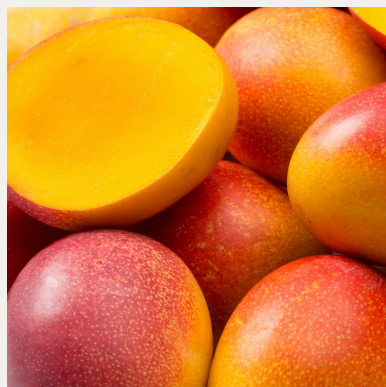
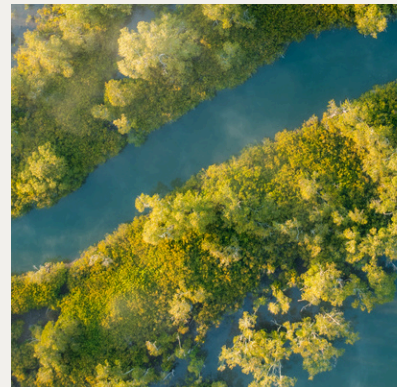


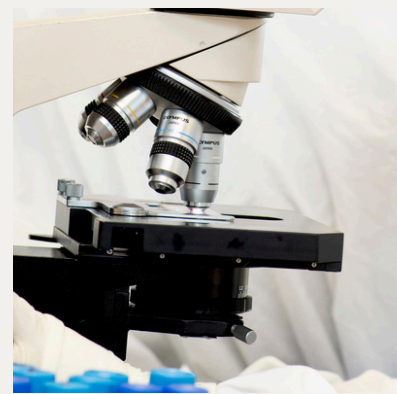


ANNUAL REPORT 2023/24

Research for **sustainable**
and **inclusive** development
in **Northern Australia**.



Explore more



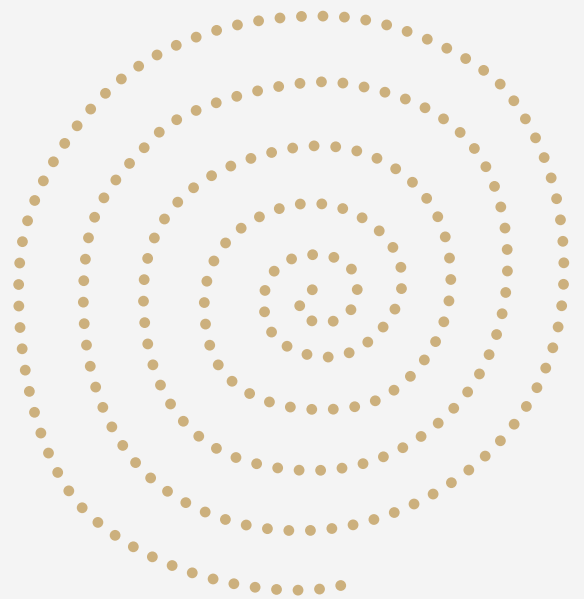
The Cooperative Research Centre for Developing Northern Australia recognises the continuing connection to sea and country of Australia's First Nations People.

We acknowledge the Traditional Custodians of the land and water on which our staff and researchers live and work, and pay our respects to their Elders past, present and emerging.



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Foreword

Minister for Northern Australia, the Hon Madeleine King MP



It is with great joy that I introduce the Cooperative Research Centre for Developing Northern Australia's 2023/24 Annual Report.

CRCNA research is maximising new and emerging opportunities for northern Australians and tackling the challenges of development through contemporary, sustainable and resilient initiatives.

Since 2017, the CRCNA has continued to drive research into sectors that have high potential in Northern Australia, including First Nations enterprises, agriculture, aquaculture, water development, and health service delivery.

CRCNA's research de-risks these industries in the north, which can help promote private investment and drive economic development across the region.

I commend the board and staff of the CRCNA for the important work they do, driving outcomes for sustainable growth in the north, creating jobs and solving complex development challenges.

Over the past year I've had the pleasure of meeting some of the amazing researchers that partner with the CRCNA. I truly admire their passion and dedication to applying science and evidence based solutions to the critical nation building task of developing the north.

Recently, I met with researchers from the Darwin Aquaculture Centre, who shared with me their breakthroughs in Blacklip Rock Oyster hatchery production.

By gaining insights into the production of these oysters, and proving their feasibility,

the CRCNA's work will help develop a premium, native oyster industry run by First Nations people in the pristine waters of the north. The Blacklip Oyster project is just one example of where the CRCNA is driving self-determined, sustainable opportunities for First Nations people and business in Northern Australia.

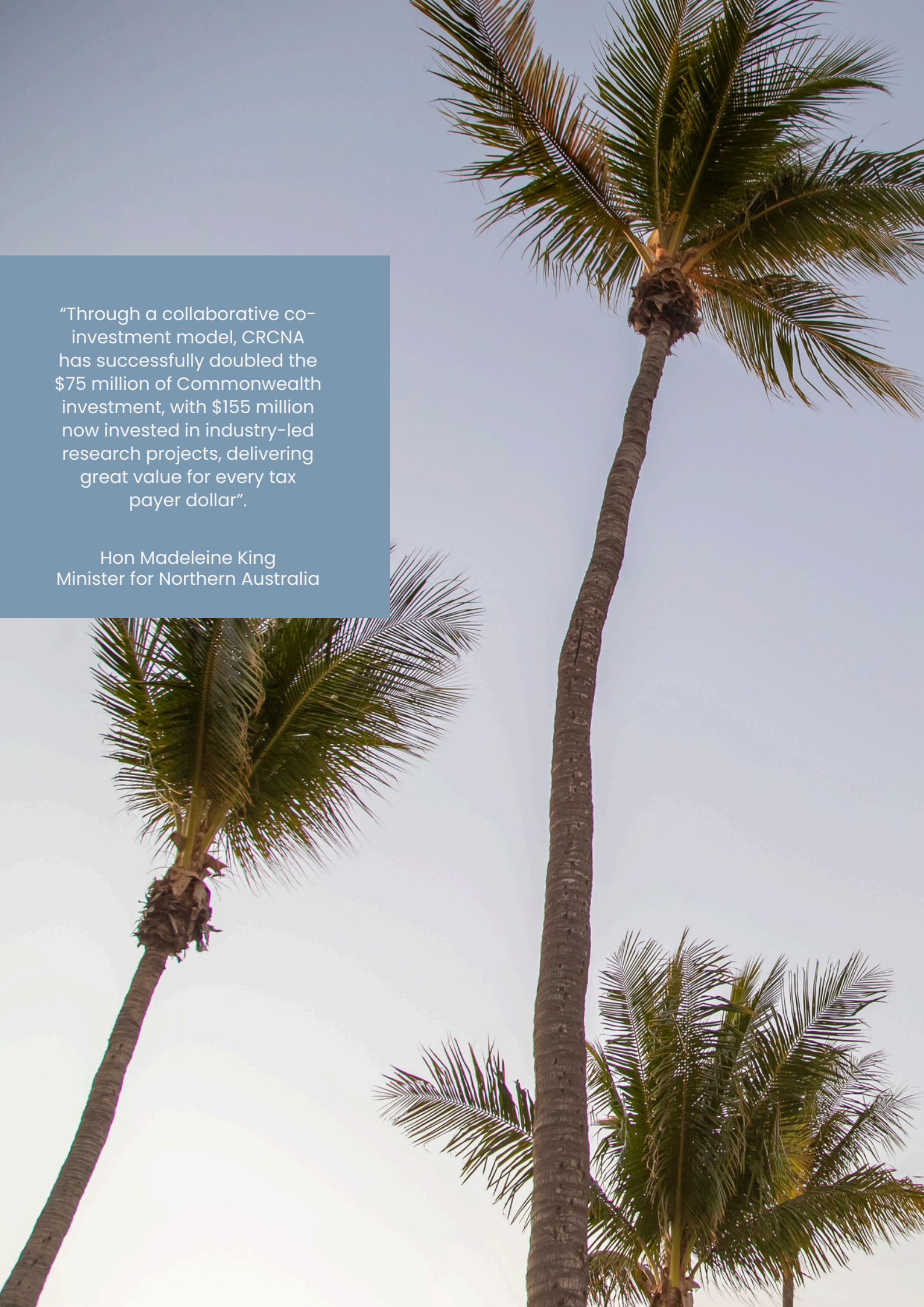
There is no doubt that service delivery via Telehealth is a vital tool for regional, rural, and remote Australians. The Centre for Online Health has partnered with CRCNA to support northern health workers, delivering sessions for our frontline workers and greater access for remote patients.

