

The background of the cover features a high-angle aerial photograph of the ocean. The water is a vibrant turquoise color, with white, foamy waves crashing against each other. The perspective is from the top left, looking down towards the bottom right.

Seaweed Aquaculture on the South Coast

Addendum to the
Industry Development
Business Case

Dear Juliet,

attached is the report on the additional scope of work, building on the South Coast Alliance (SCA) Seaweed Aquaculture Industry Development Business Case.

The scope agreed in November 2021 was to: review available funding, revisit industry needs and opportunities, consider specific sites, and scope further detail on next phases of work.

Two significant things happened after agreeing that scope: 1) DPIRD paused processing seaweed aquaculture license applications so it could develop appropriate policies to assess them, and 2) you communicated that SCA is changing its approach to economic development which would affect their role in advancing industry development projects such as this.

Despite those changes, key aquaculture players are still progressing their research and development and we still believe there is a case and opportunity to advance this industry on the South Coast.

This document provides a summary of findings and recommendations, including:

1. Draft scopes of work which could be provided to industry, partners and as the basis for funding applications;
2. A summary of the potential partners, consultants, and funding that could be used to progress each scope of work;
3. A list of relevant grants their status, description and notes on applying; and
4. A report on suitable sites based on research by Fremantle Seaweed.

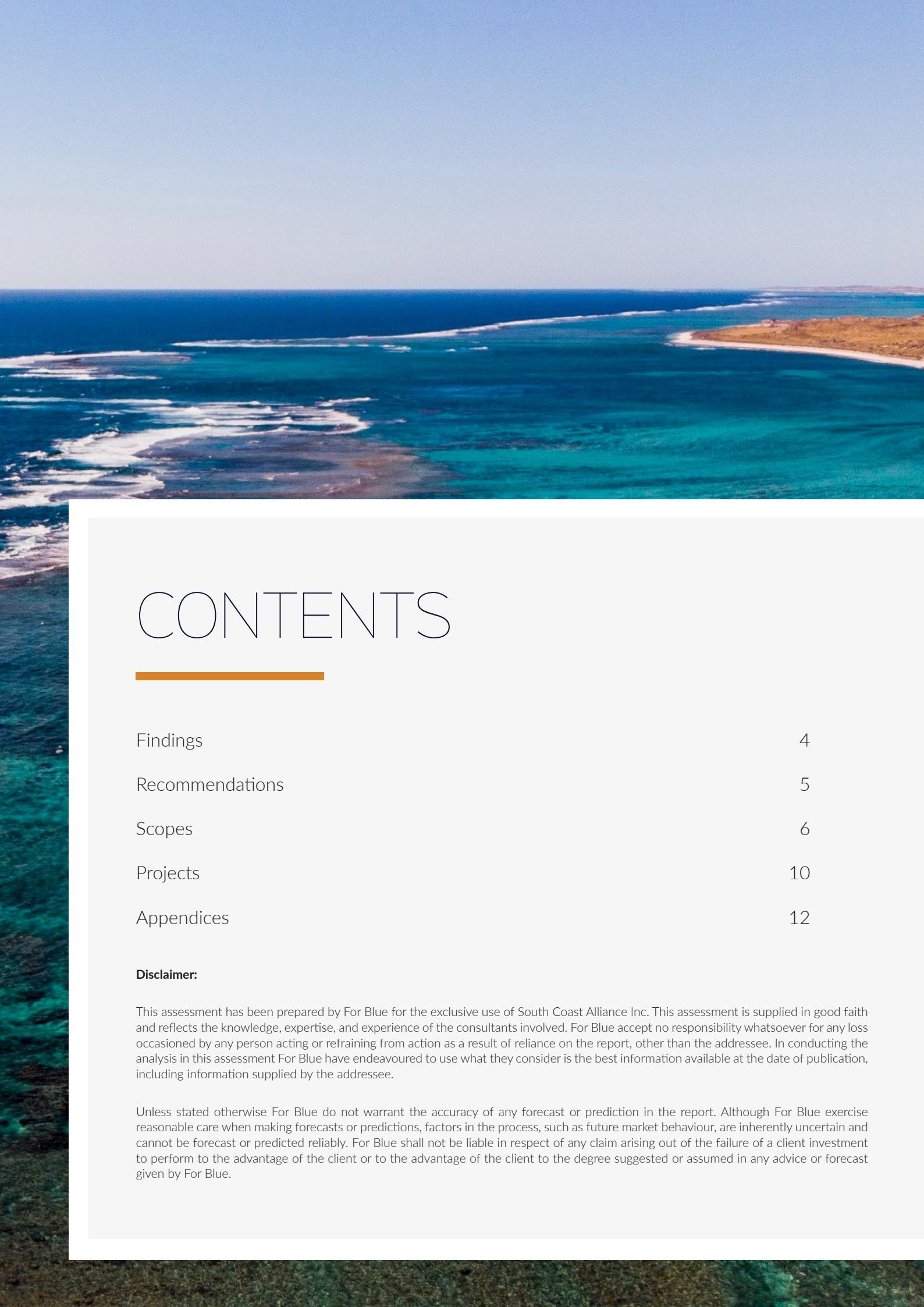
I hope you find the summary below useful and look forward to assisting you, or any other agencies or institutions, to further invest in development of this industry.

