



BANTRY
MARINE RESEARCH STATION

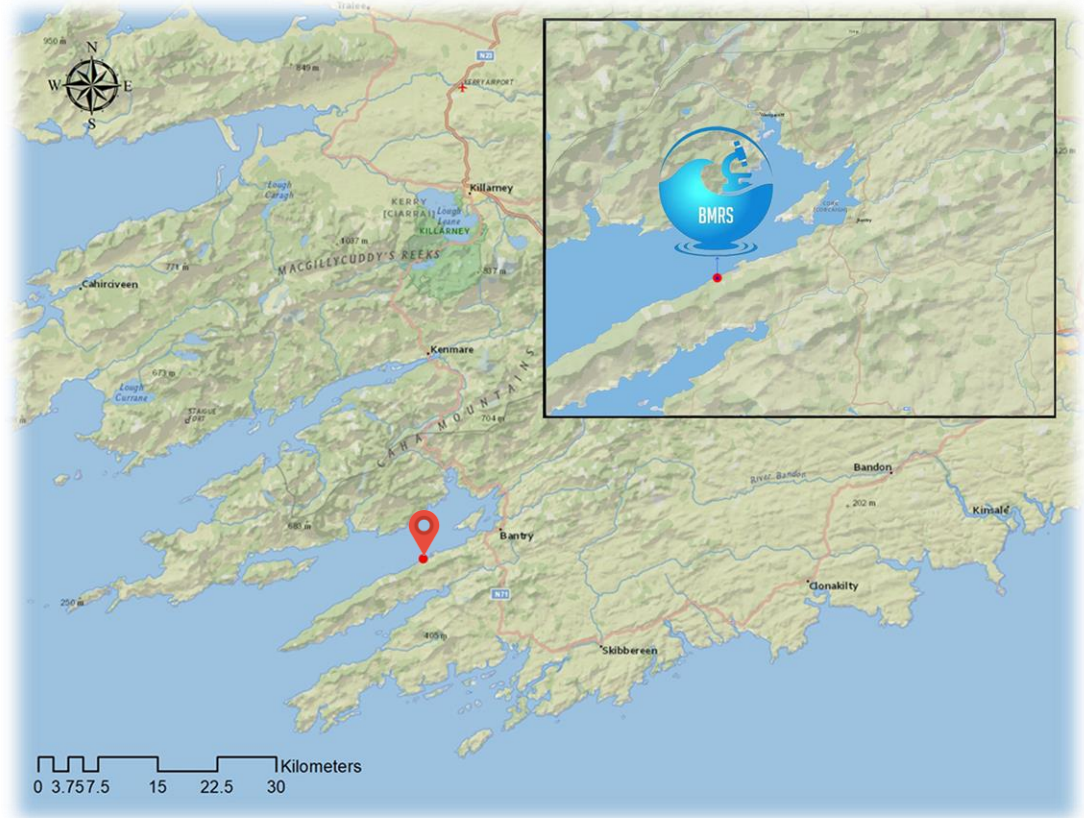
January 2020

Dr Julie Maguire



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Location





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Hatchery and Ongrowing

6 Hectare sea site

For seaweed culture in
Bantry Bay



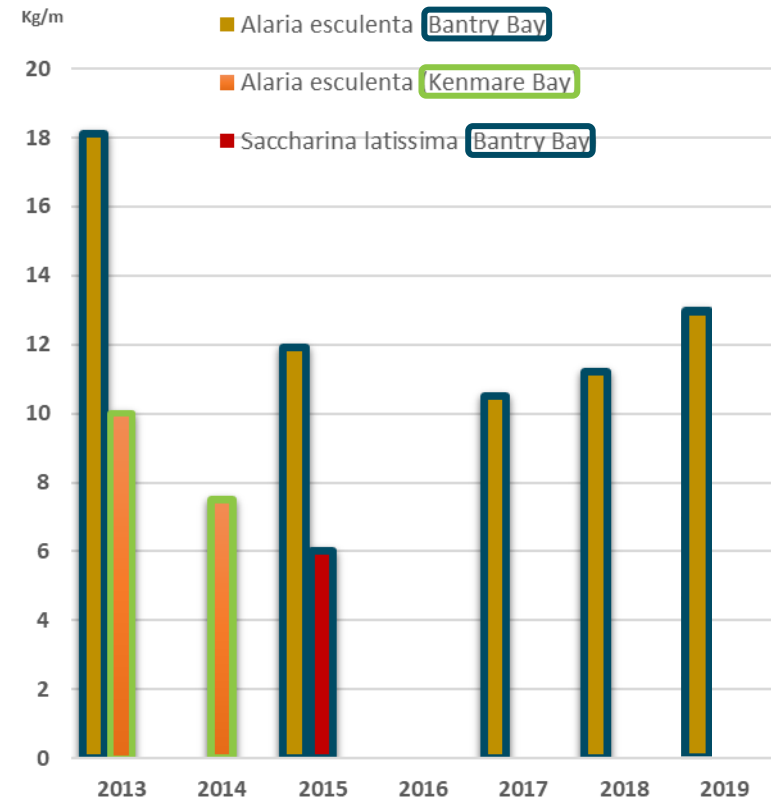
*(Seaweed hatchery in
conjunction with Cartron
Point Shellfish and BIM)*