The CRCNA is also leading the way in supporting the transition to a net-zero economy. Their focus on sustainability points to an economic development agenda for Northern Australia that is augmented by our beautiful and unique natural environments.

I acknowledge the ongoing contributions of the CRCNA in delivering our government's shared vision for the north. My colleague the Minister for Industry and Science, the Hon Ed Husic MP – who has portfolio responsibility for all Cooperative Research Centres – joins me in congratulating the CRCNA on another year of solid progress, as does Luke Gosling, Special Envoy for Defence, Veterans' Affairs and Northern Australia.

I look forward to continuing to work together with the CRCNA and my colleagues to support our north into the future.

Madeleine King



“Through a collaborative co-investment model, CRCNA has successfully doubled the \$75 million of Commonwealth investment, with \$155 million now invested in industry-led research projects, delivering great value for every tax payer dollar”.

Hon Madeleine King
Minister for Northern Australia

Research and Development for Northern Australia

The Cooperative Research Centre for Developing Northern Australia (CRCNA) is investing \$75 million in Australian Government funds over ten years (2017 to 2027) to support industry-led research and development collaborations to make doing business in the north easier, more efficient and with less risk.



CRCNA vision

To invest in industry based research that de-risks development in Northern Australia to realise a resilient and sustainable economic future.



CRCNA focus

Research collaborations that develop new technologies, products and services to address industry issues unique to the north.



CRCNA origins

Established as a key initiative of the Australian Government's 2015, *Our North, Our Future: White Paper on Developing Northern Australia*.

Objectives



Improve the competitiveness, productivity and sustainability of the northern economy by building on the north's strengths in agriculture, food and tropical health.

Assist industry to solve the challenges of doing business in Northern Australia and reduce the barriers to investment.



Bring together industry, research organisations and all northern jurisdictions and international partners to grow business opportunities in the north.



Develop new technologies, innovations, products, processes and services that bring benefit to northern communities.

Promote a skilled and industry-ready local workforce.



Collaborative impacts



109

Projects supported by the CRCNA



272

Research project partners



\$155 million

In project funds, leveraged from \$75 million



\$2.89 million

In capacity building via education program



657

FTE from CRCNA research projects over 10 years

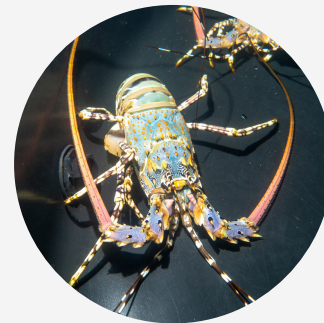
Industry focus areas



First Nations-led business development



Agriculture, incl. horticulture, forestry



Aquaculture and seafood



Water resources

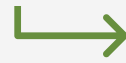


Health service delivery incl. tropical health

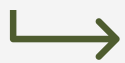
Research programs



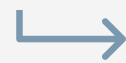
Support new and developing industries in the north



Building sector capacity with First Nations enterprises



Industry specific production and supply chain innovation



Support northern health service delivery and models of care



Informing policy development



Build education, training and research capacity in the north



Chair's report

Sheriden Morris

Northern Australia is a place of great economic opportunity and holds globally significant environmental and cultural value. It's the gateway to the Indo-Pacific region and crucial to the nation's future defence.



In 2023/24 our commitment to backing contemporary research is underpinning the development of key 'mining-alternate' industries such as:

- Tropical agriculture
- First Nations cultural markets, bushfoods, seafood, ag enterprises
- Tropical aquaculture
- Environmental, biosecurity, feral management, climate adaption
- Remote health service delivery and tropical medicine.

We continue to evolve and refine the CRCNA's approach to research based on the north's development needs, building knowledge and extensive networks, memberships and relationships for real-world outcomes.

Governance

In December 2023, Ricky Archer resigned from the CRCNA Board as he took up the role of the first Indigenous Director of Parks Australia. I thank him for his work and dedication to Northern Australia, especially with First Nations enterprises. Duane Fraser, a proud Wulgurukaba and Bidjara man, was appointed to the Board as a new Director in January 2024. He brings a wealth of experience in advising Commonwealth and state governments on matters relating to Indigenous affairs and environmental policy.

Future focus

To genuinely support nature positive and sustainable development for Northern Australia over the long term, the CRCNA is focused on providing targeted research and analysis that supports inclusive and informed development projects.

It goes beyond commissioning research, it's innovation and actively delivering sustainable solutions along the supply chain to address barriers to development and enhance First Nations empowerment.

Our future in northern development is focused on:

- Research and extension for businesses where the north has the greatest opportunities: agriculture, aquaculture, tourism, energy, environmental services, and health service delivery.
- Closing the Gap with targeted industry support, business & entrepreneurialism.
- Reducing costs with modern services to enhance biosecurity, disaster mitigation and environmental protections.
- Transitioning to a Net Zero future with innovations, development, and metrics for environmental compliance whilst building climate resilience.

The CRCNA is part of the fabric of the north, and together we're working together on making a lasting, positive impact.

Sheriden Morris

CEO report

Anthony Curro and Sarah Docherty

Northern Australia is a highly productive region with exciting growth in tropical agriculture, aquaculture, First Nations knowledge, water resources, environmental stewardship, and health innovations for remote and rural Australians.



Investment

With an initial Australian Government allocation of \$75 million over ten years, CRCNA's co-investment model has now leveraged over \$155 million to support 109 projects, involving 272 partners, and over the life of the CRCNA, provide 657 project-related jobs.

In 2023/24 the final two projects for the CRCNA commenced and the organisation has fully allocated its CRC grant funding through to the end of operations in 2027.

- Blacklip Rock Oyster Industry Development
- Activating First Nation Water Rights under the Cape York Water Plan

2023/24 also saw us complete another 12 research projects and supported more than 96 FTE staff engaged directly in research, development and extension activities. Over 2600 people participated in training, conferences, workshops and field days, further strengthening knowledge and talent across our regions.

Science

Chief Scientist, Prof Allan Dale, continues to lead the transition of science impacts into greater policy and investment outcomes. This work is enhancing the likelihood of more comprehensive and long-term outcomes, ensuring benefits are not restricted to the boundaries of individual projects, with wider application across northern regions.

Engagement

Northern Australia is a large operating remit, so its vital to participate in industry events.

