

Submitted to Fast-track approval applications
Submitted on 2024-05-03 17:24:18

Submitter details

Is this application for section 2a or 2b?

2A

1 Submitter name

Individual or organisation name:
Kelp Blue Aotearoa Forestry Limited

2 Contact person

Contact person name:
Felicity Perry

3 What is your job title

Job title:
Managing Director

4 What is your contact email address?

Email:
s 9(2)(a)

5 What is your phone number?

Phone number:
s 9(2)(a)

6 What is your postal address?

Postal address:

127 Wilton Road,
Wilton
Wellington
6012

7 Is your address for service different from your postal address?

No

Organisation:

Contact person:

Phone number:

Email address:

Job title:

Please enter your service address:

Section 1: Project location

Site address or location

Add the address or describe the location:

The site of the proposed kelp farm project is situated between 5 and 20 km east-south-east of Stirling Point and is shown in the map attached. A site selection exercise was undertaken to identify potential areas in the waters of the Foveaux Strait on the South Island suitable for the project. Fundamental overarching criteria for site selection included:

- Suitable water depth, water quality, coastal conditions (currents/swell/wave heights, etc), and seabed geology for installing structures and farming *Macrocystis Pyrifera* (bladder kelp);
- Avoiding areas used for navigation, and other commercial operations;
- Avoiding marine protection and ecologically significant areas;
- Considering areas of significant cultural value and outstanding natural features and landscapes including the visual amenity of such areas;
- Consultation with the local community, commercial operators in the area, and local iwi to understand existing users of the space, concerns, and insights on the environment; and
- Minimising the distance to travel from port to site to mitigate risk for our team as well as reduce the fuel used to install, monitor, operate, and maintain the farms. The six sites we identified in the Foveaux area have been socialised and discussed through both public and bilateral meetings. Using the above criteria, and the feedback we received, we were able to finalise our preferred site off Tiwai Peninsula. We are applying for a coastal permit of 3340 ha of which our installations would utilise 1500-2000 ha. This would enable us to demarcate buffers for navigation lanes (200-500 m), ensure that we can provide buffer zones for recreational and commercial access as well as allow us to adapt our plans for marine mammal movements and potential behaviour change.

File upload:

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Do you have a current copy of the relevant Record(s) of Title?

No

upload file:

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Who are the registered legal land owner(s)?

Please write your answer here:

The site is located within the common marine and coastal area and therefore is not owned by the Crown nor any other person (see section 11(2) of the Marine and Coastal Area (Takutai Moana) Act 2011).

Detail the nature of the applicant's legal interest (if any) in the land on which the project will occur

Please write your answer here:

Kelp Blue has no legal interest in the area as it is part of the common marine and coastal area.

Section 2: Project details

What is the project name?

Please write your answer here:

Project Toe-Toes Kelp

What is the project summary?

Please write your answer here:

The project will commercially cultivate the indigenous seaweed, Bladder Kelp/*Macrocystis Pyrifera*, from locally sourced genetic material, in Kelp Blue's existing onshore hatchery in Bluff. The kelp will then be planted out onto marine structures at the proposed site in Foveaux Strait. The upper layer of the kelp canopy, approximately 1.5 meters below the sea surface, will undergo rotational harvesting, while allowing the rest of the kelp to regrow and sustain marine ecosystem function. Once harvested, the kelp will be processed in Bluff utilising a biorefinery approach to process the bioactive components into

What are the project details?

Please write your answer here:

Purpose:

Kelp Blue's purpose is to cultivate indigenous, commercial seaweed farms as a contribution to re-wilding the oceans by boosting biodiversity, improving ocean health, and sequestering carbon. The Project aims to have a positive impact by cultivating marine farms of *Macrocystis* to create kelp forests, which contribute positive ecosystem benefits to the marine environment. Kelp products will also create a positive impact on the terrestrial environment e.g. biostimulant which will reduce reliance on synthetic inputs in Agriculture.

The Project would represent a new, regionally significant aquaculture activity that adds diversity and depth, not only to the Southland aquaculture industry but also to the wider Southland economy.

Objectives:

Kelp Blue judges its returns on investment through four categories: environmental, social, financial, and inspiration to others.

Environmental Impact

Biodiversity: Bladder kelp forests are positive ecosystem engineers and are arguably the most potent foundational species in temperate waters. These forests provide a nursery for a myriad of marine species while introducing an entire trophic cascade into the environment they grow in, boosting regional biodiversity on a significant scale.

"Bladder kelp beds are amongst the most productive coastal and marine subtidal communities in New Zealand. They provide a range of ecosystem functions (services) including modifying the physical environment and providing food, biomass, and highly structured three-dimensional habitat. The presence of kelp forests can dampen water motion, alter sedimentation and resuspension, shade the seafloor, remove nutrients from the water column, capture and sequester carbon, and stabilise substrata. Kelp beds have a dominant influence on the composition of reef assemblages, including important commercial and non-commercial shellfish (i.e., pāua, rock lobster, kina) and finfish (i.e., butterfish, blue cod, moki, wrasse) species. As such, kelp forests are critical for maintaining biodiversity."

MPI Review of Sustainability Measures for Attached Bladder Kelp 2022/23

Carbon Sequestration: giant kelp is considered one of the most potent carbon sinks, average drawdown of around 28 tonnes of carbon dioxide per hectare, per year, which is more than double that of pine trees according to NIWA. Kelp Blue and the Kelp Forest Foundation are building a methodology to underpin and prove this with Gold Standard, the voluntary carbon accreditation body established by the World Wildlife Fund; in due course, this will contribute an additional value stream to the Project.

Financial Returns

Revenue modeling: estimated annual revenue of NZ\$135 million at full scale.

Market: the major market for the harvested kelp will be Kelp Blue Aotearoa Biotech Limited, which is part of the global group that has a US\$26 million offtake agreement with one of the world's largest FMCG companies.

