

EXPLORING OPPORTUNITIES

FOR REGENERATIVE AQUACULTURE ON THE NSW SOUTH COAST

The Blue Economy CRC has partnered with the University of Wollongong to conduct baseline social, economic and cultural research to underpin the future development of kelp and mussel aquaculture on the south coast of New South Wales.

This project is examining the potential to further develop nature-based, feed-free aquaculture on the south coast of NSW, with a particular focus on kelp and shellfish farming.

We are working alongside existing aquaculture proponents, stakeholders and Indigenous rights holders, as well as members of the community to explore and unpack the opportunities for the development of kelp and mussel farming aquaculture in the local area. This will include an examination of potential social and economic benefits and impacts associated with the growth of this industry.



AQUACULTURE IN NSW

Aquaculture is a critical industry for Australia's Blue Economy, with significant opportunities for growth. The National Aquaculture Strategy aims to double the current value of Australia's aquaculture industry, and the National Marine Science Plan 2015-2025 highlights the importance of aquaculture in driving the development of Australia's Blue Economy.

Within New South Wales (NSW) there are 3200 aquaculture leases over a total current area of about 4300 hectares. These are administered by the NSW Department of Primary Industries and employ many different techniques, all of which take place on selected sites. Aquaculture has been estimated to contribute over \$220m and nearly 1800 jobs to regional economies in NSW.

AQUACULTURE IS OFTEN CLASSIFIED INTO 2 CATEGORIES:

1 Fed or intensive (or semi-intensive) aquaculture: requires inputs such as feed or water aeration. Examples include fish and prawn farming.



2 Non-intensive, feed free aquaculture: does not require inputs as it uses natural food sources and conditions. Examples include shellfish (such as oysters and mussels) and seaweed farming.



TYPES OF REGENERATIVE AQUACULTURE



Seaweed farming

Seaweed aquaculture in Australia is a promising industry with a wide range of potential uses such as food, fertilisers, agricultural feed, cosmetics, pharmaceuticals and bioplastics.

Seaweed can be grown with minimal environmental impact with many positive environmental benefits. Seaweed ocean farms require no addition of feed, freshwater or fertiliser with no waste from marine plants, making it one of the most sustainable forms of agriculture on the planet.

Seaweed farms consist of anchors, longlines and growlines, and look very similar to a mussel farm. Seaweed spores are grown in a hatchery on twine before being out-planted onto growlines, laid out approximately 1.5 km from the shore at sufficient depth to ensure the seaweed does not touch the bottom, reducing the amount of biofouling.

The substrate is often sandy as this is a good holding ground for moorings.



Mussel farming

In Australia, mussel farming is a relatively new venture undertaken in embayments of the southern states with the blue mussel (*Mytilus galloprovincialis*) the only marine mussel species farmed in Australia.

Wild caught and hatchery reared spat settle on special spat ropes and allowed to grow before being mechanically stripped from the ropes, graded and reseeded to culture rope. The time it takes for mussels to reach market size from spat varies between regions. Mussels grown on the NSW South Coast are renowned for their generous size and take a little over one year to grow. Mussels are filter-feeders and grow naturally on plankton circulated by the joining of warm water from the East Australian Current and nutrient rich cooler water from the Bass Strait.

The infrastructure and methods associated with mussel farming are complementary to seaweed farming, therefore it is possible to co-locate these species within the one farm.



WHAT FUTURE AQUACULTURE IS PROPOSED FOR THE NSW SOUTH COAST?

Currently the only form of aquaculture on the NSW South Coast is a healthy and vibrant oyster industry, as well as two existing mussel farms in Jervis Bay and Eden.

In NSW new aquaculture developments are assessed as State Significant Developments, meaning they need to undertake a range of rigorous environmental, social, cultural and technical assessments to gain approval.

The nature and scope of these assessments is defined by a dedicated set of Secretary's Environmental Assessment Requirements (SEARS) specific to each project.

At present SEARS have been issued for two businesses seeking to establish seaweed farms in three lease areas in Bermagui, Pambula and Eden (see map). An additional three leases have been identified as sites for future regenerative aquaculture businesses with plans for these sites still in under development.