Sincerely

Andrew Outhwaite

For Blue Pty Ltd

Thu, 16 Jun 2022



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Findings

This report builds on the work undertaken in the initial SCA business case to identify a way forward for this industry as a whole along the South Coast.

The work undertaken in this phase included: reviewing data on the scale and type of market, contacting existing and new stakeholders to gauge their interest, updating sources of funding and investment, investigating sites, and considering precedent strategies for industry development.

Market

Some nations are major producers and net exporters (e.g. Indonesia, Korea), while others are large net importers (e.g. China), and others are ‘boutique’ markets that could be targeted with high-value products in smaller volumes e.g. Mexico, Netherlands, New Zealand and India.

Edible seaweed achieves twice the value per tonne compared to non-edible seaweed, and the majority of edible seaweed is currently just four species. This gives a sense of the export market types and opportunities for Australian production e.g. high-volumes to China that would have to compete with Korean production, or high-value to smaller markets, or creating new markets through new species. Summary slides from our numerical analysis are attached as an Appendix.

Stakeholders

Since the business case publication some stakeholders have changed e.g. one major lease holder is not pursuing seaweed aquaculture on the South Coast, another are focusing on their scalable technology more than cultivation or harvesting, while two other organisations are pursuing additional sites and a new offshore, ‘hyper scale’ venture is now actively looking at sites and partnerships.

Sites

The business case was based on multiple potential sites. Fremantle Seaweed conducted further investigation into six sheltered, near-shore sites and found two large areas suitable. The report on those investigations is attached as an Appendix.

Development of technology will likely enable offshore aquaculture in the near future, and selection of different species may require different habitats. But, for now, the number of potential commercial sites are limited.

Funding

New potential funders and investors have been identified, and those whose details are public have been included in an updated database as an Appendix.

The situation remains though, that various levels or arms of government are likely to be the major initial funder of general research and industry development. As the scopes become more specific to species or site-specific, there are more private grants available and greater likelihood of individual ventures contributing significant cash to generate results that are valuable for themselves and, in aggregation, to other ventures, the industry and wider community.

Recommendations

The scopes and potential projects and funding are detailed in following pages. Underlying those scopes are some assumptions about a suitable strategy for industry development.

Rural Industries Research & Development Corporation (“RIRDC”) identified ‘Critical Success Factors for New Rural Industries’ in 2009, and these still seem pertinent to the embryonic seaweed aquaculture industry in WA and include:

- A primary focus on customers and marketing, especially differentiating the Australian product,
- A viable source of competitive advantage, especially the likely relatively high cost of products,
- A well-functioning supply chain,
- Effective leadership and strategic planning across the industry,
- Business proficiency and access to capital.
- Commercial and cutting edge research and development

For seaweed aquaculture, it’s important to consider:

- 60% of Australian seaweeds don’t grow anywhere else;
- Seaweeds act as filters and absorb heavy metals so growing them in clean waters is valuable;
- Australian seaweeds do not grow naturally in sufficient mono-culture scales so as to allow economic harvesting, making cultured seaweed the only viable alternative for an industry.

