Cooperative Research Centre for

COASTAL HEALTH AND WEALTH

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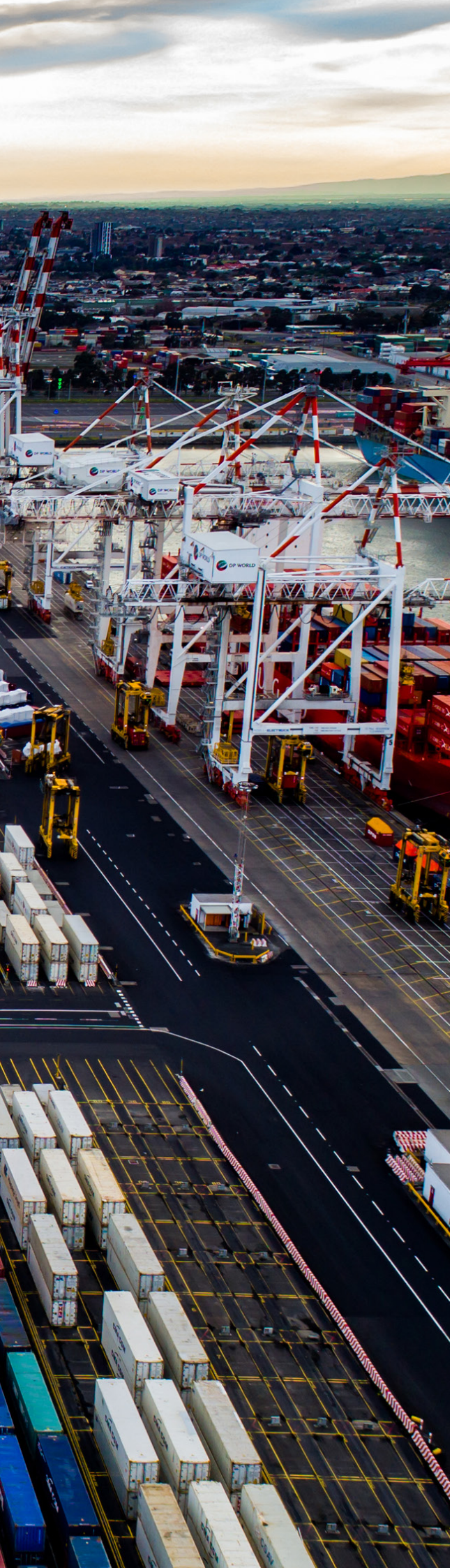
THE UNIVERSITY OF WESTERN AUSTRALIA

ENSURING THE FUTURE OF AUSTRALIA'S COASTAL INDUSTRIES AND ECOSYSTEMS



Australia's coastal industries are productive, competitive, and iconic. They contribute billions of dollars to local, state, and national economies and provide employment for hundreds of thousands of people.

The land along Australia's coastline supports vital hubs for land and sea based industries, shipping, transport, recreation, and services such as water and waste utilities. Adjacent marine and estuarine ecosystems underpin locally valued and globally renowned seafood and tourism.

Yet, while there is high potential for growth in coastal industries and agribusiness, the development of assets and use of resources is becoming more and more contested. Fifty per cent of all Australian's live within 7km of the coast, because this vibrant environment provides a highly valued lifestyle, and the vast majority of Australia's cities and urban developments are in coastal areas.

In addition to being a contested space, challenges arising from economic, social and environmental change, especially climate change, means the ongoing productivity and resilience of coastal ecosystems is increasingly at risk.

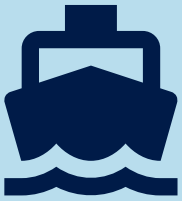
By working together to secure the productivity and health of coastal habitats and resources, and the profitability of industries reliant on these areas for trade and economic activity, we will be able to share in a wealthy and vibrant future, and we will safeguard our environment for generations to come.

The CRC for Coastal Health and Wealth (CRC CH&W) represents a national partnership to secure and ensure long-term growth in productivity, profitability and the health of Australia's coastal industries and ecosystems.