Highlights from the year include:

- Our Beef2024 celebrity chef lunch with Chef Mark Olive and Chef Tom Hitchcock, showcasing northern tropical beef with our industry partners, AACo.
- Developing Northern Australia Conference in Darwin, sharing insights from 12 CRCNA projects to 500 delegates.
- Our PhD Student Workshop for 11 students engaged in CRCNA industry focus areas.
- Producer field days for tropical cropping, sesame and jackfruit in Katherine, Kununurra and Emerald.
- Landline stories featuring CRCNA research in sesame and jackfruit and other features on oysters, Kakadu Plum health benefits and nature positive water development.
- A new CRCNA website showcasing the volume of knowledge across projects, check out crcna.com.au

As the year draws to a close, we thank our dedicated staff, board and researchers who help us create the enabling conditions for positive, sustainable and inclusive development of our amazing region.

We look forward to working with the CRCNA Board on progressing the future of research in Northern Australia.

Anthony Curro and Sarah Docherty

The Year in review

Working together for bigger, bolder, impact



NT Aquaculture research, development, extension workshop, Darwin

Water Security for Northern Australia official program launch

CRCNA PhD Student Workshop, Townsville

Developing Northern Australia Conference, Darwin

Duane Fraser joined the CRCNA Board following Ricky Archer's resignation



Beef2024 and CRCNA and AACo Celebrity Chef lunch celebrating northern beef industry

New CRCNA website launched

Boots on the Ground commenced as a support service to build capacity and connection for local agricultural professionals in crop and commercial agronomy in northern and north-west Qld

4 Telehealth Technicians are now trained at Gawa and Nanginyburra communities in Arnhem Land, also supporting environmental, cultural and mental health

Centre of Research Excellence for Strengthening Health Systems in Remote Australia knowledge workshop, Alice Springs



ABC Landline stories on CRCNA research:
 Spice Sector: Trialing herb and spice crops in Northern Australia;
 Jacked Up: The tropical fruit meat alternative

Northern Australian Regional Digital Health Collaborative was launched via nardhc.org



500 tonnes of invasive hyacinth removed from Rockhampton's Fitzroy River

Tropical Rock Lobster field day and project completion



Sesame trial field days with AgriFutures in Katherine and Kununurra

Sesame Central research centre launched at CQUniversity, Rockhampton



Midwifery and virtual child health services were established in Clermont through the Integrated Health Care Planning project

4 new start-ups received mentoring support through the project *Novel therapeutics for diabetes sourced from northern biota*, creating a biotech start-up culture in Cairns

Research projects



Project snap shot

During 2023/24:

- ↳ 2 new projects commenced valued at over \$4.1 million
- ↳ 12 research and development projects were completed
- ↳ 96.3 FTE staff engaged directly in research, development and extension
- ↳ 130 formal and end user publications, and 2675 individuals engaged in professional training courses or conferences, workshops, or field days.

New and completed projects for 2023/24 include:

First Nations led business development

Activating First Nation Water Rights under the Cape York Water Plan. *AT.4.2223010 (new)*

Aquaculture

Blacklip Rock Oyster Industry Development. *A.2.2122025 (new)*

WA Tropical rock oyster research and development. *A.2.1819053WA*

Pioneering Tropical Rock Lobster Raft Grow-out for Northern Australia. *A.3.2021116*

Health service delivery

Development of a simple, robust telehealth system for remote communities. *H.5.1920041*

Economic assessment of disability models of care in remote communities. *H.5.2021046*

Agriculture

Suitable sugarcane to diversify and add value. *A.3.2021002*

Project BGreen. *A.3.2021118*

Spicing up Northern Australia with high-value condiment crops. *A.2.1819045*

Central Queensland Agriculture Supply Chain Baseline study. *A.1.2021029*

Water development

Co-design phase, Water Security for Northern Australia Program. *AT.7.2122013*

Making Water Work: Defining a supply chain and development precincts vision. *A.7.2122006*

Making Water Work: Visionary land use planning to facilitate development precincts. *A.7.2122007*

Scaling Next Generation Water Markets in Northern Australia. *A.7.2122001*



Traditional Owners, Tiwi Plantation Corporation, Tiwi Land Council and commercial tropical forestry experts are researching the best plantation species for the forestry industry on the Tiwi Islands, 85km north of Darwin

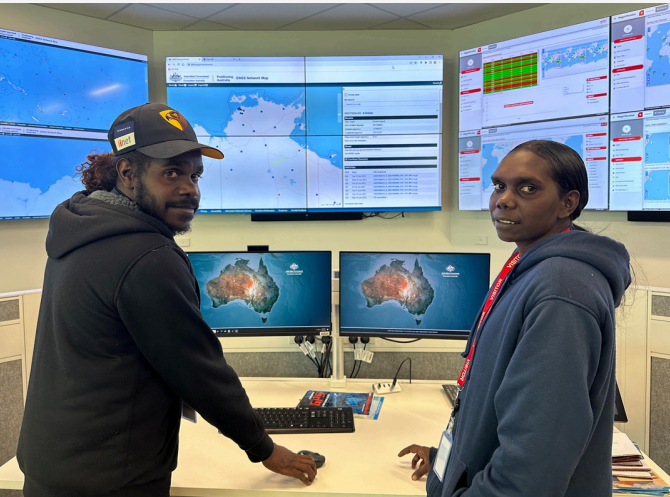
The 30,000ha estate is transferring to the higher-value *Eucalyptus pellita* trees. Early evidence shows these could be up to 100% more productive than the current *Acacia* varieties.



First Nations-led business development

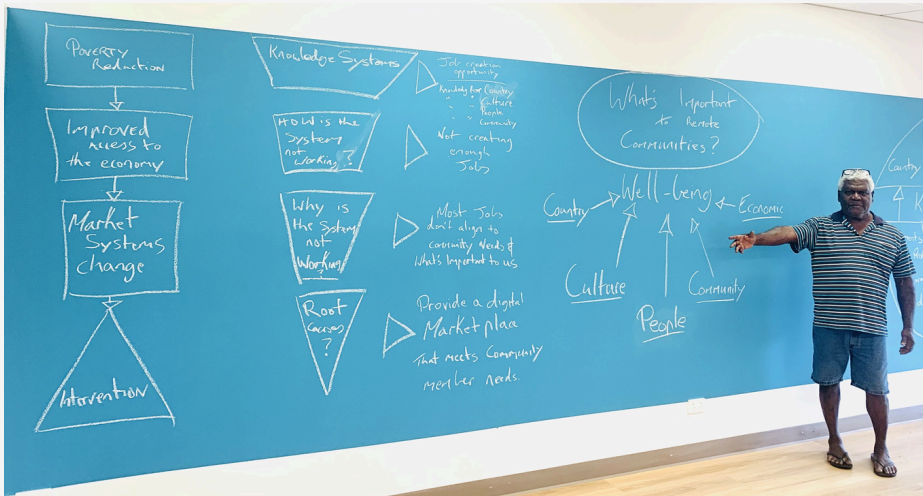
Setting the research agenda

Modern mapping - Integrating Indigenous priorities in spatially enabled planning of the Indigenous Estate AT.4.2223009



The CRCNA has partnered with the Anindilyakwa Land Council on Groote Eylandt and Geoscience Australia, the Australian National University and Aerometrex Ltd. to transform how digital maps are designed and used on Country, integrating a Geographic Information System in culturally appropriate and inclusive ways.

Sea level rise scenarios are also being monitored across the archipelago using LiDAR data. This provides predictive models to assist with planning climate change impacts, critical for emerging industries on the island, like aquaculture.



Cultural market system development AT.4.2223008

Indigenous Connection, Tracks Indigenous Service and the National Australia Bank have partnered to investigate new ways of improving economic participation on Country across Northern Australia, using market system design principles.

Improved cultural, economic and social outcomes can be delivered with First Nations peoples and communities by better aligning the needs of suppliers and consumers.