Given those recommendations and factors, the current stakeholders and sources of funding, **our recommendations** are:

1. Aim to supply existing, established large markets with a superior product while establishing infrastructure and processes that can be the basis for diversification in production,
and in parallel / or subsequently
2. investigate new, innovative uses, species and products to identify the highest value product to cultivate. New species and uses should leverage Australia’s relatively clean waters and brand, high-value local markets and existing relationships with international markets e.g. Asia.
3. Local and Regional Government (e.g. SCA and GSDC) and Industry Groups (e.g. Aquaculture Council of WA) play a key and lead role in facilitating: a) development of a project scope, b) alignment and contribution from industry and researchers, and c) advocacy for other levels and arms of government to see this scope as a priority for funding through their different projects.
4. These scopes be socialised with stakeholders as soon as possible with a view to targeting specific funding rounds. Without socialisation or testing prior, these projects are unlikely to be seen to ‘fit’ the funding because: this is a new industry and the funds are mostly focused on traditional terrestrial agriculture or fish aquaculture, and some of the funding sources have ‘rounds’ with a specific pre-determined industry focus that must be influenced prior e.g. CRC-P, FRDC.

Scope 1 - Markets

1. Market Analysis and Quantification

Scan

Consider the overall marketplace and dynamics, including:

- global, national and local markets;
- supply chain capability and capacity; and
- international trade dynamics for goods and services originating from Australia.

Prioritise

Review, prioritise and quantify the:

- priority markets;
- priority products; and
- priority species for production on the South Coast.

Consider

Analyse these factors in prioritising and characterising the markets:

- size;
- profitability;
- accessibility;
- competition;
- volatility; and
- any other criteria the respondent may deem to be relevant.

Characterise

Include analysis and description of key factors, including:

- if the method and location of cultivation of the product is appropriate or easily adaptable and how this may affect the existing or future demand for product;
- a recommended strategy for entering a priority market e.g. substitution and then expansion;
- opportunities for the introduction of novel species and products; and
- the implications of the above for the development of a seaweed aquaculture industry in the region, particularly supply chain development; known species selection and species research and development.

Scope 2 - Supply

2. Customer, product and channel development

Components	Identify the required components of a South Coast seaweed supply chain, from production to consumption, including their most desirable locations, assuming that a number of product types may be produced (for example: processed, dry and fresh seaweed) either on-land or in-ocean;
Assets	Identify and document existing and potential operators, distributors and customers in the/a seaweed supply chain; including the interest and capability of those operators or service providers in participating in such a supply chain;
Options	Document the economics and value added through the supply chain, thereby helping to develop an understanding of: <ul style="list-style-type: none">• whether on-land or in-ocean cultivation is most viable;• where capital investment is required;• what the likely required return on that capital investment will be; and• the costs that will likely be imputed into the price of the end seaweed products.
Strategy	Having regard to the outcomes of the other scopes of work, provide a recommendation as to what steps are required, and the costs thereof, of establishing or strengthening a viable seaweed supply chain to support development of a cultured seaweed industry in the South Coast.

