



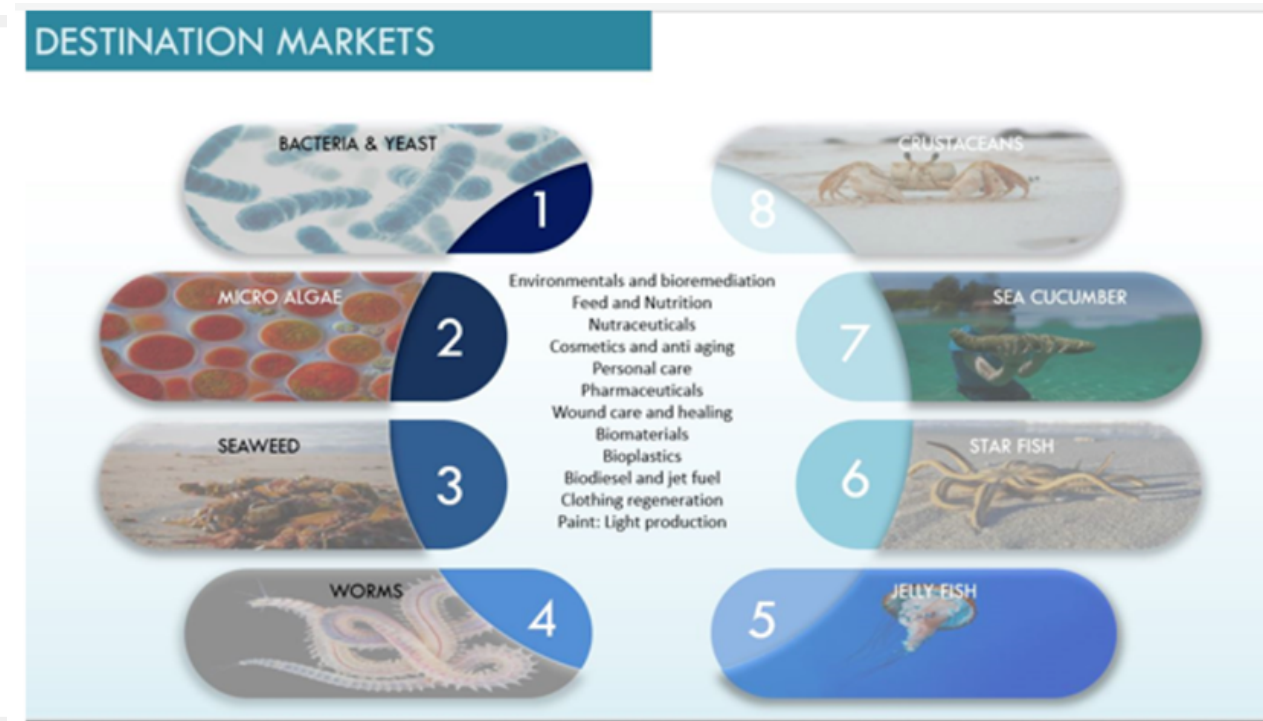
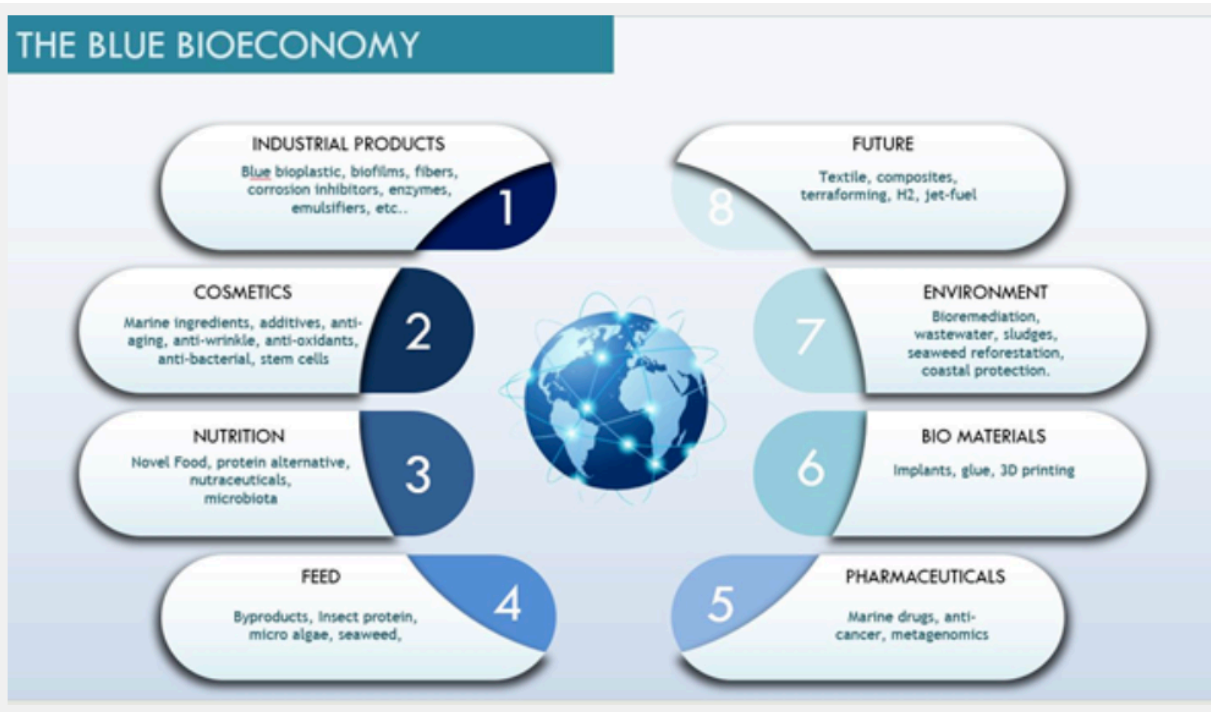
Marine Bioproducts CRC