Applying 'gig economy' thinking to existing cultural knowledge is connecting cultural knowledge supply with cultural knowledge demand.

Visit indigenousconnection.com or follow [@indigenousconnection](https://twitter.com/indigenousconnection)

First Nations-led business development

Setting the research agenda

Activating First Nation Water Rights under the Cape York Water Plan

AT.4.2223010

The project commenced in 2023 to work with Aboriginal Corporations across Cape York to pursue opportunities both on and off their land with the secure and leasable water rights that they hold.

To support Aboriginal Corporations accessing water allocations under the *Cape York Water Plan 2019*, a network of Aboriginal Corporations, peak bodies, researchers and government agencies have come together to develop the following resources to guide development.

↳ Create a situation analysis of Aboriginal Corporations rights to water allocations under the *Cape York Water Plan* covering:

- opportunity and constraints to the allocation and use of water
- identify policy, regulatory or process improvements
- determine if investments are needed to support water allocation and use for environmental, economic and community needs.

↳ Research catchment-based case studies to further understand the opportunities and constraints to accessing and leasing water allocations by Aboriginal Corporations.

↳ Develop a Cape York Water Manual to build the capacity of Aboriginal Corporations with water allocations to receive allocations and utilise or lease water.

The manual will help water users seeking to utilise or lease water, and engage with Aboriginal Corporations holding water rights.

↳ Inform broader First Nations water policy across Northern Australia and nationally by leveraging traditional knowledge and expertise for economic growth whilst protecting land, water and cultural assets.



Water development

Nature positive

Water Security for Northern Australia (WSNA) AT.7.2122014

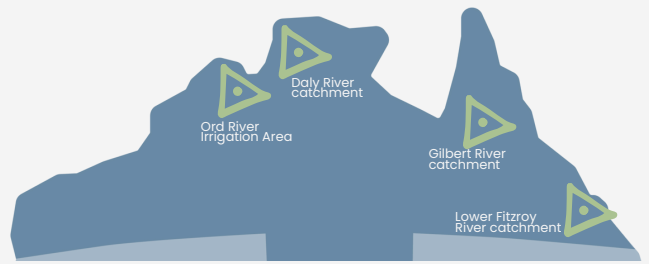
WSNA is being delivered through a partnership between the CRCNA and the Northern Australia Universities Alliance from 2023 to 2026.

The research-focused approach is demonstrating that development and environmentally healthy and sustainable eco-systems can co-exist by better understanding the natural environment.

WSNA has 15 projects co-designed with stakeholders across four major northern water catchments:

- Lower Fitzroy catchment, Central Qld
- Gilbert River catchment, North Qld
- Daly River catchment, Northern Territory
- Ord River Irrigation Area, Western Australia.

Topics examine issues that prevent or restrict development of water resources, effective use, equitable access and environmental outcomes of water use.



Research focus:

- ↳ Water quality, availability and the environment
- ↳ Environmental impacts and management
- ↳ Greater Indigenous benefit from water resources
- ↳ Biodiversity supported by aquatic environments
- ↳ Climate impacts and management
- ↳ Cropping systems and new crops
- ↳ Improved economic returns from the use of water resources



Water trading

Scaling Next Generation Water Markets in Northern Australia A.7.2122001

Contemporary water market and trading systems is improving water access with market design and governance with Civic Ledger's Water Ledger, blockchain technology.

This is creating investor confidence with grower-led access to water markets for agricultural use.

The Mareeba-Dimbulah Water Supply Scheme has moved to blockchain water market and trading platform: *Water Ledger*.

It's created a model for application across the north in other industries like tropical health and supply chains.

Learn more at waterledger.com

Making Water Work

Case study

The Making Water Work projects are addressing coordination, environmental and regulation challenges facing end-users (farmers) in accessing new water infrastructure from Rookwood Weir in the Lower Fitzroy Catchment in Central Queensland.

Making Water Work is an example of a place-based collaboration to enhance and improve industry access to water for sustainable use in the Lower Fitzroy region.

The projects were developed in partnership with governments, industry and the community to support agricultural producers to meet their regulatory and environmental requirements.

Projects



Land use planning



Defining supply chains



Reef water quality



Water governance



Hyacinth harvest and processing

These projects are helping to unlock the agricultural potential in the Lower Fitzroy by creating circular economies and achieving environmental outcomes through weed management, farm plans, and defining supply chains and development precincts for optimum industry efficiency.

The Making Water Work projects were designed to demonstrate that development and healthy ecosystems can coexist.

Projects are providing confidence for investors and producers to operate in the region.

Did you know?

- ↳ It's envisaged that this model will be applied to other development objectives in regions across Northern Australia.
- ↳ Agriculture in the Rockhampton region is valued over \$700 million annually and includes beef, lychee, macadamia, avocado, mango, grains and citrus.
- ↳ Establishing resilience to mitigate the impacts of extreme climate and growing more diversified agricultural products for domestic and export markets.
- ↳ Providing water for irrigation is not enough by itself to guarantee agricultural development, place-based collaboration is essential.
- ↳ The Fitzroy catchment's annual flow is 12 times the size of Sydney Harbour. When Rookwood Weir was built coordination of water resources for industry growth, whilst meeting environmental standards, was essential.
- ↳ 500 tonnes of invasive hyacinth weed removed from Rockhampton's Fitzroy River and recycled into agricultural soil nutrients.

“The Rockhampton Regional Council, as a Great Barrier Reef guardian, is focused on being a proactive environmental steward whilst advancing responsible sustainable development of agriculture in the Fitzroy Food Bowl”.

Mayor Tony Williams
Rockhampton Regional Council



Agriculture

Climate adaptation to protect and grow markets

Silvopastoral trials of commercial pine systems A.1.2021013

Silvopastoral is a specific form of agroforestry that integrates livestock grazing and timber production in the same unit of land, providing diversified income and productivity benefits from combined timber, carbon sequestration and beef production.

Commercial *Pinus caribaea* species showed positive potential for expanded pine production to meet demand for timber products.

Data supports future modelling and economic analysis to apply silvopastoral systems across Northern Australia, with the Gulf Savannah NRM using this to scope silvopastoral potential in their region.

Grain storage storage extension: Far North A.1.2021057

As northern cropping and cattle production expands, so too does grain storage requirements suited to tropical conditions.

Extension practices are assisting growers in the Kununurra, Katherine and Townsville regions to utilise fit-for-purpose infrastructure and management techniques to maintain quality grain in storage that is free from pests and humidity.

Storing grain appropriately gives producers diversified market access, reduces freight costs and provides supplementary feeding for livestock during the dry season.

↳ Climate projections indicate a 0.6–1.3°C increase by 2030. Increasing heatwaves, evaporation rates and water demands. *credit WA DPIRD*

↳ 8,059 agricultural businesses operate in Northern Australia, that's 9.2% of the total 87,402 agricultural businesses nationally. *credit ABS*

↳ 11 tropical cyclones threaten the north annually, on average, with 4 to 5 reaching land. *credit CSIRO*

Next-Generation Resilient Orchard Production Systems for Tropical Crops

A.2.2021052

Innovating new orchard trellis systems for next-generation resilience of cyclones, for high-value and slower growing horticulture.

Jackfruit trees grow to 20 metres tall and take up to five years to produce commercial quantities of fruit the size of footballs – typically weighing between 5–15 kg.

While fruit may be lost in severe weather, trellising can prevent the greater cost of trees being uprooted in the event of a cyclone or storms that frequent the north, reducing producer losses and production risk.

