011)
- A market analysis towards the further development of seaweed aquaculture in Ireland (2011)
- Business plan for the establishment of a seaweed hatchery and grow-out farm (2011)
- Aquaculture explained, No. 27: Cultivating *Palmaria palmata* (2011)
- *Palmaria palmata* – Recommendations of optimal techniques for obtaining spores of *Palmaria palmata*, settling and maintaining them prior to outplanting at sea (2011)
- *Palmaria palmata* – Recommendations for optimal ongrowing and harvesting techniques (2011)

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