Transforming Australia's emerging marine bioproducts sector into a large globally competitive industry.

**FRDC Pitch June 2020
(Provided in Confidence)**

Marine Bioproducts : Supply and Value Chains

- Extensive National and Global Industry : R&D Connections



MB-CRC Programs

Research Programs



Program 1: Sustainable Marine Resources

Ensuring a consistent, sustainable and high quality supply of biomass is essential to a high value and competitive Australian marine bioproducts industry.

Research areas of focus:

- Large scale cultivation and harvesting of bioproducts.
- Economically viable and environmentally sustainable biomass production.
- Developing an enduring social licence to open up access to sustainable marine biomass.
- Supporting the development of a regulatory framework that drives industry growth.



Program 2: Innovative Bioprocessing Technologies

Innovative bioprocessing technologies designed specifically for the Australian marine bioproducts industry critical for its growth.

Research areas of focus:

- Developing off-the-shelf technologies that are economically viable in Australia.
- New technologies that provide value add to current bioprocessing methodologies.
- Smart processing and automation to allow for lower volumes of feedstock, reduce labour cost and efficient environmental compliance.
- Economic modelling for system optimisation.



Program 3: Australian Marine Bioproducts

Exploiting the potential pipeline of high value bioproducts from Australia's unique marine biota will open up opportunities in the global marketplace.

Research areas of focus:

- Identifying and validating new bioproducts from unique Australian marine species.
- Developing bioproducts from existing Australian biomass sources.
- Investment and access to high value domestic and export markets including supply chain optimisation.

Cross Cutting Streams



Product Stream 1: Human Health & Nutrition

The development of marine derived products for human health and nutrition:

- Gut health
- Reproductive health
- Skin health
- Healthy ageing



Product Stream 2: Agricultural Products

The development of marine derived products for the agriculture sector:

- Livestock and pet feed
- Marine derived herbicides
- Soil conditioners
- Plant growth stimulants



Product Stream 3: Other Marine Bioproducts

The development of other marine bioproducts including:

- Marine derived protein
- High value by-products
- Biomaterials
- Bioplastics



Education and Training: Connect, Educate & Train (CET)

- Create globally connected leaders.
- Build the future marine high tech workforce.
- Community of education and engagement.
- Drive innovation and investment in the sector.
- Connect and link partners across the supply chain.