Social Impact

Workforce: establishing and operating a kelp farm requires a workforce with diverse skills, including marine biologists, drivers, engineers, divers, skippers and crew. It is estimated that in Stage One during Startup the project will employ between 20 and 40 people with the majority based in Bluff and Southland. In Stage Two and Stage Three this will move to between 80 and 150 people. By creating new, year-round job opportunities across different sectors, the farm will contribute to regional economic development and diversification and provide sustainable livelihoods for individuals in the community.

Workforce development: Kelp Blue's approach to workforce development is to support local talent by temporarily utilising the Kelp Blue team's global expertise and to proactively upskill staff with training from leadership training to defensive driving, diving and boat skills. The pipeline of talent is supported through rolling traineeships (includes master's students and internships) and close working relationships with institutions such as our developing relationships with the Southern Institute of Technology (SIT), Nelson Marlborough Institute of Technology (NMIT), Auckland University of Technology (AUT) and groups such as Te Rūnanga o Ngāi Tahu's Capability and Attraction Team.

Community: Kelp Blue is a company that wants to be actively involved in, and responsive to, the needs and wants of the communities where we operate. We start with community engagement to understand the needs of the community and develop a relationship based on trust. Examples to date are supporting reforestation projects operating in Wellington Harbour and Bluff Harbour, as well as supporting education through the work of AUT, SIT and NMIT at Ocean Beach.

Inspirational

Kelp Blue recognises the value of being able to inspire others in areas as diverse as ocean health, land regeneration, and the value of seaweed, as well as being a company that concurrently values the environment/social and financial elements of our work.

Kelp Blue has two sister organisations: the Blue School, which was established to provide high-quality primary school education with an emphasis on the ocean and environment in Lüderitz (our base in Namibia); and the Kelp Forest Foundation, an independent, philanthropically funded research institute that collaborates with institutions across the globe (including the Cawthron Institute) to understand the carbon sequestration and biodiversity potential of kelp, along with issues of afforestation and reforestation.

Kelp Blue takes every opportunity to share our story speaking everywhere from primary schools to ministries and from podcasts to conferences around the world. In December 2023, Kelp Blue won the global Zayed Sustainability Award for Climate Action in Dubai, and in May 2024, Kelp Blue was named as one of the Top 100 most promising carbon removal innovators competing in the XPRIZE Carbon Removal with a US\$ 50million prize.

Activities:

Bladder Kelp or Macrocystis is found globally. In New Zealand, it can be found from the southern North Island to the Sub-Antarctic Islands. It prefers cooler waters of 12-14°C and naturally occurs in water depths of 10-15 meters where it attaches to the rocky substrate. Depending on conditions, kelp can grow up to 45 meters in length and at speeds of 50 centimeters per day. These individuals have a lifespan of 2-6 years, during which they naturally die back in the summer and re-grow in the autumn. Individual fronds of the plants typically live for around 4-9 months. These details are according to David R. Schiel and Michael S. Foster's research in 2015.

An identified coastal space in Foveaux Strait will be used to farm Macrocystis. This Macrocystis will be grown from sori – fertile material on seaweed fronds - sourced locally under Ministry of Primary Industries regulations. The sori will be cultivated from the microscopic gametophyte stage and then seeded onto twine in the hatchery. Once these have grown into sporophytes of about 2mm in length on the twine, this twine will be planted out onto the lines of the farm structures.

The farm structure will consist of lines submerged to around 5m below the water's surface, under constant tension, and secured by screw anchors designed by Picton-based company MarineFlex and installed by the license holder for New Zealand. MarineFlex utilises a screw anchor installation system that has a verified holding capacity and has been developed and implemented widely in mussel farms throughout New Zealand and globally. The design, materials, and maintenance schedule have been chosen to maximise kelp growth while minimising environmental impact, and risk of marine mammal entanglement, or impact on the visual landscape. Given kelp farming requires no feed, surface platforms, or lighting, the visual impact of the farm will be limited to the kelp canopy, the navigational aids required by Maritime NZ, and the vessels operating on the farm.

The upper layer, approximately 1.5 meters below the sea surface, of the kelp forest canopy will undergo rotational harvesting while allowing the rest of the kelp to regrow and sustain marine ecosystem function. After the first harvest, the kelp can be re-harvested every three to four months. During the

Start-Up Stage, harvesting will take place by hand from small vessels, and once we reach the scale of installation and kelp biomass, we will invest in a harvester vessel.

To support the installation, maintenance, and operations of the farms and the marine monitoring programme, there are different infrastructural, facilities, and physical assets required, including an expanded hatchery at Ocean Beach, workshops, warehousing, offices, laboratory spaces, and vessels. Beyond this, there will also be infrastructure required to process the harvested kelp canopy including factory space, storage, and shipping.

Attached is Figure 1: Design of a Kelp Farm Array

file:///Users/angeliquedodds/Desktop/Fast%20Track%20Application%20Figure%201.pdf

Describe the staging of the project, including the nature and timing of the staging

Please write your answer here:

- Stage One, Startup: A comprehensive marine monitoring plan will be implemented to supplement and confirm existing data for the proposed site. This will include (but is not limited to) marine mammal and seabird monitoring, seabed and water column baseline assessments and geochemical condition monitoring. The installation of 10 - 20 hectares per month will occur concurrently until an installed area of approximately 400 hectares is achieved. This stage is estimated to take 1 year.
- Stage Two, Scale up: with the approach validated, the installation capacity will be scaled to install around 40 hectares per month until an area of around 1000 hectares is reached. Ongoing marine monitoring will occur during Stage Two to confirm no adverse impacts are occurring and validate the anticipated positive impact on the environment alongside the positive impact on the community. During this stage, kelp will be grown at scale and positive impacts on the environment and the community (via creating sustainable jobs, investing in the education of the youth and enabling the sustainable aquaculture industry in Southland) will be evident. Within Stage Two, we would also increase sales and aim to start developing blue bonds, carbon credits and biodiversity credits. Stage Two is estimated to be completed within a further 2 years.
- Stage Three, Steady State: utilising the results from the initial 3 years of marine monitoring, 40-50 hectares per month will be installed until full-scale operations are achieved. A long-term marine monitoring management plan will be subsequently completed to continuously monitor the environment, the structure, and the kelp and enable preventative maintenance to occur. This phase should take around 2 additional years. It is anticipated that the kelp farm will be fully operational within 5 years of getting the resource consent.