Cartron Point Shellfish Ltd.

Seaweed production

Year	Sp.		Set up	Final harvest
2013	<i>Alaria esculenta</i>	Bantry Bay	200m long line (1km from cages - control)	18.1 kg/m
	<i>Alaria esculenta</i>	Kenmare Bay	2 x 200m (50m from cages)	10.0 kg/m
2014	<i>Alaria esculenta</i>	Bantry Bay	200m long line (1km from cages - control)	Storm damage – no harvest of seaweed
	<i>Alaria esculenta</i>	Kenmare Bay	2 x 200m (50m from cages)	7.5 kg/m
2015	<i>Saccharina latissima</i>	Bantry Bay	220m not IMTA	6.0 kg/m
	<i>Alaria esculenta</i>	Bantry Bay	80m not IMTA	11.9 kg/m
2017	<i>Alaria esculenta</i>	Bantry Bay	11x110m not IMTA	10.5 kg/m
2018	<i>Alaria esculenta</i>	Bantry Bay	11x110m not IMTA	11.2 kg/m
2019	<i>Alaria esculenta</i>	Bantry Bay	8x110 not IMTA	12.9 kg/m





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Alaria esculenta in Bantry Bay

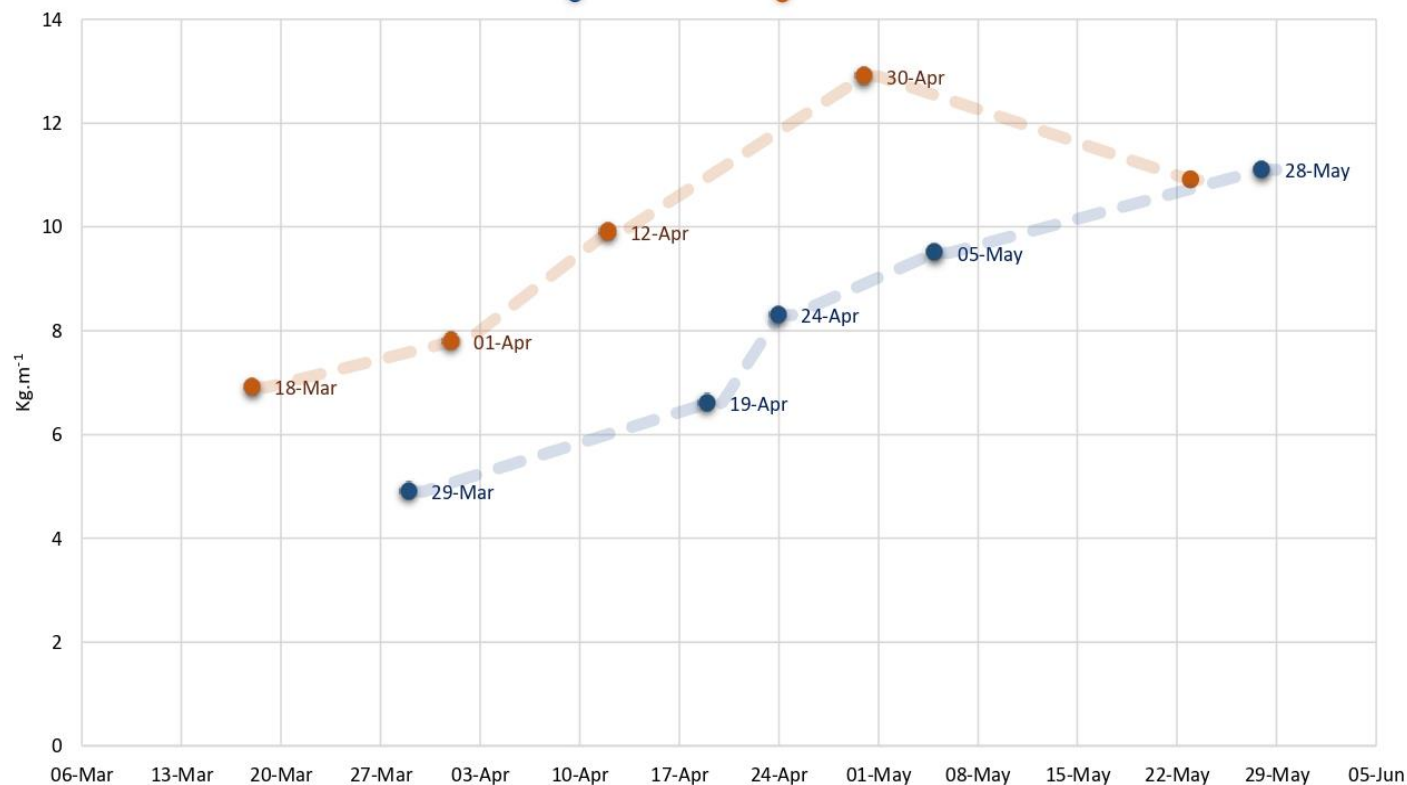


Picture taken 13th Jan 2019
Length: 1m

Picture taken 8th Jan 2020.
Length: 1.7m



Biomass (kg.m^{-1}) of *Alaria esculenta* in Bantry Bay **2018** Vs. **2019**





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SEAWEED PROJECTS

**Alaria
Bioactives**

Methane

IDREEM

NetAlgae

AquaTech4Feed

Farm4More

AgRefine