Aligned to Growth Centre Priorities:



MB-CRC : FRDC R&D Plan Alignment

1. Growth for Enduring Prosperity (*“An Alternative Future”*)

- **New Marine Production Sector** (seaweeds, microalgae, specialized aquaculture) focussed on production of biomass for Australian (regionally – based) manufacturing.
- **New Advanced Manufacturing – BIOREFINERY - Technologies** turn biomass into high value bioproducts delivering to under-supplied GLOBAL MARKETS.
- Biorefineries will also create **significant value-add to currently underutilised products** from fish processing lines.
- **Increased Market access** through MB-CRC Industry Partners.
- **VC Capital** to grow and diversify SMEs through MB-CRC Partners.

Growth in the Global Marine Bioproduct sector is very strong.

- Markets growing as countries and industry look for sustainable, carbon neutral/positive bases for products used in human nutrition, agriculture, and industrial applications.

MB-CRC : FRDC R&D Plan Alignment

2. Best Practice, Industry Networks and Education

- **Regulatory Approval** - seaweed/microalgae production throughout Australia will require regulatory approval – CRC will support industry and state governments in developing
- Strong focus on **developing and implementing best practice manuals** across primary producer sector – including connections into supply chains.
- **Advanced Manufacturing Technology/Industry 4.0 approaches** - modular/smart systems to produce new bioproducts and ensure maximum utilization and value from all biomass.
- **Bioproduct validation and accreditation** - maximising security and value to marine bioproduct lines.
- CRC and Australian Marine Bioproducts Industry Group will **forge and enable links along supply and value chains**.
- **Significant international linkages in CRC** - industry, R&D and philanthropy.
- **Industry-ready VET and University graduates** - significant CRC resources focussed on building human capability and capacity for this “Next-Generation” marine industry.

MB-CRC : FRDC R&D Plan Alignment

3. Access, Social License, Carbon friendly, Pollution free.

- Next Gen mariculture has the potential to extend from land-based to inshore and eventually offshore domains; from tropical to temperate regions.
- Smart manufacturing will provide potential for **regional centres** to engage in all steps of the supply/value chains.
- Seaweed and microalgal culture is : low/zero/positive carbon; low/zero pollution; can operate in synergy with existing aquaculture (IMTA); is increasingly being pushed as a major plank in building ocean-based responses to SDGs (3,8,10,12,13,14)*
- Branding of human health, agricultural and industrial products will focus on “clean, green and sustainable Australian products for global markets”
- Significant potential for sea country traditional owners to engage in this new industry sector, again through the whole value chain.

* <https://ungc-communications-assets.s3.amazonaws.com/docs/publications/The-Seaweed-Manifesto.pdf>

Benefits for FRDC

- **Foundation partnership status (and thus influence) with a new and vital industry sector** focussed on building a \$1+Billion marine bioproducts industry over next decade.
- **Leverage** : Current indication point to a bid incorporating \$130m cash, \$150-220 m in-kind. This is expected to grow as the industry builds momentum. Minimum leverage 3:1, but success would ensure >> than this.
- **First mover advantage** : CRC will undoubtedly spawn new production and product lines. FRDC would be well positioned to ensure these are linked and contributing to your GFP estimates.
- **Access to new capability** : CRC partners represent Australia's leading R&D institutions, and have been chosen for the breadth and depth of their capability across a broad suite of disciplines/application domains.
- **International Linkages** : CRC has strong links into international "Blue-Bioeconomy" industry and R&D alliances that we consider would be useful for FRDC.
- **Value-add for your existing industry sectors**: through access to innovation capability and technologies associated with bioproduct manufacturing.

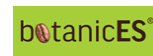
What we want from FRDC

The CRC invites FRDC to become a Core Partner.

- Leading up to bid submission we would welcome your input/suggestions on the foci and formulation of the bid.
- CRC Core partners:
 - contribute \$250k (or more*) p.a. in untied cash.
 - have top tier voting rights on board appointments, company constitution, IP and commercial arrangements.
- We would also value FRDC assistance in developing the CRC's linkages and communications with the Federal DAWE, relevant State Primary Industry and Environment Departments, and the fishing and aquaculture industry.
- Input from FRDC Board – we suggest a regular catch up between them and the CRC Board.



CH4 Global



NB : in negotiation with
+5-10 others (2 "Large"
8 SMEs)