What are the details of the regime under which approval is being sought?

Please write your answer here:

We are seeking coastal permits under the Resource Management Act 1991 to undertake marine farming at Tiwai Peninsula, which would authorise aquaculture activities to be undertaken in the coastal marine area and requires decisions under Part 9A of the Fisheries Act 1996. The coastal permits would cover the erection and placement of structures and associated disturbance of the seabed, occupation of the coastal marine area, and various other associated activities.

If you seeking approval under the Resource Management Act, who are the relevant local authorities?

Please write your answer here:

The relevant local authority for the coastal area of Foveaux Strait is Environment Southland.

What applications have you already made for approvals on the same or a similar project?

Please write your answer here:

We have opened a pre-application file with Environment Southland for coastal permits to undertake marine farming. However, no application has been made.

Is approval required for the project by someone other than the applicant?

No

Please explain your answer here:

No, the approval for the project is only required by the applicant.

If the approval(s) are granted, when do you anticipate construction activities will begin, and be completed?

Please write your answer here:

Quarter One details:

- Staffing: Begin recruiting for key workstreams: environmental monitoring, engineering, marine operations, biosystems, and support. During different stages of the project, we would bring in staff from Namibia or the Netherlands with specific skills to enable us to start work quickly, supporting the learning of the local staff and efficiently coordinating with Kelp Blue's global expertise.
- Baseline Monitoring: Field work to validate and enhance the baseline environmental data for our site focussing on current geochemical conditions and biodiversity monitoring.

- Detailed design: based on our experience from designing and installing farms in Namibia, and setting up in Alaska, we have a design for the project, that is already finetuned with local expertise for the local conditions around Bluff. We will continue to optimize this when new technologies become available.
- Procurement: we would obtain facilities and assets to increase our operational capacity such as extra warehouses, office space, vessels, and cars. We would also procure all materials needed to install the first 20 hectares and finalize installation contracts with local engineering and installation companies.

Attached is Table 1: High-level Timeline

file:///Users/angeliquedodds/Desktop/Fast%20Track%20Application%20/Staging%20.pdf

Section 3: Consultation

Who are the persons affected by the project?

Please write your answer here:

- relevant local authorities: Environment Southland
- relevant iwi authorities: Te Rūnanga o Ngāi Tahu (the iwi authority), Awarua Runanga (hapu and marae), and Te Ao Mārama Inc (the Iwi liaison entity representing Southland's four rūnanga for resource management and local government issues).
- relevant Treaty settlement entities: Te Rūnanga o Ngāi Tahu
- protected customary rights groups: NA
- customary marine title groups: NA
- applicant groups under the Marine and Coastal (Takutai Moana) Act 2011: Te Rūnanga o Ngāi Tahu
- any person with a registered interest in land that may need to be acquired under the Public Works Act 1981: NA
- Community entities: Bluff Hill/Motupohue Environment Trust
- Commercial entities operating in the area: Sanford, Ngāi Tahu Seafood, Oyster Farmers, Southport, NZAS
- Central Government: Ministry of Primary Industries, Department of Conservation, Maritime Safety Authority

Detail all consultation undertaken with the persons referred to above. Include a statement explaining how engagement has informed the project.

Please write your answer here:

Kelp Blue's work extends beyond operations to include actions that support social and environmental outcomes as well as inspire others. We also believe we have a role to play in enabling the seaweed industry to develop as a whole. Therefore, the constituency of stakeholders involved in our work is large. Globally Kelp Blue is committed to engaging, building relationships and consulting with the communities where we operate as we are coming into their towns, harbours and marine space. These communities include central and local government, indigenous groups, NGOs operating in the area, commercial and recreational users of the space as well as others such as schools, and academia. Our most relevant example is Alaska where throughout the development of our license application, and now as we begin operations, we are engaged broadly across the community in particular with the Haida and Tlingit tribes.

Since Kelp Blue's first visit to New Zealand in 2022, we have actively sought to engage, build relationships and consult with stakeholders across New Zealand, and in particular for this project, in Southland and Bluff. Please find attached a detailed table outlining engagements and consultations with the organisations listed in the earlier question.

Throughout the development of our aspiration to farm in Southland – this project - these engagements and consultations have broadened and deepened. The discussions we have had are informing and influencing our proposed project and led to further stakeholder engagement. Examples of where this has happened including:

- Facilitating introductions to stakeholders and organizing meetings and events to foster discussions about Kelp Blue and our proposal.
- Seeking local insights, information and knowledge regarding our project, potential sites, existing local infrastructure and support.
- Moving ahead with our proposal, adjusted and refined by considering the information and feedback provided by the community.

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FTA Bluff Engagement 3May24.xlsx was uploaded

Describe any processes already undertaken under the Public Works Act 1981 in relation to the land or any part of the land on which the project will occur:

Please write your answer here:

N/A

Section 4: Iwi authorities and Treaty settlements

What treaty settlements apply to the geographical location of the project?

Please write your answer here:

Te Rūnanga o Ngāi Tahu is the iwi authority over most of Te Wai Pounamu, including the Southland region, as set out in the Te Rūnanga o Ngāi Tahu Act 1996. Te Rūnanga is comprised of 18 Papatipu Rūnanga which represent those who hold mana whenua over various areas in the takiwā. Waihopai Rūnaka, Te Rūnanga o Awarua, Te Rūnanga o Oraka Aparima, and Hokonui Rūnaka are Papatipu Rūnanga which have interests in Southland, including the marine space we are applying for.

