

NERP Tropical Ecosystems Projects relevant to Torres Strait region

This document describes the Climate Change (CC) relevance of National Environmental Research Program Tropical Ecosystems (NERP TE) projects covering the **Torres Strait** region. These summaries will be used to identify options for project findings to be incorporated into NRM planning and management.

There are **nine** NERP TE projects relevant to the **Torres Strait** region. Their CC relevance is summarised in [Section 1](#). The projects are then classified in relation to *Knowledge sources and systems* and *CC Knowledge needs* ([Section 2](#)). A full-page fact-sheet for each project can be found in [Appendix 1](#).

NRM groups will be invited to further discuss their knowledge needs in relation to climate change planning and management and more broadly, and to indicate their interest in particular projects and preferred methods of knowledge integration.

Please direct any queries to Gabriel.Crowley@jcu.edu.au

Section 1. Summaries of NERP projects relevant to the Torres Strait region

2.1 Marine turtles and dugongs of the Torres Strait					
Project Leader(s) Dr Mark Hamann, James Cook University Prof Helene Marsh, James Cook University					
Environmental domain	Mainland	Islands	Coast/inshore	Offshore	Terrestrial impacts on marine
	No	No	Yes	No	Yes
Relevance of project for Climate Change (CC) planning & management					
This project will provide baseline data on marine turtle and dugong population sizes and distributions and identify key areas of habitat. While not specifically addressing climate change planning, the baseline information will be important for prioritising actions to maintain populations under climate change conditions.					
2.2 Mangrove and freshwater habitat status of Torres Strait Islands					
Project Leader(s) Dr Norm Duke, James Cook University Dr Damien Burrows, James Cook University					
Environmental domain	Mainland	Islands	Coast/inshore	Offshore	Terrestrial impacts on marine
	No	Yes	Yes	No	Yes
Relevance of project for Climate Change (CC) planning & management					
This project will provide baseline data on mangrove distribution and condition. While not specifically addressing climate change planning, the baseline information will be important for prioritising actions to maintain habitat condition under climate change conditions.					
2.3 Monitoring the health of Torres Strait coral reefs					
Project Leader(s) Dr Ray Berkelmans, Australian Institute of Marine Science					
Environmental domain	Mainland	Islands	Coast/inshore	Offshore	Terrestrial impacts on marine
	No	No	Yes	Yes	No
Relevance of project for Climate Change (CC) planning & management					
This project will synthesise information about the coral reefs of Torres Strait. It will establish a long-term monitoring program to assess impacts of climate change on environmental conditions and reef health, initially providing a baseline information. The monitoring program, undertaken by AIMS and the Torres Strait community, should provide an early warning of climate change impacts and declines in coral communities and large fishes from other disturbances.					
4.4 Hazard assessment for water quality threats to Torres Strait marine waters, ecosystems and public health					
Project Leader(s) Dr Jon Brodie, James Cook University					
Environmental domain	Mainland	Islands	Coast/inshore	Offshore	Terrestrial impacts on marine
	No	No	Yes	Yes	Yes
Relevance of project for Climate Change (CC) planning & management					
This project will provide baseline information on existing and potential sources of pollution to the Torres Strait marine environment and the areas likely to be most affected. It will help prioritise climate change adaptation planning by highlighting pollution threats to marine ecosystem and human health that may interact with climate stressors.					

7.2 Invasive species risks and responses in the Wet Tropics

Project Leader(s)
Dr Helen Murphy, CSIRO

Environmental domain	Mainland	Islands	Coast/inshore	Offshore	Terrestrial impacts on marine
	Yes	No	No	No	No

Relevance of project for Climate Change (CC) planning & management

This project will provide information on the potential current and future distributions of existing and emerging weed species in the Wet Tropics, and identify management strategies to reduce future weed impacts and the future cost of weed management. The project will also identify potential high-risk source areas for future weed threats to the Wet Tropics. NB: Although focused on the Wet tropics, bioclimatic modelling of weed species will apply Australia-wide.

11.1 Building resilient communities for Torres Strait futures

Project Leader(s)
Dr James Butler, CSIRO

Environmental domain	Mainland	Islands	Coast/inshore	Offshore	Terrestrial impacts on marine
	No	Yes	Yes	Yes	Yes

Relevance of project for Climate Change (CC) planning & management

This project will develop scenarios to meet the aspirations of the Torres Strait communities taking climate change into account.