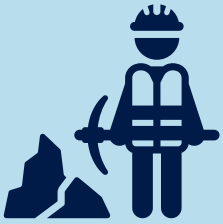
The CRC CH&W will grow the global competitiveness of assets (i.e. natural and built), industries and agribusiness (e.g. minerals, manufacturing and technology, seafood production) in Australia's coastal areas and communities. It will be an independent and trusted collaborative platform that will create the advanced products, tools and processes needed to resolve key contested and conflicted issues.

In achieving this outcome the CRC CH&W will actively ensure ecosystem productivity and long-term industry growth, delivering major economic, social and environmental outcomes of benefit to all Australians.

AUSTRALIA'S ICONIC COASTAL INDUSTRIES



Our coastal harbours are key gatekeepers for our economy, with over 90% of our trade flowing through them annually. They will provide critical infrastructure to meet the projected increases of about 25% in the amount of freight over the next decade.



Mineral and energy resource sectors in Australia are key global players that rely on strong coastal assets, including processing plants and ports, for their international competitiveness. In 2017-18, these sectors accounted for 72% of our exported goods, 8% of our annual GDP, and directly employed 246,000 people. The sector is tipped to hit a record of $252 billion in exports in 2018-19[1] .

Public utilities are reliant on our coast to produce vital resources for our local communities, ensuring the opportunity for the growth and expansion of townships and cities. Waste treatment facilities are often co-located near coastal water resources along with desalination plants near population bases, which now provide over 500 GL of drinking water to Australians.

Australia's commercial fishery and aquaculture production reached a value of $3.3 billion in 2015-16[2], and supported direct and flow-on employment for tens of thousands of people, including people living in regional areas and small or isolated communities.

Australia's spectacular and world renowned coastline provides diverse opportunities for livelihoods associated with domestic and international tourism. In 2013-14 marine tourism and recreational activities alone were valued at $28.04 billion; $23.8 billion of this value derived through domestic consumption[3] and activities such as recreational fishing, intrastate travel and camping, and diving.

Fifty per cent of all Australian's live within 7km of the coast, because of the strong economic and employment opportunities these areas provide as well as cultural and spiritual connections to land and sea, which influence health, wellbeing and inclusion.

[1] Resources and Energy Quarterly. September 2018. Office of the Chief Economist.
[2] Australian Fisheries and Aquaculture Statistics 2016. Fisheries Research and Development Corporation project 2017-095. ABARES, Canberra.
[3] The AIMS Index of Marine Industry: December 2016, AIMS,

THREATS PRESSURES AND CHALLENGES

More and more industries are looking to access assets, natural and built, along Australia's coastline, which is leading to increased competition and conflict.

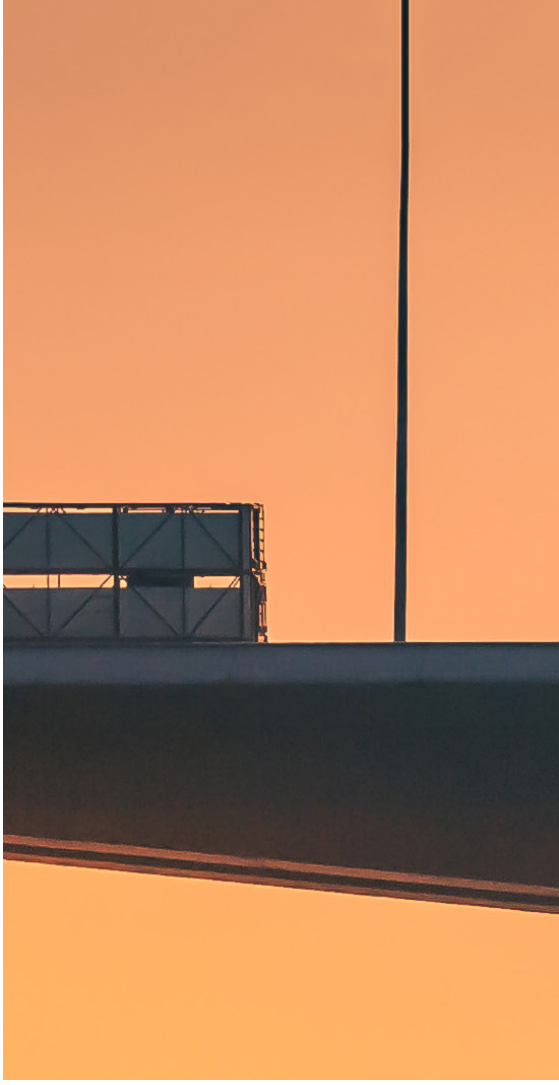
Global market access, volatility and social expectations present unprecedented challenges to coastal industries, agribusinesses and export opportunities.