Details of Ngāi Tahu's cultural, spiritual, historic, and traditional association to this area are contained in the Ngāi Tahu Claims Settlement Act 1998 (NTCSA). There is a statutory acknowledgment for Rakiura/Te Ara a Kiwa (Rakiura/Foveaux Strait Coastal Marine Area) in Schedule 104 of the NTCSA. The statutory acknowledgment records Ngāi Tahu's cultural, spiritual, historic, and traditional association with the Rakiura/Te Ara a Kiwa areas. The full text of Schedule 104 Statutory Acknowledgment for Rakiura/Te Ara a Kiwa (Rakiura/Foveaux Strait Coastal Marine Area).

Under the RMA, consent authorities must have regard to the Rakiura/Te Ara a Kiwi statutory acknowledgment in informing whether Ngāi Tahu is an affected person for the purposes of sections 95 to 95G of the Resource Management Act 1991. Kelp Blue, Awarua Runanga, and Te Ao Mārama Inc. are in ongoing discussions regarding the development of the project, and, if the project is consented, we will continue to do so throughout the project's lifetime.

Are there any Ngā Rohe Moana o Ngā Hapū o Ngāti Porou Act 2019 principles or provisions that are relevant to the project?

No

If yes, what are they?:

Are there any identified parcels of Māori land within the project area, marae, and identified wāhi tapu?

No

If yes, what are they?:

Is the project proposed on any land returned under a Treaty settlement or any identified Māori land described in the ineligibility criteria?

No

Has the applicant has secured the relevant landowners' consent?

No

Is the project proposed in any customary marine title area, protected customary rights area, or aquaculture settlement area declared under s 12 of the Māori Commercial Aquaculture Claims Settlement Act 2004 or identified within an individual iwi settlement?

No

If yes, what are they?:

Has there been an assessment of any effects of the activity on the exercise of a protected customary right?

No

If yes, please explain:

Upload your assessment if necessary:

No file uploaded

Section 5: Adverse effects

What are the anticipated and known adverse effects of the project on the environment?

Please describe:

Visual/Natural Character Effects

The visual impacts of the proposed kelp farm are very low. All lines and buoys are approximately 5m below the surface, therefore all that is visible from the surface is surface-reaching kelp fronds and any required navigational markers. During harvesting, vessels will also be present within the site; however, any visual effects of these will be less than minor within Foveaux Strait given the commercial fishing and port shipping in this area.

Environmental Effects

Kelp farming has few adverse impacts on the marine environment and is increasingly being recognised for its' environmental benefits globally. The proposed kelp to be farmed is the indigenous *Macrocystis pyrifera* kelp, which is locally a highly valued foundation species for marine ecosystems. No feed inputs or discharges occur as part of the kelp farming process and good water quality is vital to the success of this species. The harvesting method ensures that the majority of the kelp biomass remains permanently in the water column whilst only the top surface (around 1.5 meter below the sea surface) is harvested. This allows for maintained ecosystem function, water purification and habitat stability during all phases of the grow-out and harvesting process

Site selection has focussed on avoiding any known habitats of distinctive nature or regional/national significance, including significant habitats for marine mammals, brachiopod, bryozoan, or commercially harvested oyster beds (see Tables 1 & 2). The benthic habitat below the proposed farm site has been coarsely classified as sand and bathymetry shows similar relief characteristics throughout the footprint. However, it is important to note that as kelp farming does not require the addition of feed or nutrients to the water column, the benthos below a kelp farm is not anticipated to be adversely altered beyond additional shading through the formation of a productive kelp canopy habitat. It provides underwater forest processes that include the absorption of carbon, nitrogen, and phosphorus, and filtration of coastal waters, whilst also creating new habitats for a diversity of marine life. Species

such as mussels, sponges, ascidians, and hydroids are likely to attach to submerged lines and mooring screws, and as such the biodiversity within the site footprint is likely to increase. This may in turn add rugosity to the seafloor via shell debris as a secondary effect from non-farmed species. Scientific investigations will be undertaken to inform detailed kelp farm design and ensure that any currently unknown impacts on ecological habitats are avoided or mitigated. Further to this, the use of Marine Flex screw-in anchor systems significantly reduces any benthos disturbance or displacement at the mooring points for the farm and allows for adaptive management in the placement of these structures (which have placement precision of $\pm 0.4\text{m}$) to avoid any sensitive benthic species identified through the monitoring program prior to establishment.

Kelp Blue began farming kelp in Namibia two years ago. The kelp biomass and environment at this site have been closely monitored by Kelp Blue, with further research being undertaken by the Kelp Forest Foundation. To-date no adverse environmental impacts have been identified, nor are anticipated. A thorough Environmental Impact Assessment of these operations has been prepared and submitted to the Namibian Government. This was a requirement for Kelp Blue to be granted the rest of the 6,000 hectare license that had been applied for. The site in Foveaux Strait is designed to closely mimic the Namibia inshore site, taking into account localised environmental differences such as significant wave height and coastal processes. A particular benefit of kelp farming is that, in the unlikely event that there are some unanticipated and unacceptable adverse effects, the farm can be easily removed without causing any long-term or irreversible effects. Further to this, bottom-mounted kelp beds can be used in areas where marine mammal corridors are identified which avoids potential risks to these species.

The potential environmental effects and avoidance or mitigation strategies are described below in relation to three phases of the projects life cycle development: the construction and development phase, the kelp cultivation grow-out phase and the kelp harvesting phase. Although adverse impacts are not anticipated, Kelp Blue is cognisant of the unique and threatened marine species known to utilise the wider area and as such, proposes to prepare two overarching environmental management plans to ensure best practices and correct procedures are maintained. These plans will be informed by the proposed marine monitoring which will be initiated prior to farm establishment and will include (but are not limited to) a Marine Mammal and Seabird Management Plan and a Biosecurity Management Plan

Risks and Management Measures for Marine Mammal and Seabird Entanglement

Kelp Blue has experience in mitigating these risks gained from the development of our farm in Namibia and setting up operations in Alaska. Namibia's coastal waters are known for their rich marine life, thanks to the nutrient-rich Benguela Current. This thriving ecosystem is home to a diverse array of marine mammals, including Cape fur seals, Heaviside's dolphins, Bottlenose dolphins, Humpback whales, Orcas, Dusky dolphins and many more. During the design phase for Kelp Blue's farm in Namibia, desktop studies were conducted, and experts consulted to mitigate and avoid marine fauna entanglements.