\$220M

**1,800
JOBS**

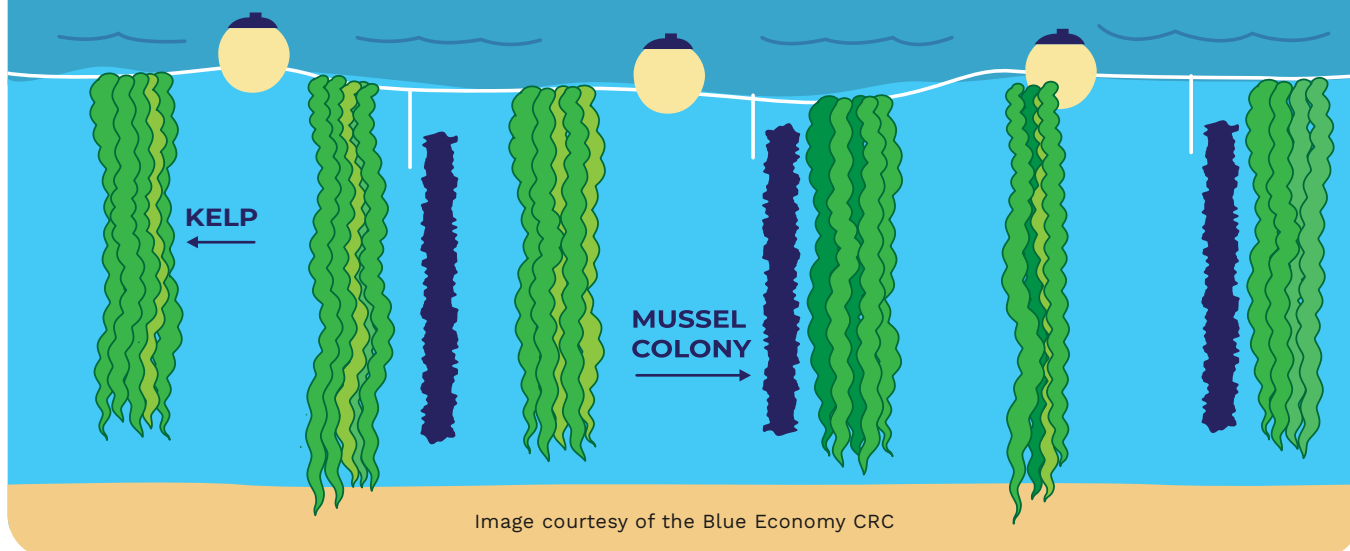
WHY DEVELOP REGENERATIVE AQUACULTURE ON THE NSW SOUTH COAST?

Seaweed is a low-impact, carbon negative crop and can be used for wide variety of purposes from nutrient rich food, bio-fuel, methane-reducing food source for cattle, bio-plastic, and cosmetic and medical products.

It is estimated that in Southern NSW Seaweed could generate \$50M annual gross value of production, 500 jobs and improve water quality and provide habitat for marine life.

Co-locating seaweed with mussels has the potential to further enhance food security and grow a thriving blue economy.

CO-LOCATED SEAWEED & MUSSEL FARM



PROPONENTS

Sea Health Products

Sea Health Products is a family company based in Tilba which harvests seaweed that is washed up on local beaches.

The seaweed is dried and processed into powder or granules that can be made into fresh organic products.