Seabioplas

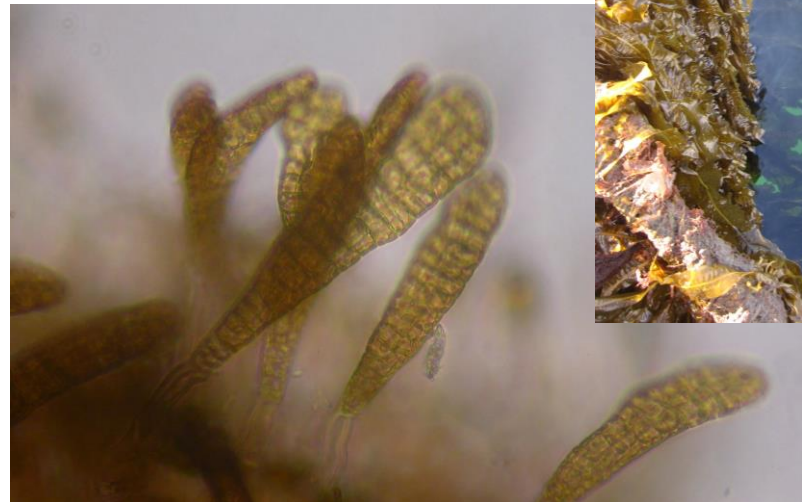
MABFUEL



Completed Projects



- **MABFUEL** – Marine algae as biomass for Biofuel
 - Produced biodiesel
 - Identified best species to use
- **SEABIOPLAS** – Seaweeds from sustainable aquaculture as feedstock for biodegradable bioplastics
 - Seaweed produced with high sugar content: 17.5% (Red seaweed), 15.7% (Green) & 14.9% (Brown)
 - Fermentation with micro-organisms reached 1g Lactic acid per gram of sugar
 - Polymers and products produced; Stretchable films (with the company Sleever) and an Indoor paint (with H&H)



Completed Projects



- **IDREEM** – Increasing industrial resource efficiency in European mariculture
 - Investigated Integrated Multi-Trophic Aquaculture in 7 sites around Europe (Ireland, Scotland x2, Norway, Cyprus, Israel and Italy)
- **Accliphot** – Environmental acclimation of Photosynthesis
 - Investigated how marine bacteria affect photosynthesis in marine plants.
- **NETALGAE** – Inter-regional network to promote sustainable development in the marine algal industry
 - Set up a network of seaweed companies in Europe (122 currently)
 - Created best practice guidelines for sustainable harvesting and processing.