Climate change and its effects are increasing the risk and incidence of coastal erosion, changing distributions of species and their productivity, and the temperature and acidity of coastal waters. An estimated $200 billion of infrastructure in Australia is at risk from coastal flooding[4]; over half the Australian coastline is vulnerable to rising sea level, and with just 10cm rise in sea level the risks of coastal flooding treble.

Habitat loss, species declines and environmental degradation is placing pressure on existing resources, and limiting the capacity of a wide range of coastal industries to operate sustainable and profitable businesses. Agriculture and urbanisation remain key pressures on coastal environments. Maintaining the health and integrity of Australia's highly prized, clean seafood is paramount.

[4] Counting the Costs: Climate Change and Coastal Flooding. 2014. The Climate Council of Australian Limited.

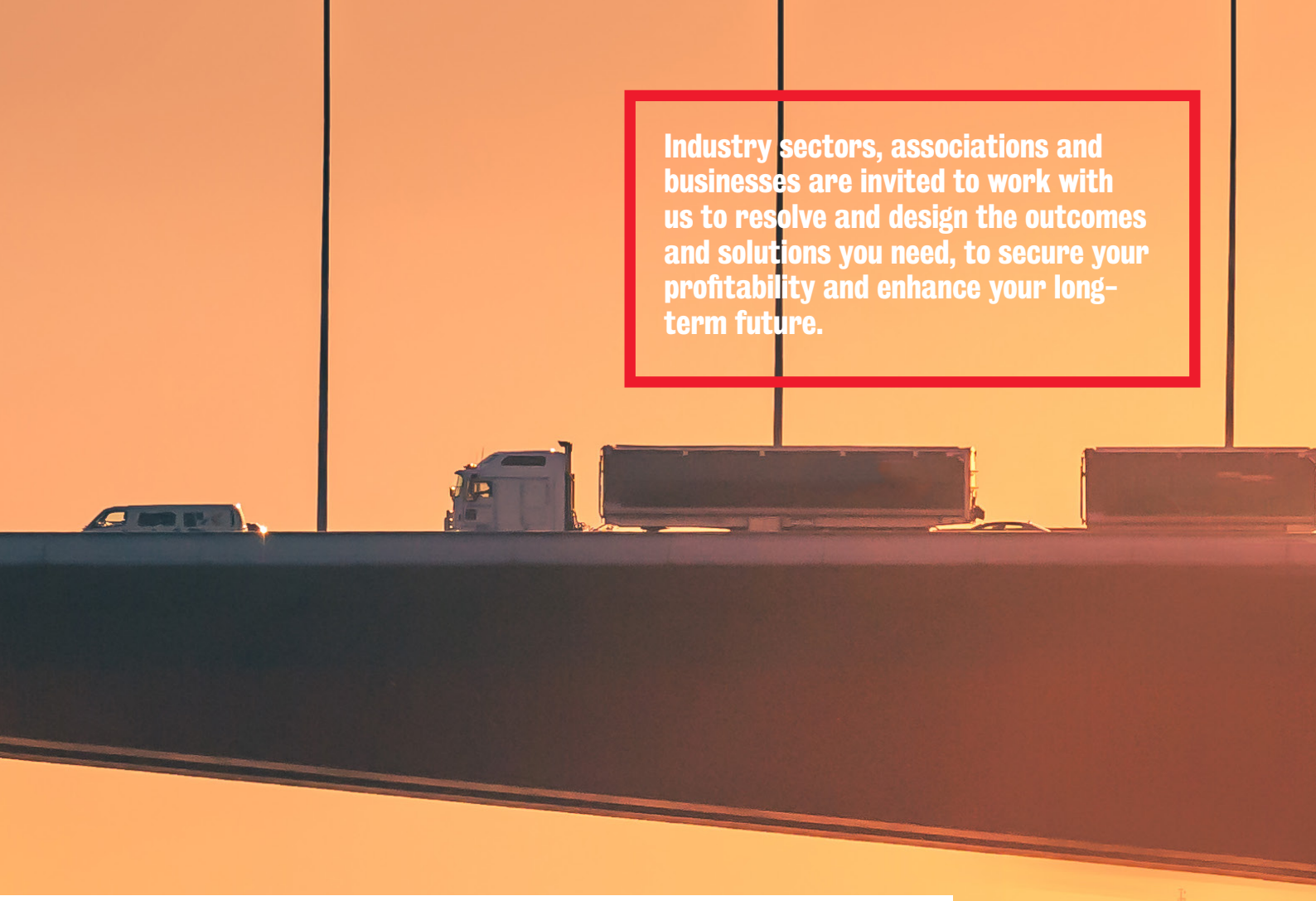
THE OPPORTUNITY



Coastal industries are increasingly required to work in environments that need to provide for a growing number of users, that are declining in health, and that are facing escalating challenges such as climate change. The results of these challenges are decreasing resilience and security and a loss of productivity and profitability.

A CRC that brings together industry sectors and innovative businesses could deliver major economic, social and environmental benefits for all coastal industries. The CRC CH&W will:

- Significantly reduce the risks and impacts of climate change to $200 billion of built coastal assets, private and public.
- Increase precision and reduce risks to the environment, certainty, and economic resilience in coastal trade and export.
- Facilitate consistent and sustainable growth in marine and coastal aquaculture above 10% per annum to more than $2 billion in 2030, across a wide range of sectors including multiple species of finfish, shellfish, and marine plants.
- Support the long-term operation of commercial fishing in coastal areas, and the continuance and value of existing licences.
- Apply novel and advanced thinking and infrastructure to repair coastal habitats (e.g. seagrasses, shellfish ecosystems, mangroves, and estuaries), water quality and fish stocks, increasing their productivity, and the profitability of agribusiness.