Great Northern Spices A.2.2122016

Producer trials across the north for high-value commodities for domestic and export markets, like sesame, fennel, kalonji, and peanuts in project A.2.2021083.



Cotton, Grains, Cattle

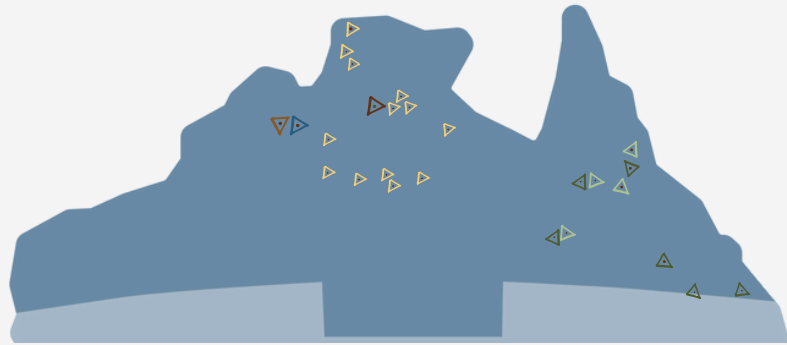
Case study

The CRCNA is investing \$8 million in Cotton, Grains, Cattle research to support Northern Australia's agriculture sector through sustainable, adaptable cropping systems and cattle production improvements.

Launched in 2023, the 4-year research seeks to inform future farming practices and investment and build new sustainable markets through 6 coordinated research projects spread across the Northern Territory, the Ord River Irrigation Area in WA and northern Queensland.

Early outcomes from the projects include:

- ↳ Commencement of intensive feeding studies on 10 cattle stations in the NT, including commercial operators, First Nations operated stations and government research stations.
- ↳ Integration of locally produced cattle feed to support intensification of beef production.
- ↳ ORIA farmers have decision support tools to help choose rotation crops and N fertilisation strategies.
- ↳ Climate resilient management of cover crops in the Ord River Irrigation Area and the NT to protect soils from intense tropical wet season storms.
- ↳ Commencement of methane emissions and cattle forage legume feed studies at Central Queensland University.
- ↳ Increased agronomic skills across northern Australia supporting technical and industry workforce growth, including three embedded PhD scholars in the projects.
- ↳ Boots on the Ground support service to build capacity and connection for local agricultural professionals in crop and commercial agronomy in NW Qld.



↳ Crops for Cattle (NT)



↳ Cropping system fundamentals (NT)



↳ Sustainable cropping, ORIA (WA)



↳ Intensified cattle production (WA)



↳ Extension capacity for broadacre cropping (FNQ)



↳ Diversification options and drought resilience practices (NQ)

Agriculture On Country



Business on Country

AT.4.2021030

Kalan Enterprises in Cape York are exploring the feasibility of developing high-value products from low-value herds on Indigenous lands.

The project is working with First Nations commercial cattle enterprises in the Cape York region to address feral animal management, and support remote food security, and First Nations led agricultural business mentoring.

There are currently thousands of unmanaged stocks in Northern Australia which are located in dense and remote vegetation, not economically viable to muster and are expensive to sell through traditional markets due to accessibility constraints and limited transport infrastructure.

It's also estimated there's over 23 million feral pigs roaming Cape York.

To address these challenges and create new Indigenous-led business models, First Nation producers are researching the development of new processing methods and systems to build an alternative marketplace for un-utilised stock and feral animals in the Cape York region.

Cape York is a region of exceptional environmental and cultural value.

- ↳ The region is 121 100 km² with diverse landscapes including 16 complete river basins with their systems virtually unmodified.
- ↳ 45 distinct Aboriginal languages in the region with several hundred dialects.
- ↳ 10,000 plant species and several thousand animal species.
- ↳ 30 broad vegetation groups including 72 different types of rainforest comprising 20% of Australia's remaining rainforest.



“CRCNA research has taken the risk out of expanding our business on Country. We’re connecting with the right people and using the latest technology, which allows us to do what we do best - run our cattle and eco-tourism businesses”.

Vince Harrigan
Normanby Land Management,
Cape York



Aquaculture

Investing in industry capability

Blacklip Rock Oyster Industry Development A.2.2122025

Recent breakthroughs in oyster hatchery techniques have demonstrated the potential for Blacklip Rock Oysters to expand Northern Australia's aquaculture industry.

Oysters can provide culturally appropriate and sustainable enterprises for remote communities by establishing a premium, native oyster in the market that's grown by First Nations people in the north's pristine waters.

Research is underway across four Northern Territory oyster grow-out sites: Groote Eylandt, the Tiwi Islands, Goulburn Island and at Wadeye.

Black Jewfish A.2.2223018

Black jewfish are sought after for their meat and high-value swim bladders, which are considered a delicacy and aphrodisiac in Asian markets.

The swim bladder, or airbag, is an organ in the fish that regulates its buoyancy. It grows much thicker in black jewfish than in other species. There has been a growing black-market trade for them in recent years, with the bags selling for up to \$1,000/kg.

This project, in partnership with the Darwin Aquaculture Centre is investigating the suitability of the species for aquaculture and determining what factors will be key in improving hatchery rearing procedures.

Pioneering Tropical Rock Lobster Raft Grow-out for Northern Australia.

A.3.2021116

Ornatas have undertaken critical science and research for Tropical Rock Lobster production for the grow-out of hatchery-produced juvenile lobsters in new sea raft enclosures.

Research trials in north Queensland, investigated the development and evaluation of production technology to meet market demands.

Onshore grow out system trials occurred at their Toomulla Beach aquaculture facility, collaborating with industry to focus on six research areas: environment; raft design; translocation, lobster health and biosecurity; feeding strategies; lobster growth performance; and, premium diverse market acceptability.

Read the final report at crcna.com.au

Aboriginal commercial fishing and aquaculture, northern WA AT.7.2021023

This two year project progresses industry needs to develop Aboriginal ownership and participation in commercial fishing and aquaculture industries from the Northern Gasgoyne to Kimberley waters.

The project is de-risking new commercialisation pathways for key species (sea cucumber, mud crab and tropical rock oysters) at research locations in Dampier, Karratha, Carnarvon, Broome, Derby and Kununurra.



Aboriginal Sea Company

Case study

Unlocking the wealth of Indigenous knowledge and land ownership – seafood industry development AT.4.2223007

The CRCNA partnered with the Aboriginal Sea Company to build capacity of First Nations people in commercial fishing operations and seafood markets across the north through fishing mentoring.

This is leading to greater economic self-sufficiency and prosperity for First Nations communities that contributes to sustainable management of marine resources on sea country based on First Nations knowledge, cultural rights and land ownership.

Collaborative research is ensuring that their business expansion is supported with a skilled workforce, identified industry training and sustainable business pathways for industry participation.

The Aboriginal Sea Company have recently:

- ↳ acquired commercial mud crab, barramundi and coastal line licences
- ↳ purchased the Darwin Fish Market and established Premium Seafoods to secure market supply
- ↳ now owns the Darwin Shipstores for retail marine markets.

Environmental stewardship with a commitment to reducing impacts through improved fishing practices is providing additional opportunities to reduce carbon foot prints, support low tech aquaculture, and improve biodiversity by utilising by-products regardless of monetary value.

Their commitment to establishing a First Nations marine economy in Northern Australia has created strong governance and leadership across the sector through business models that ensure inclusivity and sustainability of environmental and cultural standards whilst creating economic opportunities for remote coastal communities.

