Aotearoa New Zealand's Seaweed Sector Framework

Kelp Blue Case Study

START-UP COMPANY

kelp blue
RE-WILDING THE OCEANS

Company Profile

Markets

- Agriculture
- Carbon credits
- Nutraceutical / pharmaceutical
- Textiles

Products

- Bio-stimulants and agri-feeds
- Blue carbon offsets
- Seaweed extracts
- Seaweed fibres

Seaweed species

- *Macrosystis pyrifera*

Supply chain

- On-land kelp hatchery and nursery
- Maintain submerged kelp farms with new growth removed for products
- On land solar drying and processing of products
- Exports internationally

Selling points

- Carbon sequestration
- Healthy marine ecosystems benefit
- Coastal communities benefit
- Sustainable / biodegradable products

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Kelp Blue

Origin story

A 2019 lecture by Australian scientist Tim Flannery on seaweed's absorption of carbon dioxide (CO_2) inspired Daniel Hooft to resign from his 20-year career at Shell and set up Kelp Blue in early 2020. Daniel's vision was for Kelp Blue to achieve significant carbon sequestration, boost oceanic biodiversity on a regional scale, and bring economic benefits to remote coastal communities. He also wanted to make Kelp Blue an investment-grade opportunity for international growth capital.

Kelp Blue's model is to cultivate giant kelp in deep (25-100m) water, on vast submerged arrays 15m below the surface of the sea. The top of these giant kelp forests is then "mowed" every 3-4 months, but most of the kelp biomass is untouched and provides ecosystem benefits all year round. Managed well, these giant kelp forests should last for 25+ years and sequester significant amounts of carbon in deep ocean sediments, while supporting local and regional biodiversity.

After studying optimal kelp cultivation locations globally, Daniel and the Kelp Blue team identified the Benguela current (offshore from Luderitz, Namibia) as a prime location for operations. This is where the company is piloting its cultivation and offshore engineering techniques.

The regularly harvested kelp biomass is sustainably processed and manufactured into biostimulants that are sold to farmers. Kelp Blue has conducted multiple field trials of its Stimplus+ biostimulant product on different crops. These have seen yield increases of 15-30% and reduced crop mortality due to drought and/or disease. The trials have also shown improved soil organic carbon and soil biome health. Taken together, these suggest farmers will achieve higher revenues from lower input costs, and the health of their soil improves over time. Chemical run-off and excess nutrients into downstream waterways are also expected to be reduced.

Growth aspirations

Kelp Blue aspires to grow its current Namibian operations, while simultaneously expanding internationally where the climactic and bathymetric conditions are suitable for cultivating giant kelp. The team has explored options in Alaska, British Columbia (Canada), Chile, Tasmania (Australia) and New Zealand. They have also raised significant early investor capital that demonstrates the appeal of Kelp Blue's vision and progress so far.

In Namibia, Kelp Blue has been granted pilot licences for 100 hectares offshore and 20 hectares inshore. Pending positive completion of the pilot, the company has first right of refusal for 1 million hectares where operations would be comprised of smaller 6,000-hectare blocks.

In Alaska, Kelp Blue is in the public consultation phase of an initial 120-hectare license, which is expected to be awarded by June/July 2023. A 5,000-hectare license will then be taken into consideration within 12-18 months, with the water space reserved for Kelp Blue in the interim.

In British Columbia, Kelp Blue is exploring a joint venture with a company that has over 10 licensed

areas near Vancouver Island. These licenses took 12-18 months to secure and are held collaboratively with the local First Nations (indigenous communities). They include a 300-hectare license suitable for Kelp Blue to start operations in February 2023.

Kelp Blue visited New Zealand in May 2022 and engaged with regulatory authorities, local Iwi, seaweed entrepreneurs, academia, Cawthron, and environmental NGO's. They were impressed by the expertise and logistical infrastructure they encountered and see potential for New Zealand to be a world leader in the seaweed industry.

However, they were somewhat concerned by nutrient availability and the cost of doing business, and highly concerned about the uncertainty of the resource consenting process for aquaculture water space (especially the duration).

Kelp Blue abandoned its Tasmania plans due to sea temperatures rise that is a risk to giant kelp cultivation. They are monitoring the political situation in Chile and were recently invited by the Chilean regulatory authorities to discuss the future of the seaweed industry. This included the possible fast-tracking of large areas of water for an initial commercial demonstration project.

Barriers to growth

Kelp Blue believe the regulatory process to obtain consented water space for marine farming in New Zealand is costly, and the outcome is uncertain. However, it is the lengthy timeframe that present the biggest barrier to investment. For large scale marine farming, the process might take five or 10 years and it isn't clear why it is more likely to be one than the other. This level of uncertainty on timeframes makes capital raising and investment extremely difficult.

By comparison, Alaska has a clear licencing route that is time-bound where the investor is hand-held through the process by the Department of Natural Resources. In Alaska and Tasmania, the regulatory authorities have established "one-stop shops" to assist investors/entrepreneurs to navigate the regulatory process to obtain the necessary licenses.

This includes the possibility of fast-tracking experimental projects with significant potential co-benefits. Namibia made a cabinet level intervention to award Kelp Blue a small scale, time-bound licence of 3+3 years, that converts into a larger, long-term licence if conditions are met.

The regulatory risk outlined above was the main reason behind Kelp Blue's decision to 'pause' its planned investment in New Zealand seaweed farming. It is the conclusion of Kelp Blue that New Zealand is still some way from a regulatory framework that allows participatory, ecosystem based, and accelerated approaches that investors need.

Required sector responses

Kelp Blue believe that New Zealand needs to streamline the regulatory pathway to pilot seaweed farming methods, and to collect data on the positive and negative impacts of activities. A "small and quick first" approach would also provide a showcase for concerned parties to directly observe the reality of proposed solutions. In addition, it would be possible to validate the technical and financial viability of proposals. Taken together, a more permissive regulatory approach to piloting seaweed aquaculture would reduce the investment risk for establishing larger scale operations.

Daniel Hooft also believes that shorter and more consistent timeframes are needed for consenting new water space. This could be linked to a more permissive approach to aquaculture pilots, whereby investors would have greater certainty that consents would be granted in set timeframes if positive impacts were proven, and negative impacts were minimal.

Kelp Blue believe that the Aotearoa New Zealand Seaweed Sector Framework is an important document as it takes a broad view of the sector, and succinctly presents clear and achievable goals that will have an impact. Clear progress on these goals, especially on the regulatory priorities, would reduce the risk for seaweed sector investment in New Zealand. If this were to change, then Kelp Blue would likely change its investment decision and refocus on New Zealand.

About Sustainable Seas Challenge

Our vision is for Aotearoa New Zealand to have healthy marine ecosystems that provide value for all New Zealanders. We have 60+ research projects that bring together around 250 scientists, social scientists, economists, and experts in mātauranga Māori and policy from across Aotearoa New Zealand. We are one of 11 National Science Challenges, funded by Ministry of Business, Innovation & Employment.

For more information on this project, visit:
www.sustainableseaschallenge.co.nz/our-research/building-a-seaweed-economy

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