11.2 Improved approaches for the detection and prevention of wildlife diseases in the Torres Strait

Project Leader(s)
Dr Sue Laurance, James Cook University

Environmental domain	Mainland	Islands	Coast/inshore	Offshore	Terrestrial impacts on marine
	No	Yes	No	No	No

Relevance of project for Climate Change (CC) planning & management

This project will provide a monitoring program to detect animal-borne disease arriving in the Torres Strait and identify factors contributing to their spread. While not specifically addressing climate change, the monitoring system will provide an early warning of changes in disease vectors as a result of climate change.

12.4 Governance, planning and the effective application of emerging ecosystem service markets: climate change adaptation and landscape resilience

Project Leader(s)
Dr Allan Dale, James Cook University

Environmental domain	Mainland	Islands	Coast/inshore	Offshore	Terrestrial impacts on marine
	Yes	No	No	No	No

Relevance of project for Climate Change (CC) planning & management

This collaborative project will identify effective governance arrangements to plan for climate change adaptation to ensure social and ecosystem resilience. It will assist NRM groups to incorporate climate change considerations in NRM plans, specifically by supporting regions to negotiate national policy on this front. This will also include the identification of opportunities for ecosystem service delivery, including carbon farming, and working towards regional progression of these markets.

13.1 e-Atlas

Project Leader(s)
Dr Eric Lawrey, Australian Institute of Marine Science

Environmental domain	Mainland	Islands	Coast/inshore	Offshore	Terrestrial impacts on marine
	No	Yes	Yes	Yes	No

Relevance of project for Climate Change (CC) planning & management

This project will develop and populate a website for accessing spatial data about the Great Barrier Reef and Torres Strait. It will be a useful tool for climate change adaptation planning.

Assessment of the Climate Change relevance of NERP TE projects for the Torres Strait region

Table 2. Project focus in relation to NRM Climate Change knowledge needs

This table presents NERP TE project focus in relation to the knowledge needed for CC planning and management as identified in consultation with northern NRM clusters.

NERP Project #	PROJECT FOCUS	Baseline information	CC impact assessment (incl. socioeconomic)	Adaptation planning	Management options	Interactions with CC (incl. carbon farming)
2.2	Mangroves & freshwater habitats	Yes	Yes	Yes	Yes	
2.3	Coral health		Yes			
4.4	Marine water quality	Yes			Yes	
11.1	Community planning		Yes			
BIODIVERSITY						
2.1	Marine turtles & dugong	Yes				
2.2	Mangroves & freshwater habitats	Yes	Yes	Yes	Yes	
2.3	Coral health	Yes	Yes			
7.2	WT weeds & pests	Yes	Yes		Yes	
11.1	Community planning		Yes			
11.2	Disease vectors	Yes				
12.4	Adaptation planning & governance			Yes		
13.1	Map tools	Yes				
COMMUNITIES & ORGANISATIONAL ARRANGEMENTS						
11.1	Community planning		Yes	Yes		
12.4	Adaptation planning & governance			Yes		
INDUSTRIES & LIVELIHOODS						
2.2	Mangroves & freshwater habitats	Yes				Yes
11.1	Community planning		Yes	Yes		
12.4	Adaptation planning & governance			Yes		
INFRASTRUCTURE						
11.1	Community planning		Yes	Yes		
RESOURCE ACCESS & COST						
2.2	Mangroves & freshwater habitats	Yes				
11.1	Community planning		Yes	Yes	Yes	Yes

Assessment of the Climate Change relevance of NERP TE projects for the Torres Strait region

Table 3. Full assessment of focus in relation to NRM Climate Change knowledge needs

This table presents NERP TE projects relevant to the knowledge needed for CC planning and management as identified in consultation with northern NRM clusters.