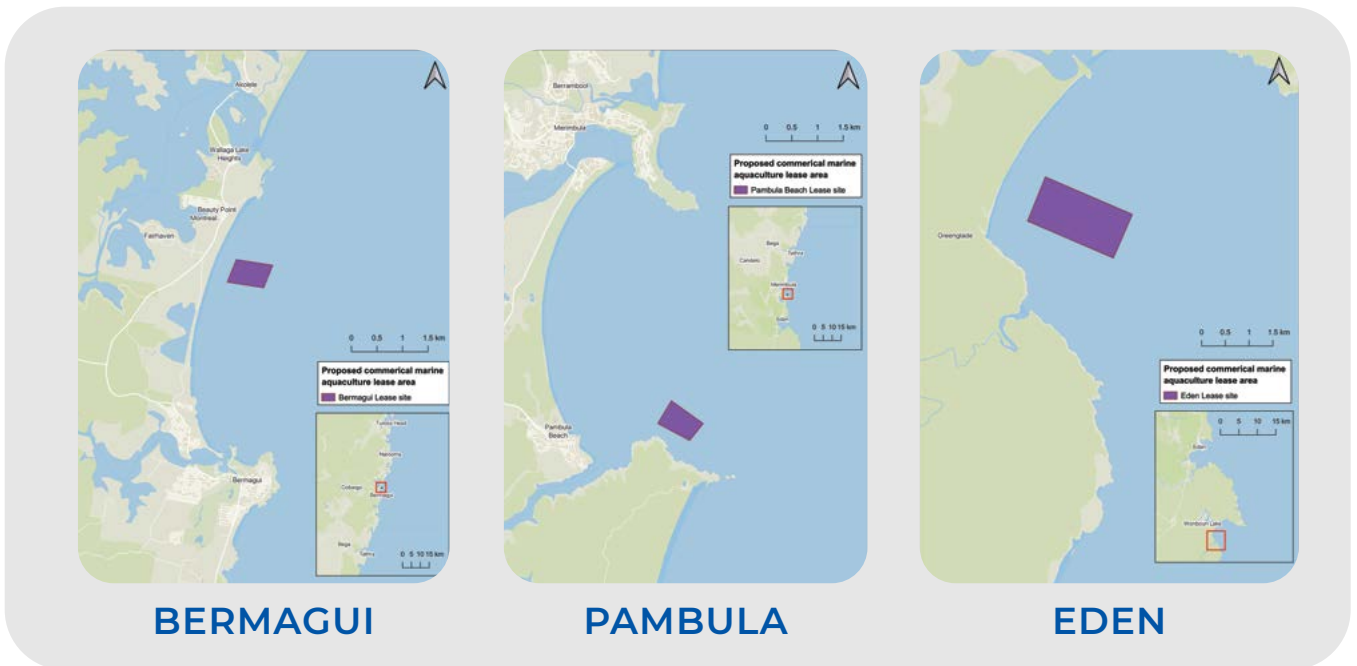
While demand for kelp products is growing, supplies of kelp have declined. In response Sea Health have developed a proposal for two kelp farms in Bermagui (Haywards Beach) and Pambula (Merimbula Bay).

AusKelp

AusKelp is wholly Australian owned and operated and seeks to create an environmentally positive and sustainable seaweed aquaculture Industry within the Bega Valley shire.

Using the latest technology, research and expert advisors, AusKelp plans to develop commercial kelp farms that create a new and innovative industry, while protecting the pristine sapphire Coast.

AusKelp is seeking approval for the development of a 200-hectare seaweed aquaculture marine farm on aquaculture lease area within Disaster Bay.



Start Date:
April 2023



Duration: 6 months



End Date:
October 2023

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PROJECT LEADERS

Michelle Voyer and Tillmann Boehme, University of Wollongong.

This project was successful at securing funds from the Regional NSW – Business Case and Strategy Development Fund - Round 1



Sources 1. <https://www.agriculture.gov.au/agriculture-land/fisheries/aquaculture> | 2. <https://www.frdc.com.au/seaweed-aquaculture-australia> | 3. <https://www.australianseaweedinstitute.com.au/why-seaweed> | 4. <https://www.dpi.nsw.gov.au/fishing/aquaculture/about-aquaculture> | 5. <https://www.dpi.nsw.gov.au/fishing/aquaculture/publications/species-saltwater/blue-mussel-aquaculture-prospects> | 6. <https://www.dpi.nsw.gov.au/content/research/areas/aquaculture/outputs/2001/output-168> | 7. <https://www.dpi.nsw.gov.au/fishing/aquaculture/publications/oysters/oyster-industry-in-nsw> | 8. <https://www.dpi.nsw.gov.au/fishing/fisheries-research/aquaculture-research/molluscan-aquaculture> | 9. <https://www.dpi.nsw.gov.au/fishing/aquaculture/publications/oysters/industry-strategy> | 10. <https://www.planningportal.nsw.gov.au/major-projects/projects/seaweed-aquaculture-lease-disaster-bay-eden-1-0> | 11. <https://www.planningportal.nsw.gov.au/major-projects/projects/seaweed-farming-aquaculture-bermagui-and-pambulan-sw>