Methane project

Start Date: 1st July 2018

- The project screened native Irish seaweeds (15) to identify suitable candidates demonstrating anti-methanogenic properties.
- Species screened every month for a year in different locations
- All species screened demonstrated some activity but *Asparagopsis armata* was the best by some margin





Incubation unit

- *Asparagopsis armata* tetrasporophytes and gametophytes
- 6L cultures
- Temperature control
- Photoperiod control



Flow through system

- *Asparagopsis armata* tetrasporophytes and gametophytes in 200L tanks
- In a polytunnel (no temp/light control)
- Tanks with/without shading

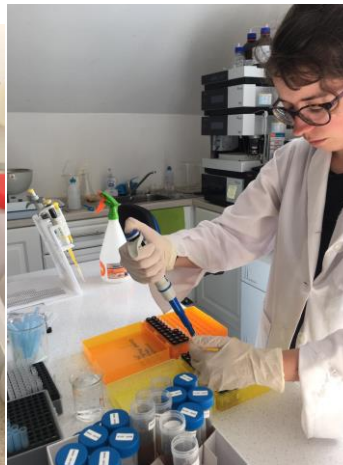
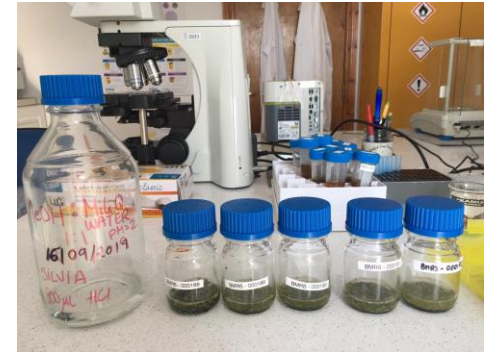
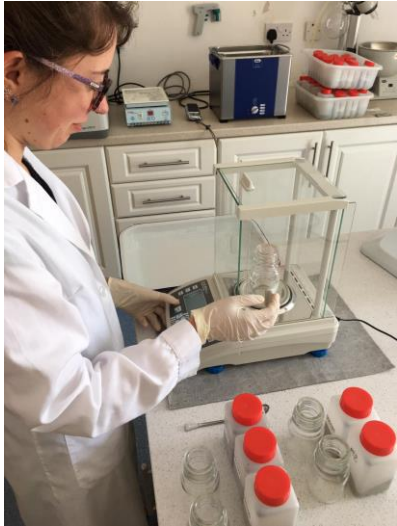


BIM Knowledge Gateway Scheme – *Alaria* Bio-actives

- **Start Date:** 1st July 2017
- **Aim:** To investigate the structural and functional characterisation of macroalgal-derived bio-actives from *Alaria esculenta* cultivated on near-shore long-lines in Bantry Bay, Co. Cork,



Extraction



AgRefine: A Disruptive Innovative Cooperative Entrepreneurial (DICE) education, training and skills development programme rolling out the next generation of Agri Biorefinery and Valorisation Bioeconomy leaders.

- **8 partners:** Lead - University College Dublin
- **Total Budget:** €4,038,684
- **Start Date:** 1st October 2019
- **Funding:** H2020 Marie Curie ITN
- **Aim:** Investigating a novel seaweed ensiling process as an alternative to drying to preserve seaweeds nutritional and monetary value.

Farm4More: Future Agricultural Management for multiple outputs on climate and rural development

- **6 partners:** Lead - University College Dublin
- **Total Budget:** €5,494,598
- **Start Date:** 1st October 2019
- **Funding:** EU LIFE
- **Aim:** Will investigate the use of ensiled seaweed in the animal feed market.



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AquaTech4Feed



AquaTech4Feed: Novel sustainable aquaculture technologies for the production of innovative feeds for improved fish stocks

- **8 partners:** Lead – Hellenic Agricultural Organisation
- **Total Budget:** €1,369,970
- **Start Date:** 1st May 2020
- **Aim:** To formulate novel fish feed from alternative proteinaceous biomass sources, such as algae, duckweed and insects and in order to improve fish production and product quality.

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THANK YOU!



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