It was identified that the entanglement risk can be significantly reduced if the mooring lines are of large diameter (10-15 cm), are kept under constant tension and are spaced out in a way that allows animals to navigate easily. Using these – and other measures included below – there have been no entanglements reported from the cetacean and seabird monitoring conducted during the pilot phase in Namibia.

Marine mammals and seabirds in Foveaux Strait, Southland

Several species may come within proximity to the project area, including New Zealand fur seals, New Zealand sea lions, bottlenose dolphins, southern right and humpback whales, and orcas. The Foveaux Strait region is also an important winter mating habitat for southern right whales and forms part of the northern migration corridor for humpback whales. Additionally, Southland and Rakiura/Stewart Island waters are home to sub-populations of nationally endangered Bottlenose and Hector's dolphins, and a new breeding colony of nationally vulnerable sea lions. 26 areas in New Zealand are designated as Important Bird Areas (IBAs) for marine and pelagic species. Within the Rakiura Foveaux Strait region, three IBAs are important for seabirds. The area is home to three species of penguins, namely blue penguin, yellow-eyed penguin, and Fiordland crested penguin. Additionally, the region boasts a diverse population of albatrosses and mollymawks. There are about 27 different types of shearwaters, petrels, and prions, with the Sooty shearwater (which is at risk of decline) being one of the most abundant seabirds in New Zealand. Finally, the most commonly recorded seabirds in Foveaux Strait are red-billed gulls, southern black-backed gulls, and white-fronted terns.

As mentioned in the tables above, and based on the advice from the Ministry of Primary Industries, the South African Whale Disentanglement Network, and the Alaska Department of Fish & Game, Marine Mammal Research Program, the following measures will be employed to assess and avoid entanglement of marine mammals and seabirds:

Adverse effects on marine mammals and seabirds will be avoided through site selection and detailed farm design which will be informed by scientific investigations to understand the ecological characteristics and values of the project site.

- Before commencing operations, a Marine Mammal and Seabird Management Plan will be developed by experienced marine mammal and seabird experts after consultation with the Department of Conservation and tangata whenua to ensure the most appropriate protection measures are in place.
- Monitoring will be undertaken to improve knowledge of how marine mammals and seabirds perceive offshore farm structures visually and acoustically, and importantly, to confirm their reactions to farms and whether they use the application site. This includes acoustic surveys to characterize species occurrence and migration pathways in the region. Kelp Blue operation teams will be trained in marine mammal identification and basic marine mammal and seabird disentanglement techniques.
- The farm structure design will include all mooring lines/blocks being more than 25m apart, and navigational devices installed to mark the outer boundaries of the structure.
- For the installation and maintenance of the farm, all mooring hawsers, rope arrays and ropes to floats should be rigid or under constant tension. The tension is to be monitored and maintained regularly.
- Where areas of marine mammal migration or high use are identified via acoustic monitoring; bottom-mounted kelp farm structures can be established, if found necessary to remove the risk of entanglement.
- Permanent artificial lighting at farming sites will be avoided unless dictated by maritime regulations. Green or red flashing lights have been identified as reducing disturbance to seabirds rather than white permanent lighting and will be utilised wherever possible.

Risks and Management Measures for Marine Biosecurity

As mentioned in the table above, a Biosecurity Management Plan would include best practices and stringent controls to avoid risks of introducing associated diseases, parasites, and biofouling pests from vessels arriving from overseas. The following management actions are currently in place at the Namibian farm and at the Ocean Beach, Bluff hatchery and provide a basis from which the Toetoes Kelp farm would also be managed:

- All juvenile kelp will be propagated under laboratory conditions subject to strict biosecurity procedures, making it unlikely that diseases will be transmitted into the natural ecosystem through the introduction of sporophytes and seeded twine.
- All locally harvested sporophylls will be checked to have no additional organisms present prior to entering the hatchery.
- Surface sterilization of sporophylls will occur before spore release, spores are also washed in sterile seawater before seeding of strings to prevent any contamination cultures.
- Regular inspection of the arrays for the establishment of biofouling organisms will occur. Any arrays or kelp frond colonising species will be recorded and quantified, where possible.
- Any marine pest organisms identified within the farm footprint which is listed within the Southland Regional Pest Management Plan 2019-2029 (Environment Southland, 2019), will be removed and reported to Environment Southland and Biosecurity NZ in alignment with current regulations.
- Kelp will be regularly monitored for any sign of disease or parasites.

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Adverse Effects .pdf was uploaded

Section 6: National policy statements and national environmental standards

What is the general assessment of the project in relation to any relevant national policy statement (including the New Zealand Coastal Policy Statement) and national environmental standard?

Please write your answer here:

The New Zealand Coastal Policy Statement (NZCPS) is a national policy statement under the Resource Management Act. The purpose of the NZCPS is to state policies in order to achieve the purpose of the Act in relation to the coastal environment of New Zealand. The NZCPS incorporates 29 policies. Of most relevance to this application are Objectives 1-3 and Policies 2, 3, 5, 6, 8, 9, 11, 12, 13, 14 and 15. These objectives and policies relate to the functioning and resilience of the coastal environment and ecosystems, preserving the natural character, natural features, and landscape values of the coastal environment, taking into account the principles of Te Tiriti o Waitangi and managing aquaculture.

The application is consistent with the intent of the policy in that the applicant proposes a new aquaculture activity that will provide regionally significant social and economic benefits, support and sustain marine ecosystems, and can be planned, designed, and managed to avoid, remedy or mitigate adverse effects on the environment, landscape, and natural values.