Visit aboriginalseacompany.com.au or follow [@AboriginalSeaCompany](https://www.instagram.com/AboriginalSeaCompany)



Health service delivery

Meeting local needs

Well-being informed primary health care across the Kimberley Aboriginal Community Controlled Health Services HT.5.2122005

Across the Kimberley region of WA, rates of psychological distress, self-harm and suicide for Aboriginal people are disproportionately high.

The Kimberley Aboriginal Community Controlled Health Services is developing and delivering a pilot program for new on-the-ground approaches in health service delivery and and care materials for industry to utilise.

It is based on knowledge and understanding of how trauma affects people's lives, their service needs and usage, and can be delivered within existing resources. The research aims to:

- Improve patients' health access and outcomes
- Reduce staff turnover and improve job satisfaction
- Reduce number of critical incidents involving patient violence in health care services.

Integrating Health Care Planning for Health and Prosperity in North Queensland H.5.2021068

The responsiveness of health services to communities in north Queensland is being addressed by integrating place-based planning to the local health needs of a region.

Existing data is analysed through mapping techniques to define community and service needs and identify gaps and duplication.

Place-based planning is co-designed with selected communities who then implement and evaluate new models of care.

Outcomes of the project are evaluated in terms of quality of care, efficiency, service provider and consumer satisfaction, and process acceptability and sustainability.

To date, a new midwifery and virtual child health services have been established in Clermont through this project.

The NQ region is defined in this project as the five hospital and health service areas from the Mackay region up to the Torres Strait and across to the NT border.



Project Echo

CRCNA has partnered with the University of Queensland's Centre for Online Health to expand their Project ECHO[®] (Extension for Community Health Outcomes) initiative into Northern Australia. Two unique ECHO projects have been developed for Northern Australian healthcare workers, the Health eMinds ECHO and the Telehealth Skills ECHO.

The partnership with the Centre for Online Health is part of the CRCNA education program and also includes face-to-face telehealth training with 3 delivered across the north to 21 participants.

There's been 7 Health eMinds sessions with 163 participants and 10 Telehealth Skills sessions with 135 participants engaged and all resources from the webinars and workshops are available online as a permanent knowledge base.

Health service delivery

Technology and tradition



Development of innovative primary health service managed by Telehealth Technicians for very remote First Nations' communities H.5.2223001

First Nations' homelands often do not have on-community health services and are usually supported through hub-and-spoke models with outreach visits that vary in service quality and frequency.

Telehealth can be part of the solution with more diverse healthcare services.

Community members are being trained by Simbani Research in using Information and Communications Technology and smart diagnostic/monitoring to support the uptake of telehealth in very remote regions.

Four Telehealth Technicians are trained at Gawa and Nanginyburra communities in Arnhem Land.

They're now looking to fill the role of "Djagammirr". This is a very respected role within the community and is the person who makes sure everyone is ok.

Technician's roles also provide support and guidance for environmental, cultural and mental health matters.

Learn more at simbani.com.au



Image credit: Gawa community, Mission Aviation Fellowship

Chief Scientist

Maximising research impacts

CRCNA Chief Scientist, Prof Allan Dale, supports the organisation through strategic advice and oversight on a range of projects across the north for greater policy and investment outcomes to maximise research for long-term sustainable development.

Prof Dale independently overviews the CRCNA's science to inform and support the strategic direction of the CRCNA's investments.

Over 2023/24 targeted research investments progressed in all northern jurisdictions and the work is contributing to final research synthesis and impact management strategies of the CRCNA.

Highlights from 2023/24 include:

De-risking and supply chain developments

- ↳ De-risking Landscapes for Agricultural Development in the NT Sub-Project with the NT Govt.
- ↳ Lifting Landholder Capacity Sub-Project with NT Farmers Association.
- ↳ Aboriginal Commercial Fishing and Aquaculture in Northern Western Australia de-risking project commencement.

NESP Regional Planning Reform Investment, contributing to:

- ↳ Enhanced knowledge for de-risking and supply chain reforms
- ↳ Influencing White Paper Refresh processes through *The Northern Australia Development Synthesis Report*
- ↳ Case study analysis on strategic regional development planning reforms for: Pilbara (WA), Douglas Daly (NT) and Gilbert River (QLD)
- ↳ Aligning NESP and EPBC policy reforms.

Water development partnerships

- ↳ Strategic policy support for the Northern Australian Universities Alliance and the Water Security for Northern Australia program in collaboration with the CRCNA.
- ↳ Facilitative support for the Cape York Water Project's steering and operational committee.

Making Water Work program:

- ↳ Advance Rockhampton business case proposal was approved for Stage 2 development of the South Yaamba Water Distribution Scheme. This enables preliminary precinct planning design for water distribution infrastructure in the area.
- ↳ Presentation for the Agricultural Leaders event which included the launch of Advance Rockhampton's Agricultural Investment Prospectus, a key product for the Supply Chains project. Access the prospectus at advancerockhampton.com.au
- ↳ Additional investment from industry and state government for the Reef Water Quality Improvement project.



Chief Scientist

Enabling Infrastructure Workshop

Held during the Developing Northern Australia Conference in Darwin, over 80 attendees participated in a workshop with community and government presenters like Infrastructure Australia, northern jurisdictional governments and the Northern RDA Alliance. Together they progressed CRCNA recommendations for major budget investment in supply chain infrastructure and long-term modelling.

- ↳ Focus areas to support include: Improving east-west connectivity; Equity of access for First Nations and remote regions; More open supply chains into the Indo-Pacific.
- ↳ Development of a major Enabling Infrastructure Project as part of the White Paper Implementation Action Plan, progressing in partnership with the Ministerial Forum.

Facilitation and engagement

To progress important development objectives for Northern Australia, the Chief Scientist supports and facilitates engagement on matters affecting the north. Highlights include:

- ↳ Northern Australia Indigenous Reference Group
- ↳ Northern Australia Ministerial Forum presentation in Cairns
- ↳ Ministerial panel keynote at the Developing Northern Australia Conference, Darwin
- ↳ Decarbonisation and regional development showcase in Townsville and Cairns
- ↳ Invitation to the inaugural Global Nature Positive Summit in 2024.

Read more from Prof Dale

The Northern Australia Development Synthesis Report
crcna.com.au

Beyond Water Allocation Planning in Northern Australia
petercullentrust.org.au/bridging-issue-55/

Regional Planning: Community of Practice newsletter
nspmarinecoastal.edu.au/project/3-1/



Developing Northern Australia Conference

Research on display

In 2023 the Developing Northern Australia Conference (DNAC) was held in Garramilla on Larrakia Country (Darwin) and attended by almost 600 delegates involved in developing Northern Australia.

The CRCNA continues to be a proud sponsor of this event, showcasing the opportunity, innovation and vibrancy of the north.