- Create a 'restoration economy' in coastal areas adding millions of dollars every year to the value of the marine services industry.
- Reduce regulatory burden and alleviate costly conflicts for access to coastal areas and resources, which constrain rather than enable industry activity and community values.
- Unlock investment and financing in coastal industries.



Industry sectors, associations and businesses are invited to work with us to resolve and design the outcomes and solutions you need, to secure your profitability and enhance your long-term future.

These outcomes can be achieved by developing advanced products, tools and processes, throughout the value chain (pre-production to export), for example:

- Advanced technology (e.g. 'AgTech' or machine learning approaches) to increase productivity and profitability of assets and agribusiness, while also reducing environmental and social impacts.
- Novel, ecosystem-based infrastructure and engineering blueprints that can reduce risks and impacts to natural and built coastal assets from the effects of climate change, such as adverse weather events, storm surges, and sand erosion.
- Development of policy and regulatory mechanisms and market-based incentives to support highly effective and cost efficient environmental, carbon and nutrient off-set schemes.
- New species production systems (e.g. knowledge, infrastructure, food security and food safety processes) that can support and guarantee consistently high quality, high value and high integrity (i.e. clean) products.
- Transparent and robust software that can be used by industry and regulators to assess developments, or resolve spatial plans enabling long-term economic, social and ecological outcomes (e.g. plan and facilitate movement of key fisheries and aquaculture production areas, adaptation to climate change and species migration, population growth and changing social values or expectations, accurate valuation of ecosystem services over time).
- Accurate lending policies to assist financing of coastal industries, and tools to increase impact, green or ethical investment opportunities and outcomes.