National Environmental Standards for Marine Aquaculture Regulations 2020

National environmental standards (NES) are regulations made under the Resource Management Act 1991 (RMA). The purpose of the NES-MA is to provide a nationally consistent set of provisions to deliver a more certain and efficient process for considering applications for replacement coastal permits for existing marine farms, and for realignment and change of species applications, while ensuring farms meet best environmental practice. Given that this application is for coastal permits to establish a new marine farm, the NES-MA regulations do not apply.

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Key Policy Provisions.pdf was uploaded

Section 7: Eligibility

Will access to the fast-track process enable the project to be processed in a more timely and cost-efficient way than under normal processes?

Yes

Please explain your answer here:

Access to the fast-track process will expedite the processing of Kelp Blue's application for a coastal permit to cultivate *Macrocystis*, which will lead to savings in both time and money for the project. This will also greatly improve Kelp Blue's chances of success, our ability to more quickly create positive impacts on the environment and society, and to contribute to the industry's development.

With an expedited process we will be able to more quickly build on the support we are receiving, utilise the early success we have seen in our pilot hatchery and farms in Akaroa, and replicate the scaled-up work from Namibia. Also seaweed farming has very high capital expenditure requirements due to activities such as installing the structures, purchasing vessels, and building factories and warehouses. Our best way to offset this is to operate at scale so that can benefit from economies of scale as much as possible to recoup some of the initial investment. Operating at scale also will enable us to more quickly process products, develop the market and raise revenue.

From an environmental and social perspective, the sooner we can be certain of the coastal permit the sooner we can scale up the impact we are already having. From an environmental perspective, this means the sooner we start installing structures and planting out kelp, the more quickly we will see boosts in biodiversity and improvements in ocean health. Once we have this certainty, we will also be able to scale up our investment and commitments to working with academic partners and social groups to develop a workforce and upskill the team we have and bring on.

Kelp Blue's existing knowledge and practical experience of farming *Macrocystis* in both Namibia and New Zealand provides a unique opportunity to jumpstart the seaweed industry in New Zealand. This will also contribute to growing and diversifying New Zealand's aquaculture industry and to achieving

the goals of the Government's Aquaculture Strategy.

What is the impact referring this project will have on the efficient operation of the fast-track process?

Please write your answer here:

The Toetoes Kelp project will not have an adverse impact on the fast-track process. The project is well advanced and has minimal environmental impacts compared to other aquaculture activities. The project design has been informed by thorough consultation with iwi and the community and is well-placed to proceed through the expert panel process without any undue delays

Has the project been identified as a priority project in a:

Not Answered

Please explain your answer here:

Attached is Table 1: Priority Project
file:///Users/angeliquedodds/Desktop/Priority%20Project.pdf

Will the project deliver regionally or nationally significant infrastructure?

Not Answered

Please explain your answer here:

No

Will the project:

Please explain your answer here:

No

Will the project deliver significant economic benefits?

Yes

Please explain your answer here:

The project will deliver significant economic benefits both directly and in sectors downstream from the project's operations. Please find below examples of both:

- Revenue generation: at full operational capacity, and after set up, these are modelled to be NZ \$135 million a year.
- Job creation: the project will create year-round sustainable jobs in Bluff throughout the different stages of the farm's installation and operations. The jobs required to staff the project range from biologists, engineers, skippers, crew, logistics, and administrative support, with the majority of these roles being based in Bluff.
- Supporting industries: the scale and duration of the installation and operations of the farm will create demand for supporting industries in Bluff, throughout Southland and most likely nationally. These will include equipment manufacturing, marine service providers, research and development, logistics as well as increasing the demand for general goods and services in Bluff.
- Improving the resilience of the aquaculture industry: diversification is key to building resilience in coastal communities dependent on primary industries against the inevitable environmental and economic fluctuations caused by challenges such as disease outbreaks or market fluctuations. Kelp farming offers an opportunity to diversify the Aquacultural sector in Southland, by also providing an additional revenue stream and reducing reliance on existing single-species aquaculture.
- Ecosystem Services: the positive ecosystem services provided to the environment from a kelp forest are significant. Some of the services provided are improved water quality, enhanced biodiversity, and coastal protection, and will contribute to the ongoing success of industries such as commercial fisheries and tourism.
- Kelp-derived products: producing products from our *Macrocystis* such as biostimulants, alginates, and textiles in New Zealand can replace some of the imported inputs into the creation of other goods and services for both domestic and international markets. For example, farmers utilising biostimulant made from New Zealand-grown *Macrocystis* rather than importing a seaweed-based biostimulant.

Will the project support primary industries, including aquaculture?

Yes

Please explain your answer here:

The project will support the development of the aquaculture industry, and more broadly the primary sector, in New Zealand in various ways including:

- Cultivation of *Macrocystis*: piloting the cultivation of indigenous Bladder Kelp for harvest and the production of a range of products from the bioactive compounds. The intellectual property developed around the cultivation and structures used will be made publicly available by Kelp Blue once it is established as best practice.
- Workforce Development: Kelp Blue is committed to developing the aquaculture workforce. Current initiatives include supporting AUT's development of a Masters of Aquaculture and committing to being an industry partner for this programme to enable students to gain industry experience; and by providing

work experience positions to students from SIT and NMIT. With a larger licence area, we would scale up these efforts with a potential ambition to develop an educational facility for ocean and aquaculture research in Bluff.

- Improving the resilience of the aquaculture industry: as mentioned in the earlier answer.
- Agricultural and Horticultural sectors: Farmers are facing increasingly challenging growing conditions alongside pressure from buyers to improve the sustainability of their products, so they can achieve the sustainability goals demanded by the market. Kelp Blue's first product is a kelp-based liquid biostimulant designed to improve soil health, improve resistance to abiotic stress, and increase nutrient uptake. We are running field trials on this product in Europe, Africa, the United States, Brazil, and New Zealand on crops ranging from row crops and pasture to grapes and tomatoes and are using these learnings to maximise our product's efficacy.

file:///Users/angeliquedodds/Desktop/Fast%20Track%20Application%20/Project%20support%20primary%20industries.pdf

Will the project support development of natural resources, including minerals and petroleum?