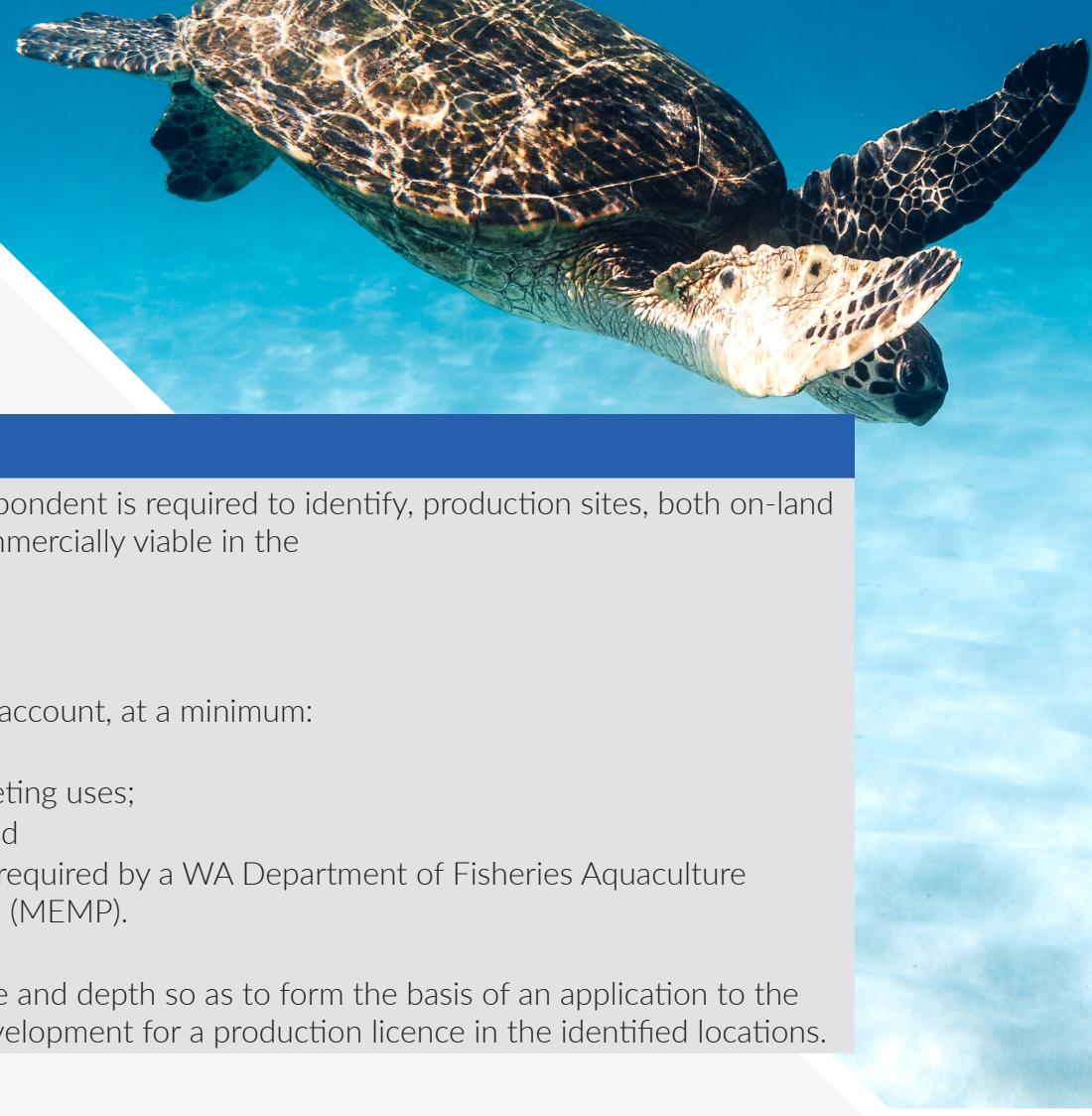
Scope 3 - Species



3. Shortlisting Species

Sites	<p>Following the completion of the draft business case for Seaweed Aquaculture Industry Development, Fremantle Seaweed performed preliminary site investigations. Fremantle Seaweed assessed a limited number of sites as to their suitability for seaweed aquaculture between December 2021 and February 2022. The assessment included engagement with some local stakeholders who would be affected by, or could provide services to, operations within the sites e.g. local fishers and seafood processors.</p> <p>Of the six sites reviewed, only two are considered suitable by Fremantle Seaweed, being Two Peoples Bay in Albany and Doubtful Islands Bay in Bremer Bay. Fremantle Seaweed recommended further investigation of sites in Hopetoun and Esperance. The resulting report is provided separately.</p>
Species	<p>Having regard to the working hypothesis, Scope of Work 1, Scope of Work 2 and the above information about sites, the respondent is to:</p> <ul style="list-style-type: none">• Identify species which present the most attractive and viable prospect to bring to market in the immediate to short-term; and• Identify species which present the most attractive and viable prospect to bring to market in the medium to long-term.

Scope 4 - Viability



4. Operational Viability

Sites Having regard to Scopes of Work 1, 2 and 3, the respondent is required to identify, production sites, both on-land and in-ocean which are ecologically suitable and commercially viable in the

- immediate to short-term; and
- medium to long-term.

Viability Consideration of commercial viability must take into account, at a minimum:

- Regulatory requirements;
- Existing and potential complementary and competing uses;
- Community and other stakeholder aspirations; and
- Other relevant considerations at this juncture as required by a WA Department of Fisheries Aquaculture Management and Environmental Monitoring Plan (MEMP).