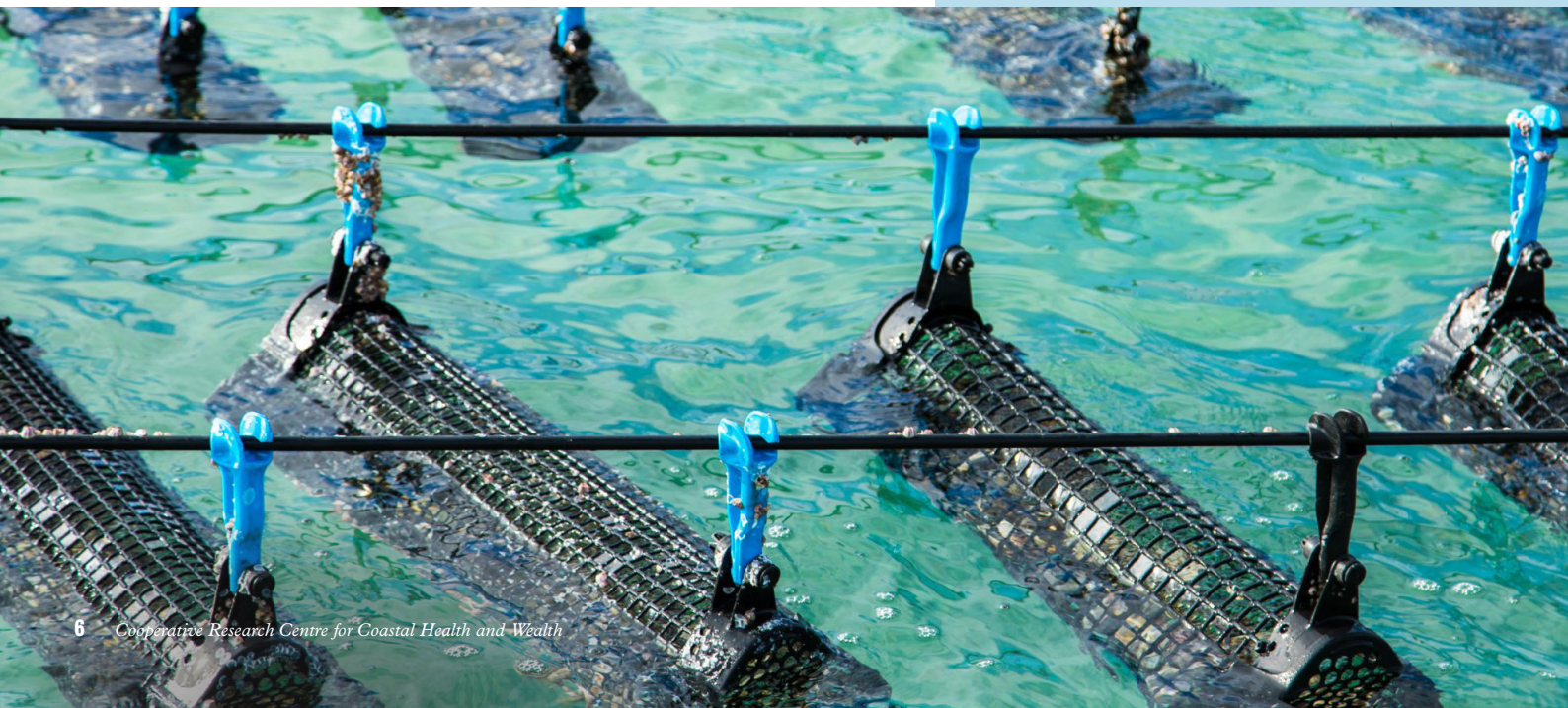
PARTNERING IN THE CRC FOR COASTAL HEALTH AND WEALTH

The University of Adelaide, the University of Western Australia and the University of the Sunshine Coast are working together to build a foundation of research capability that can support the proposal for the CRC CH&W.