No

Please explain your answer here:

Will the project support climate change mitigation, including the reduction or removal of greenhouse gas emissions?

Yes

Please explain your answer here:

Macrocystis pyrifera is one of the fastest-growing organisms on the planet. It absorbs significant amounts of carbon dioxide from the atmosphere through photosynthesis. As the kelp grows, it takes in CO₂ which is used for photosynthesis or stored in its tissue. When the kelp dies and sinks, it can transfer the stored carbon to the deep ocean. This natural process helps to reduce CO₂ in the atmosphere, making kelp farming an effective way to act as a natural carbon sink.

Kelp farming has the potential to increase ocean alkalinity by releasing carbonate ions during photosynthesis. This enhanced alkalinity can promote the uptake of atmospheric CO₂ by seawater and help mitigate ocean acidification, which is a side effect of increasing CO₂ levels in the atmosphere.

In addition to their carbon capture abilities, the project has the potential to offer other benefits for mitigating global climate change. These include the production of low-carbon inputs into several industries including biostimulants for crops, alginates and fucoidans for manufacturing, and kelp leather as a replacement product. Kelp also has versatile uses such as producing bioplastics and other bio-based products, which can replace petroleum-based plastics and materials. Substituting fossil fuel-derived products with kelp-derived alternatives can help reduce the demand for petroleum and the associated greenhouse gas emissions from its extraction, processing, and combustion.

Will the project support adaptation, resilience, and recovery from natural hazards?

Yes

Please explain your answer here:

Kelp farming can support adaptation, resilience, and recovery from natural hazards by enhancing ecosystem health, protecting coastal areas, and providing alternative livelihoods.

Coastal Protection: kelp forests act as natural buffers against coastal erosion and storm surges by dampening wave energy and stabilizing sediments. The dense structure of kelp can help to dissipate wave energy, protecting shorelines from erosion and damage during storms. This natural coastal protection can help communities adapt to rising sea levels and increased storm intensity associated with climate change.

Habitat enhancement: kelp forests provide critical habitat for a diverse range of marine species, including fish, crustaceans, and other marine organisms. By enhancing habitat complexity and biodiversity, kelp farming can support the resilience of marine ecosystems and help them recover more quickly from natural disturbances, such as storms, pollution events, or disease outbreaks.

Will the project address significant environmental issues?

Yes

Please explain your answer here:

The project has the potential to address several significant environmental issues by providing sustainable solutions to challenges such as climate change, marine ecosystem degradation, and resource depletion. Kelp farming can contribute to addressing these environmental issues:

Climate change mitigation: Kelp farming can help mitigate climate change by capturing and storing carbon dioxide from the atmosphere through photosynthesis.

Ocean health and biodiversity conservation: kelp forests provide critical habitat for diverse marine species, supporting biodiversity and ecosystem resilience. By enhancing habitat complexity and promoting marine biodiversity, kelp farming can contribute to the conservation and restoration of marine ecosystems, helping to protect and restore degraded habitats.

Water quality improvement: Kelp farming can help improve water quality by filtering and absorbing excess nutrients and pollutants from the surrounding water. As kelp grows, it can remove nitrogen, phosphorus, and other pollutants, reducing nutrient runoff and eutrophication in coastal waters.

Sustainable Resource Management: Kelp farming promotes the sustainable use of marine resources by providing a renewable source of products. By diversifying resource extraction and reducing reliance on non-renewable resources, kelp farming can help conserve natural resources and minimize environmental impacts associated with traditional agriculture and aquaculture practices.

Is the project consistent with local or regional planning documents, including spatial strategies?

Yes

Please explain your answer here:

The Southland Regional Policy Statement (SRPS) recognises the importance of the coastline as habitat for many different species of plants and animals. Significant biological communities in the coastal environment are identified as including those supported by marine sediments, such as lagoons and estuaries, the rocky shore, and open water. The policy also recognises natural and physical resources present in Southland's coastal environment as positively contributing to the social, economic and cultural wellbeing of the region, including its significance to tangata whenua. The policy supports the use of the coastal and marine environment for economic activities, such as aquaculture, where biodiversity, environmental, natural and landscape values can be protected, maintained and restored, adverse effects can be avoided, remedied and mitigated, and activities do not adversely impact on activities such as ports and marine transport. The SRPS emphasises the importance of avoiding the introduction of harmful aquatic organisms (from vessels and structures, moorings, marina berths, jetties, wharves and aquaculture) on the coastal environment, particularly on the ecosystems and indigenous biodiversity. The policy also highlights the importance of councils, government agencies, landowners, tangata whenua and community groups working together to ensure the long-term viability of indigenous ecosystems and habitats.

This proposal is consistent with the intent of the policy in that it can provide for the use of economic activities, with adequate measures in place to protect biodiversity and avoid, remedy, and mitigate adverse environmental effects. The project also embodies a collective approach. The relevance of key policies to the application is outlined below.

Attached is a File, Local, regional planning, and spatial strategies, under Section 7 "Anything else?"

Regional Coastal Plan for Southland, 2013

The Regional Coastal Plan for Southland (RCP), 2013, sets out the manner by which Environment Southland is to undertake its functions under the Resource Management Act 1991 and applies to the coastal marine area. The proposed kelp farm site is located within the Tiwai Point to Fortrose area (RCP Map 9) in lee of Dog Island.

Dog Island is owned by the Maritime Safety Authority who operates a lighthouse on the island. Dog Island is identified in the RCP as having heritage and archaeological significance. The Dog Island lighthouse is significant as the tallest in New Zealand (36 metres) and the wreck of the 'Waikouaiti' (1939) lies off Dog Island. These sites are outside the project area and will not be disturbed by the proposed activity.