Research partners of the CRCNA presented on research impacts and development progress in:



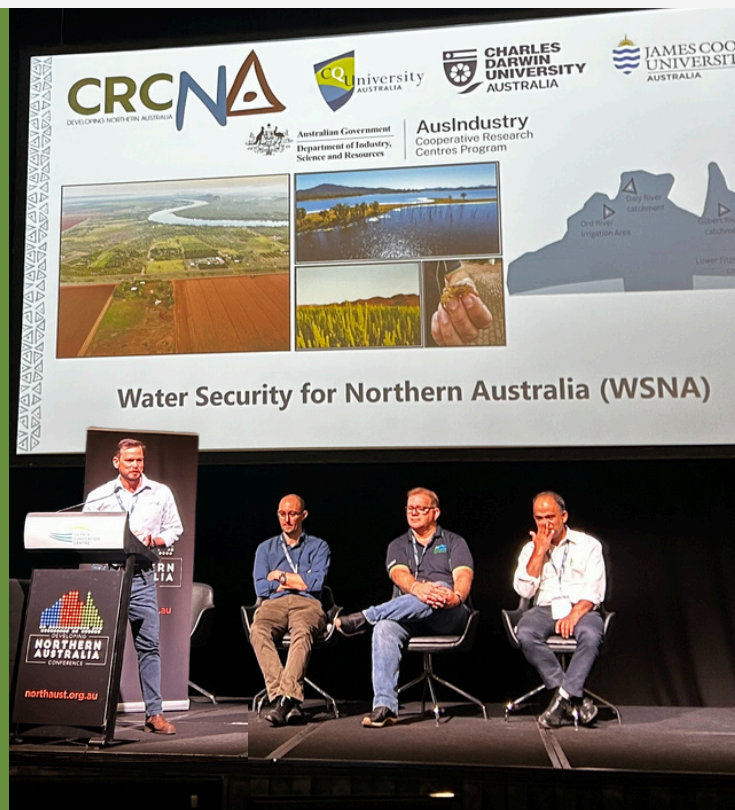
- ↳ Tiwi Islands forestry
- ↳ Water security in major northern catchments, and water trading
- ↳ Tropical cropping and livestock integrations
- ↳ Silvopastoral forestry and cattle production
- ↳ First Nations data and LiDAR mapping
- ↳ Telehealth supporting remote and rural regions
- ↳ De-risking development through research
- ↳ Climate resilient horticulture

Program launch: Water Security for Northern Australia

The partnership between the CRCNA and the Northern Australia Universities Alliance to deliver a series of research projects to address issues constraining sustainable water resource utilisation in focal nodes across the north was officially launched at DNAC in Darwin.

The aim is to de-risk the Northern Australia investment and development landscape by improving water sustainability across the region and providing a pathway for the future development of key sectors.

It's also about demonstrating that economic growth and environmentally healthy and sustainable ecosystems can co-exist.





The vast majority of northern land and sea country is of interest to Aboriginal Torres Strait Islander people, with rights across 80% of the landscape.

If we're going to solve the complex economic problems that we have up here, whilst protecting some of the greatest natural resources on the planet, and truly Close the Gap... then we all have to give a lot of focus to Northern Australia.

Prof Allan Dale
Chair, Developing Northern Australia Conference



Leading the Way: empowering northern business and industry for growth and innovation



By understanding and harnessing the unique features of Northern Australia, we can improve the lives of people in our communities across the north.

Hon Madeleine King MP
Minister for Northern Australia

Education program

The CRCNA is supporting a vibrant education and training program through activities, educational experiences and professional development opportunities.

It's about enhancing the development and retention of research skills and capacity in areas aligned with CRCNA research themes for PhD, Masters, Undergraduate and vocational students.

In 2023/24:

↳ 47 PhD, 4 Masters, 1 Honours and 4 other post-graduate students were involved in research either directly with a project or sponsored scholarship from the CRCNA.

↳ 12 PhD students completed their course during the year.

↳ 130 formal and end user publications developed.

↳ 2675 individuals engaged in professional training courses or conferences, workshops, or field days.

Under the CRCNA's industry-focused education and training program, research activities are underway to increase technology development, skilled employees and research and development capacity within Northern Australia.

↳ CRCNA Horizon Scholar, Indiana Rhind was on the AgriFutures evokeAG podcast to talk about how agriculture is intricately linked to urban society. Listen via lnkd.in/gVimpub2.

↳ Masters student, Rafael Goulart completed his thesis with two publications on Mango Fruit Phantoms for Robotic Harvesting Trials. Read via mdpi.com/2071-1050/15/3/1789.



PhD student workshop

In November 2023, the CRCNA held its annual PhD and early career researcher workshop in Townsville with 14 PhD candidates participating from across the north.

The workshop theme was communicating research to the community by adapting to stakeholder needs, including with First Nations people and practices and protocols when engaging on farm.

Candidates participated in activities developed to value-add to their university academic training with real-world skills to prepare them for a career working with the communities and industries of Northern Australia.

Membership

The CRCNA welcomes all parties with an interest in developing Northern Australia to apply for membership. To learn more about CRCNA membership visit crcna.com.au. Current membership includes:

Advance Cairns Limited
AgriVentis Technologies Pty Ltd
ArGyll Consulting Pty Ltd
Australian Barramundi Farmers Association
Australian Livestock Exporters' Council
Australian Prawn Farmers Association Inc.
Australian Mango Industry Association

Blueshift Consulting
Burdekin-Bowen Integrated Floodplain
Management Advisory Committee Inc
Burnett Mary Regional Group for NRM Ltd

Cairns Airport Pty Ltd
Cattle Australia Pty Ltd
Central Queensland University
Centrefarm Aboriginal Horticulture Limited
Charles Darwin University
Consolidated Pastoral Company
Cotton Seed Distributors Limited
CR Eco-efficient Agriculture Consultancy

David Larkin
Diamond Star Australia Pty Ltd

eMerge IT Solutions Pty Ltd

Far North Queensland Ports Corporation
Far North Regional Organisation of Councils
Far Northern Milling Pty Ltd
Fitzroy Basin Association Inc

Griffith University
Greater Whitsunday Alliance

Hewitt Cattle Australia Pty Ltd
Hexcyl Systems Pty Ltd

James Cook University

Kimberley Pilbara Cattlemen's Association
Keep Farming Pty Ltd
Kenrose Co Pty Ltd

Manbulloo Limited
Meat and Livestock Australia Ltd
Menzies School of Health Research
Mount Isa to Townsville Economic Development Zone
Murujuga Aboriginal Corporation

North Australian Indigenous Land & Sea
Management Alliance (NAILSMA)
Northern Australia Crop Research Alliance
Northern Gulf Resource Management Group
NQ Regional Organisation of Councils
NQ Dry Tropics
NT Farmers Association Inc
Northern Territory PHN

Ornatas Pty Ltd
OKR Pty Ltd T/A T.R.A.P Services

Pirrone Brothers Produce

RDA-Mackay-Isaac-Whitsunday
RDA Kimberley
RDA Townsville and North West Queensland
RDA Tropical North

Selectability Ltd
Sheriden Morris
Simbani Research Pty Ltd
Southern Gulf NRM
Spatial Information Systems Research Limited
Sugar Research Australia Ltd
Synapse Medical Services Australia Pty Ltd

Tiwi Plantations Corporation Trust
The Australian Veterinary Association Ltd
Timber Queensland Limited
Townsville Enterprise Limited

University of Queensland
University of Southern Queensland

VisionFlex Pty Ltd



Policy alignment

CRCNA research and development is needs driven, led by industry and community aspirations. The CRCNA also supports priorities set by the Australian Government and the northern jurisdictional governments for greater impact in the broader developing Northern Australia agenda.

- ↳ Northern Australia Action Plan and Northern Australia Ministerial Forum
- ↳ Future Made in Australia
- ↳ Closing the Gap
- ↳ National Science and Research priorities
- ↳ Nature Positive Plan
- ↳ National Health and Climate Strategy
- ↳ National Reconstruction Fund Priorities
- ↳ National Agricultural Innovation Agenda
- ↳ Measuring what Matters - The Treasury



Industry focused research and development activities, providing a source of delivery and coordination for government in the north.



Extension, adoption, commercialisation for genuine uptake and outcomes.



Partnership facilitation for development challenges to meet place-based aspirations.