The viability assessment should be sufficient in scope and depth so as to form the basis of an application to the Department of Primary Industries and Regional Development for a production licence in the identified locations.

Projects

Scope	1 - Markets	2 - Supply
Potential Partners	<p>Clients: Blueshift, Aquatein, Princess Royal Oyster Company, Fremantle Seaweed, Indian Ocean Greens, GSDC, Aquaculture Council of WA, DPIRD.</p> <p>Consultants: For Blue, Blueshift, Keston Economics, FAR Lane</p> <p>The scoping of the market for a broad range of species and situations would be of value to the whole industry, potential investors and indirectly to each organisation. However, this project is beyond the financial capacity and immediate concerns of any one partner.</p> <p>This stage may be best funded through DPIRD or GSDC as an industry development initiative, in collaboration with others to access:</p> <ul style="list-style-type: none">• Fisheries Research and Development Corporation (always open) - they do specify research priorities, and this could be for a future round• Innovation Connections (always open) - though limited to supporting an individual venture.• CRC-P (future rounds) - though must partner with CRC and last round was focused on manufacturing priorities.	<p>Clients: Blueshift, Aquatein, Princess Royal Oyster Company, Fremantle Seaweed, Indian Ocean Greens, Canopy Blue, Uluu, GSDC, Aquaculture Council of WA, DPIRD.</p> <p>Consultants: For Blue, Blueshift, Keston Economics, FAR Lane</p> <p>This would be phase one of a scope to actually facilitate development of the supply chain. This would be of value to the whole region, this industry, potential investors and for each organisation. Contribution of funding to this scope may come from commercial proponents, but into a collaborative project.</p> <p>This stage may be best seed-funded through DPIRD or GSDC, with industry contributions, and seeking matched or additional funding and support through:</p> <ul style="list-style-type: none">• Fisheries Research and Development Corporation (always open) - they do specify research priorities, and this could be for a future round• Innovation Connections (always open) - though limited to supporting an individual venture.• CRC-P (future rounds) - though must partner with CRC and last round was focused on manufacturing priorities.
Cost Estimate	\$40-80,000	\$10-\$20,000

Projects

Scope	3 - Species	4 - Viability
Potential Partners	<p>Clients: Blueshift, Aquatein, Princess Royal Oyster Company, Fremantle Seaweed, Indian Ocean Greens, Canopy Blue, GSAC, Aquaculture Council of WA, DPIRD.</p> <p>Consultants: For Blue, Blueshift, Carijoa, mScience, UWA Oceans Institute / Wernberg Lab, Murdoch University.</p> <p>This scope may be best progressed as a 'pooled' program of R&D and commercialisation support, with individual ventures contributing cash to get their particular research questions answered. The aggregation of all that R&D could be then publicly available or published, at a later date.</p> <p>This may be done through CRC-P, Innovation Connections or FRDC, however more likely it will be a group or individual companies accessing funding through:</p> <ul style="list-style-type: none">Regional New Industries Fund (closed, may have future rounds)DPIRD Value-Add Investment Grants (open)Coles Nurture Fund (opening January 2023)	<p>Clients: Blueshift, Aquatein, Princess Royal Oyster Company, Fremantle Seaweed, Indian Ocean Greens.</p> <p>Consultants: Blueshift, For Blue, Keston Economics.</p> <p>This scope focused on viability and is of direct commercial relevant to individual ventures, however is also of interest for broader regional development and infrastructure priorities. This is because while the viability is likely to be specific to certain species, production methods and scales, the overall viability of the industry may depend on the aggregation or sharing of resources or infrastructure.</p> <p>Depending on the scale, focus and proponent, this could be funded through the following funding sources:</p> <ul style="list-style-type: none">Regional New Industries Fund (closed, may have future rounds)DPIRD Value-Add Investment Grants (open)Coles Nurture Fund (opening January 2023)
Cost Estimate	\$40-\$60,000	\$20-\$70,000

Appendices

- 1. Markets** - Figures showing relative size of global markets for seaweed
- 2. Sites** - Fremantle Seaweed report on sites and species
- 3. Funding** - database of funding, mostly relevant to the ventures accessible here: https://bit.ly/sc02_seaweed



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