The proposed kelp farm site is not identified as having significant recreation, conservation, natural character or landscape values although recreational use of the area will occur. The RCP does not identify the site as having particular significance for marine mammals or birds however the Catlins Coast Marine Mammal Sanctuary is situated to the east of the preferred site.

The seas off this coast are identified as commercially important for crayfish, blue cod and paua, and as important for dredge oysters. Drsk-based mapping reviews and consultations to date have not shown any commercial fishing or dredging operations undertaken within the proposed kelp farm site. However, this is something that Kelp Blue will continue to ask about and take into consideration in the design of the farm layout.

According to the RCP, resource consent is required for exclusive occupancy, marine farming structures, marine farming, and navigation aids. Planting of indigenous species of local genetic stock is a permitted activity and no resource consent is required. The application is consistent with the objectives and policies of the RCP contingent on the implementation of proposed planning, design, adaptive management, and monitoring measures to avoid, remedy, or mitigate potential adverse effects.

Invercargill District Plan

The proposed activity is proposed within the Coastal Marine Area and is outside the boundaries of the Invercargill City Council. The application has therefore not been assessed against the provisions of the Invercargill District Plan.

Link Attached:file:///Users/angeliquedodds/Desktop/Policy%20Statment%20.pdf

Anything else?

Please write your answer here:

Does the project includes an activity which would make it ineligible?

Yes

If yes, please explain:

Ineligible projects

A project must not include any of the following activities:

- an activity that:
 - o would occur on land returned under a Treaty settlement or on identified Māori land; and
 - o has not been agreed to in writing by the relevant landowner:
- an activity that would occur on any of the following classes of Māori land:
 - o Māori customary land;
 - o land set apart as Māori reservation under Part 17 of Te Ture Whenua Maori Act 1993:
- an activity that:

o would occur in a customary marine title area under the Marine and Coastal Area (Takutai Moana) Act 2011; and
o has not been agreed to in writing by the holder of the relevant customary marine title order issued under that Act:

- an activity that:

o would occur in a protected customary rights area under the Marine and Coastal Area (Takutai Moana) Act 2011 and have a more than minor adverse effect on the exercise of the protected customary right; and

o has not been agreed to in writing by the holder of a relevant protected customary rights order issued under that Act:

- an aquaculture activity or other incompatible activity that would occur within an aquaculture settlement area declared under section 12 of the Maori Commercial Aquaculture Claims Settlement Act 2004 or identified within an individual iwi settlement, unless the applicant holds the relevant authorisation under that Act or the relevant Treaty settlement Act

- an activity that would require an access arrangement under section 61 or 61B of the Crown Minerals Act 1991 for an area for which a permit cannot be granted under that Act

- an activity that would be prevented under section 165J, 165M, 165Q, 165ZC, or 165ZDB of the Resource Management Act 1991

- an activity (other than an activity that would require an access arrangement under the Crown Minerals Act 1991) that would occur on land that is listed in items 1 to 11 or 14 of Schedule 4 of that Act

- an activity on a national reserve held under the Reserves Act 1977 that requires approval under that Act:

- a prohibited activity under the Exclusive Economic Zone and Continental Shelf (Environmental Effects) Act 2012 or regulations made under that Act

- decommissioning-related activities within the meaning of the Exclusive Economic Zone and Continental Shelf (Environmental Effects) Act 2012

- offshore renewable energy projects (whether under the Exclusive Economic Zone and Continental Shelf (Environmental Effects) Act 2012 or the Resource Management Act 1991) that begin before separate offshore renewable energy permitting legislation comes into force.

Section 8: Climate change and natural hazards

Will the project be affected by climate change and natural hazards?

Yes

If yes, please explain:

The project can be affected by climate change and natural hazards, posing challenges to the sustainability and resilience of kelp cultivation operations. Ocean warming and acidification, the rising of ocean temperatures and ocean acidification associated with climate change can affect the growth, reproduction, and survival of kelp species. Changes in water chemistry and temperature can disrupt the physiological process of kelp, leading to reduced growth rates, decreased biomass production, and increased susceptibility to diseases and herbivory.

Severe storms, hurricanes, and other extreme weather events can damage kelp farms by causing physical damage to structures, disrupting farm operations, and leading to crop loss. Additionally, strong wave action and increased sedimentation during storms can impact water quality and sediment stability, affecting the health and productivity of kelp farms.

Sea level rise can alter coastal ecosystems and habitats, potentially changing the suitability of the site for kelp farming. Infrastructure associated with kelp farming, such as mooring, buoys, and harvesting equipment, may also be at risk from rising sea levels and increased storm surges.

Disease outbreaks and pest infestation, changes in environmental conditions, including warmer water temperatures and altered ocean chemistry, can create favourable conditions for the spread of diseases and the emergence of pests that can affect kelp health and productivity. Disease outbreaks and pest infestations can lead to significant crop losses and pose challenges to sustainable kelp farming practices.

Algal blooms and nutrient imbalance, climate change can influence nutrient dynamics in marine ecosystems, potentially leading to increased frequency and intensity of harmful algal blooms and nutrient imbalances. Harmful algae blooms can compete with kelp for resources, produce toxins harmful to marine life, and impact water quality, posing risks to kelp farming operations.

This is a thorough review of the risks. Kelp Blue remains confident that the potential benefits of the project still far outweigh the risks, and that the project will help to combat climate change rather than become a victim of it.

Section 9: Track record

Please add a summary of all compliance and/or enforcement actions taken against the applicant by any entity with enforcement powers under the Acts referred to in the Bill, and the outcome of those actions.

Please write your answer here:

Kelp Blue has not been the subject of any compliance or enforcement actions in New Zealand or at any of its operations internationally.

Load your file here:

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Declaration

Do you acknowledge your submission will be published on environment.govt.nz if required

Yes

By typing your name in the field below you are electronically signing this application form and certifying the information given in this application is true and correct.

Please write your name here:

Felicity Perry