Finance and Governance



Investment impact

For northern research to have lasting impact on the development of Northern Australia, collaboration is required for greater collective effort. The following snapshot provides CRCNA’s investment impacts to deliver research, development and extension activities to progress northern development.



\$155.2 million leveraged from \$75 million



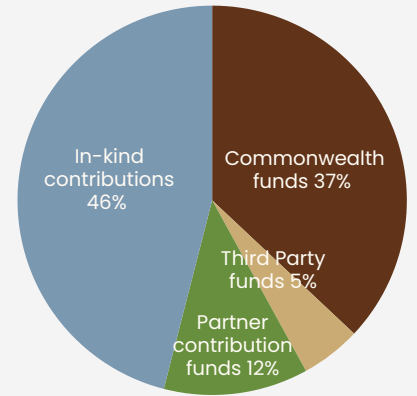
109
Research projects supported



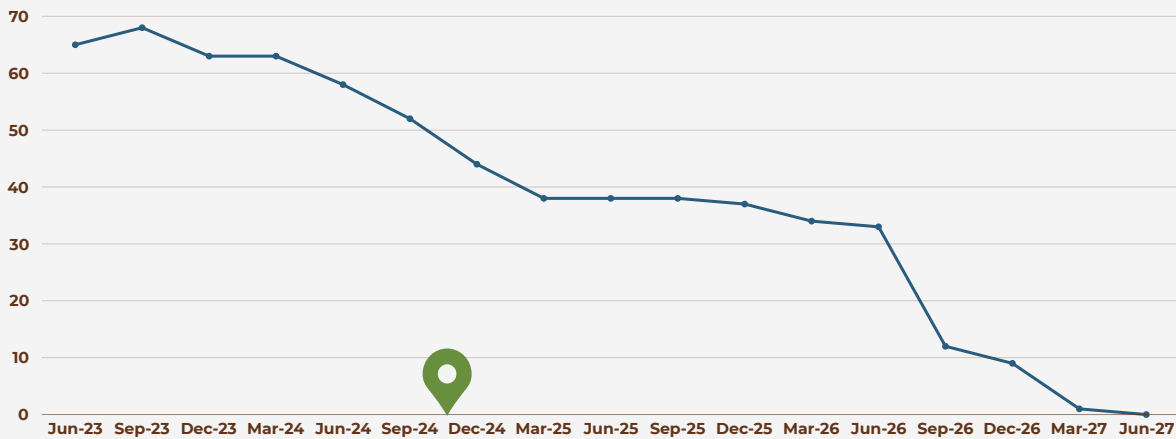
657
FTE from CRCNA projects over 10 years



\$2.89 million
In capacity building through education program



CRCNA active projects

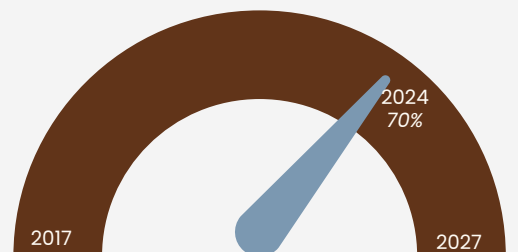


Stakeholder reach

The CRCNA works with over 272 project partners to drive outcomes and overcome barriers to development through collaborative research.

- ↳ First Nations
- ↳ Industry
- ↳ Economic development
- ↳ Land Owners
- ↳ Developers
- ↳ Governments
- ↳ Universities
- ↳ Research institutions
- ↳ Environmental
- ↳ Science

CRCNA timeline of operation



Governance

The CRCNA governance is led by a board of directors from across Northern Australia. Together they bring a wealth of business acumen and networks for strategic decision making to ensure our future is collaborative, considered and planned.

The Risk and Finance Audit (RAF) Committee provides a consultative forum which make recommendations to the CRCNA Board on the appointment of the auditor, CRCNA's budget allocations, performance and financial benchmarks and other financial matters as required.

Financial statements

To read the CRCNA's full financial statements please visit: crcna.com.au/publications/.

Board members



Sheriden Morris
Chair



John Wharton AM
Deputy Chair



Ricky Archer
(resigned Dec 2023)



Duane Fraser
(appointed Jan 2024)



Dr Rebecca
Mohr-Bell



Brendon Douglas



Peter Long



Dr Scott Davis



David Larkin AM



Margaret Marty
Company Secretary

Board members attendance table 2023/24

		Meeting date and number					
Position	Name	25 Jul 2023 #39	01 Aug 2023 #40	12 Oct 2023 #41	23 Nov 2023 #42	12 Mar 2024 #43	06 Jun 2024 #44
Chair	Sheriden Morris	✓	✓	✓	✓	✓	✓
Deputy Chair	John Wharton	✗	✓	✓	✓	✓	✗
Board Member	Ricky Archer	✗	✗	✓	✗	Resigned, effective 01 Dec 2023	
Board Member	Rebecca Mohr-Bell	✓	✓	✓	✓	✓	✓
Board Member	Brendon Douglas	✓	✓	✓	✗	✓	✓
Board Member	Peter Long	✓	✓	✓	✗	✓	✓
Board Member	Scott Davis	✗	✓	✓	✓	✓	✓
Board Member	David Larkin	✓	✓	✓	✓	✓	✓
Board Member	Duane Fraser	Appointed, effective 18 Jan 2024				✓	✓

RAF Committee attendance table 2023/24

		Meeting date and number			
Position	Name	20 Jul 2023 #21	21 Sept 2023 #22	16 Feb 2024 #23	16 May 2024 #24
Chair	Brendon Douglas	✓	✓	✓	✓
Board Member	Rebecca Mohr-Bell	✓	✓	✓	✓
Board Member	Peter Long	✓	✓	✓	✓
Board Member	David Larkin	✓	✓	✓	✓
Independent Committee Member	Luke Guazzo	✓	✓	✓	✓



Australian Government
Department of Industry,
Science and Resources

Cooperative Research Centres Program

Acknowledgements

The CRCNA is funded as part of the Australian Government's Cooperative Research Centre Program.

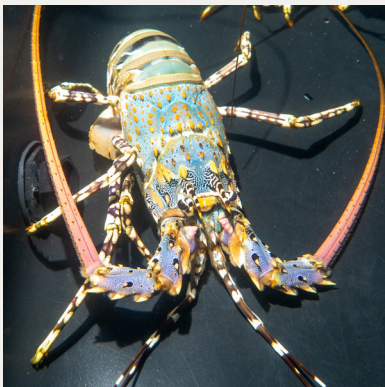
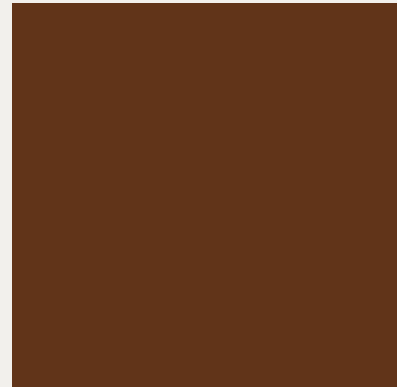
We acknowledge the support of our government partners: the Queensland Government, the Northern Territory Government, and the Government of Western Australia.

We also thank our project participants and researchers who are developing Northern Australia through their research activities and research outputs.

Disclaimer

This CRCNA Annual Report 2023/24 summarises CRCNA research activities delivered through funding by the CRCNA. It is possible figures and project participants may change from the time this document was written and published in November 2024.

This publication has been provided to intended recipients only. Permission from the CRCNA is required to share this publication with a wider audience. Information about the CRCNA and our projects is available at www.crcna.com.au.



Gurambilbarra Country, Wulgurukaba and Thul Garrie Waja Country, Bindal
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