How to make a small fortune in seaweed

David Mackie

Marine Biopolymers Limited (MBL)

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Start with a Large one

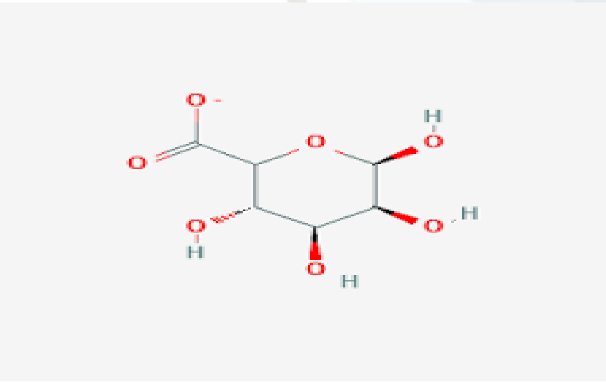
Our story – tales & fails

- Marine Biopolymers Ltd, Ayr, Scotland
- Seaweed users – biorefining
- ~ 100 years combined seaweed experience
- Wild preferred
- Kelp – Laminaria hyperborea
- Scotland – abundant seaweed
- Eventful history – a biorefinery will come

(Auld Ayr, wham ne'er a town surpasses, for honest men and bonnie lasses – Tam O'Shanter, Robert Burns)

An Honest Fail

- Scotland used to be #1 globally in Alginate
- The world “needed” a new Alginate supplier in 2010
- Plenty of seaweed in Scotland
- “We were mainly experienced Alginate people – we can go straight to full scale, right?”
- “Formaldehyde is OK, isn’t it?”
- *Not so easy, unfortunately*



"Kelpgate" – an Epic fail

- *2018 – a hot Summer, but*
- Storms were coming in Scotland
- Salutary lesson – Social Media, mercurial Politicians
- The "orange bucket lady"
- Famed "British Justice" – more N Korea – no right of reply given
- *Kelp harvesting at sea banned – illogical, nonsense alternatives*
- "Tea & sympathy" mean nothing

Seaweed Biorefining – fail or tale?

- *Another of these - Epic fails & Honest tales – or not ?*
- Seaweed Biorefining – what you want it to be
- ***Our Bread & Butter - we say tale not fail*** ….
  - Not easy to develop to scale
  - Not a magic solution, but it is a profitable one
  - Involves trade-offs – win some, lose some
  - Limits for any seaweed species – know what is good/bad
  - Multiple trial and error
- *Never forget the economics*

“It’s the economy, stupid”

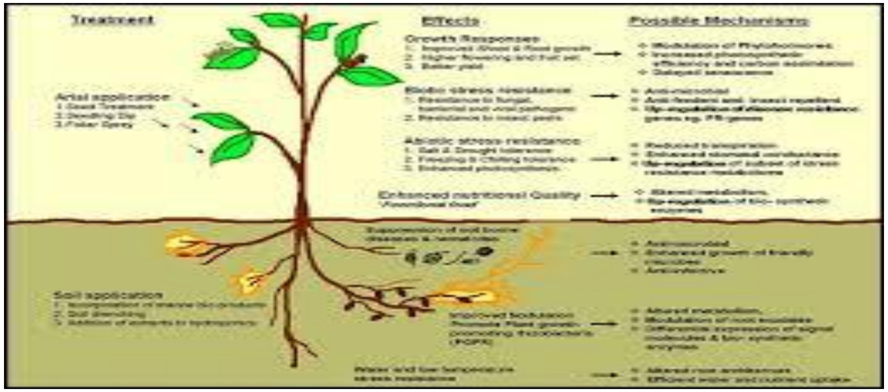
Seaweed has many skeletons

- *Both Wild and Farmed types*
- Running Tide – the “woodchipper”
- Oceanium – betting on Fucoidan
- Alginor – a slight “miscalculation”
- “Seaweed to Biofuels” etc etc
- START AND FINISH WITH THE ECONOMICS!

Tales & Fails


What are bioplastics made of?
1st gen: corn and soybean
2nd gen: grass and wood
3rd generation: seaweed and algae


OCEAN CALLS
EP.3
Why should Europeans start eating seaweed?


Treatment
Effects
Possible Mechanisms

An epic fail and tall tale

“European demand for seaweed is surging, driven by the shift toward plant-based proteins, sustainable packaging, and biostimulants. The European market value is projected to reach up to €9 billion by 2030, with volumes expected to skyrocket to 8 million tonnes as industries scout local supply chains”

“Seaweed farming in Europe is stepping into the spotlight. Demand is projected to surge – from 270,000 tonnes in 2019 to 8 million by 2030 – potentially unlocking €9 billion in economic value, 115,000 jobs, and the power to slash 5.4 million tonnes of CO2, according to Seaweed for Europe”.

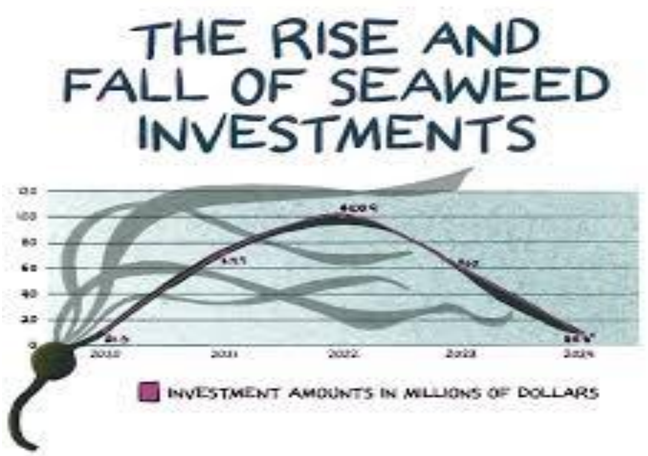
- 8 million tonnes by 2030 – **La-la land**
- (and it means a harvesting capacity ~ 50 M tpa)
- Who peddles this nonsense? **It harms “Seaweed”**
- Wishful thinking does not make it happen

Create demand, the Supply will follow?

- ***Economics always tells****, but*
- Seaweed - not a magic substance
- Technical limits – low yields
- Technology limitations and costs
- Clarity on seaweed “trade-offs”

Investors & Grant bodies

- Vital part of the equation
- Respect but "not your friend"
- Return wanted – their money!
- Herd behaviour (FOMO?)
- Shallow diligence (sorry!)
- Both Financial & Corporate
- Grant bodies and Seaweed – a separate can of worms
- The EU's motivation?



How do we rate ourselves (MBL)?

- *Epic fails & Honest tales or Epic tales & Honest fails?*
- Both in truth
- On the **debit** side – initial technology average, over-reached on scale ambition, too slow on securing seaweed (licence), "blindsided" by Kelpgate
- On the **credit** side – now really good technology, no crazy rabbit holes, don't believe in alchemy, realistic on seaweed limits and economics/value positioning
- Marks out of 10 ….. you decide