These institutions represent some of Australia's leading capability in coastal industry development and economics, ecosystem science, food and agribusiness innovation and entrepreneurship, solutions engineering, and decision-making under uncertainty. In 2019, additional research organisations will be engaged as partners and collaborators to this grow capability.

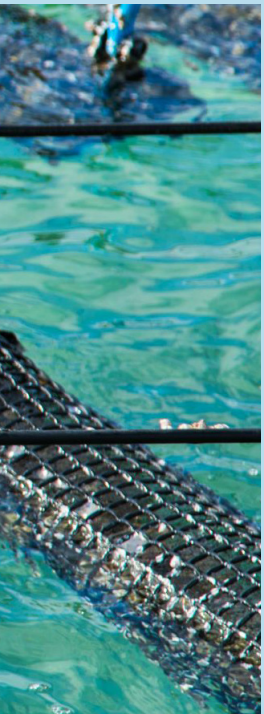
The CRC CH&W will enable a collaborative approach to coastal issues and, importantly, align with and work to support existing and future National, State and Local plans and strategies, including the National Marine Science Plan.

University of Western Australia: state-of-the-art marine and coastal facilities for engineering and biophysical research, and Australia's leading group of natural resource economists.



University of the Sunshine Coast: developing novel solutions for sustainable development in coastal communities and aquaculture industries.

University of Adelaide: pioneers in ecosystem science and restoration, food and agribusiness innovation and entrepreneurship, and machine learning.



Industry sectors, associations and businesses, small to medium enterprises, all tiers of government, and community groups are invited to partner in the bid to establish the CRC for Coastal Health and Wealth.

WHAT IS A CRC?

The Australian Government's Cooperative Research Centres (CRC) Program is a flagship program that has been supporting industry-led collaborations between industry, researchers and the community, since 1991.

Industry partners in the CRC define the deliverables that are to be achieved within the broad scope of the CRC objectives. The Federal Government can match industry financial investment up to 1:1 for a ten-year period to:

- improve the competitiveness, productivity and sustainability of Australian industries, especially where Australia has a competitive strength;
- deliver outcomes in line with government priorities;
- encourage and enable small and medium enterprise (SME) participation in collaborative research; and
- foster high quality research to help solve industry specific problems through collaborative partnerships, between industry entities and key capability or organisations.

WHO SHOULD PARTNER

A wide range of partners will benefit from being involved in the CRC for Coastal Health and Wealth, including:

- Mineral and energy companies relying on coastal assets for trade.
- Port authorities, asset holders and port service providers.
- Commercial and recreational fishing industry sectors and flow-on businesses.
- Aquaculture industry sectors and operators.
- Water or waste treatment utilities, and treatment focused SMEs.
- Local Councils and regional development authorities.
- Coastal development companies.
- Financial institutions including lenders, investors and insurers.
- Environmental NGO's and philanthropic trusts.
- Tourism companies and associations.
- Indigenous communities, organisations and businesses.
- Manufacturing, engineering and environmental management companies with interests in coastal infrastructure and assets.
- Companies within the technology, data and intelligence industries.
- Research-focused businesses with an interest and capability in industry development.
- Government agencies with responsibility for managing coastal resources and activities and the need to achieve regulatory reform.

EDUCATION AND TRAINING

Australia's coastal communities will be left in the hands of future generations; generations that are the families of our resource sector leaders, agribusinesses, fishers, aquaculture operators and support services.

The CRC for Coastal Health and Wealth has a unique and genuine opportunity to upskill the current workforce and provide intergenerational education and training in coastal communities, Australia-wide.

Through multi-scale, 'local to global', University-based training programs and a focus on the commercialisation of local knowledge, smart products, and growing business innovation and entrepreneurship, we can collectively enable industries and communities to make a global impact.

FOR FURTHER ENQUIRIES

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