Knowledge priorities indicated by shading:		Wet Tropics Cluster	Monsoonal North Cluster	Both Clusters		
TOPICS		Baseline information	CC impact assessment (incl. socioeconomic)	Adaptation planning	Management options	Interactions with CC (incl. carbon farming)
A	CLIMATIC & ENVIRONMENTAL CONDITIONS	NERP Projects addressing topic				
A.1.	At-risk areas	2.2	2.2, 11.1	2.2	2.2	
A.2.	Rainfall &/or temperature		2.3, 11.1			
A.3.	Climate variability		2.3			
A.4.	Extreme events (cyclones, storms, droughts, floods, bleaching)		2.3			
A.5.	Fire (frequency, intensity & extent)					
A.6.	Sea-level rise		11.1			
A.7.	Hydrological cycles					
A.8.	Water quality (pH, salinity, sediment, nutrients, pesticides)	4.4	2.3, 11.1		4.4	
B	BIODIVERSITY	NERP Projects addressing topic				
B.1.	At risk areas/ecosystems	2.2, 7.2	2.2, 11.1	2.2	2.2	
B.2.	At risk species	2.1	11.1			
B.3.	Corridors, connectivity & refugia	2.1				
B.4.	Distribution & abundance of species & communities	2.1, 2.2, 2.3	11.1			
B.5.	Ecological function, processes, critical thresholds (resilience)	2.2	2.2, 2.3, 11.1	2.2, 12.4	2.2	
B.6.	Ecosystem health (condition monitoring)	2.2, 2.3, 7.2	2.3			
B.7.	Disease and disease vectors	11.2				
B.8.	Invasive species and emergent risks	2.2, 7.2			7.2	7.2

Assessment of the Climate Change relevance of NERP TE projects for the Torres Strait region

TOPICS		Baseline information	CC impact assessment (incl. socioeconomic)	Adaptation planning	Management options	Interactions with CC (incl. carbon farming)
C	COMMUNITIES & ORGANISATIONAL ARRANGEMENTS	NERP Projects addressing topic				
C.1.	At risk social systems & communities		11.1			
C.2.	Indigenous people, communities & cultural sites		11.1	11.1		
C.3.	Well-being & resilience		11.1	11.1, 12.4		
C.4.	Livelihoods and culture		11.1	11.1		
C.5.	Capacities, capabilities, interests & aspirations		11.1	11.1		
C.6.	Motivations & barriers to adaptation		11.1			
C.7.	Governance systems		11.1	11.1, 12.4		
D	INDUSTRIES & LIVELIHOODS	NERP Projects addressing topic				
D.1.	Rural and primary industries					
D.2.	Carbon and ecosystem services (terrestrial & marine)	2.2	11.1	11.1, 12.4		2.2
D.3.	Indigenous land & sea management	2.2	11.1	11.1		
D.4.	Tourism					
D.5.	Other industries					
E	INFRASTRUCTURE	NERP Projects addressing topic				
E.1.	General infrastructure					
E.2.	Coastal infrastructure		11.1	11.1		
E.3.	Urban centres					
E.4.	Population growth and distribution		11.1	11.1		

Assessment of the Climate Change relevance of NERP TE projects for the Torres Strait region

TOPICS		Baseline information	CC impact assessment (incl. socioeconomic)	Adaptation planning	Management options	Interactions with CC (incl. carbon farming)
F	RESOURCE ACCESS & COST	NERP Projects addressing topic				
F.1.	General resources					
F.2.	Land (tenure & use)			11.1	11.1	11.1
F.3.	Water		11.1	11.1	11.1	11.1
F.4.	Energy		11.1	11.1	11.1	11.1
F.5.	Food security		11.1	11.1	11.1	11.1
F.6.	Indigenous traditional resource base	2.2	11.1	11.1	11.1	11.1

Appendix 1. NERP Project factsheets

NERP Tropical Ecosystems Hub Project Factsheet

Marine turtles and dugongs of the Torres Strait

Project leaders: Professor Helene Marsh & Dr Mark Hamann (JCU)

Project summary

The project is studying the status of threatened marine (green, hawksbill and flatback) turtles and dugongs in the Torres Strait and threats to these populations. The researchers will investigate links between different populations of dugongs and turtles in terms of movement and habitat use. They will also assess the abundance of dugongs in the Torres Strait using aerial surveys.

Why this research is needed

The project will improve stakeholder understanding, capacity and skills to better manage these priority species and provide valuable data that is useable and understandable to those making decisions about turtles and dugongs.

Research-user focus

The project aims to enhance the ability of government and community to manage these threatened species and also add value to the evolving dugong and turtle management plans and the Torres Strait Land and Sea Ranger Program. Identified research users include the Torres Strait Regional Authority, the Department of Sustainability, Environment, Water, Population and Communities, the Great Barrier Reef Marine Park Authority, the Australian Fisheries Management Authority and the Queensland Government.

Project Partners:



Find this project at www.nerptropical.edu.au

Theme 1: Assessing ecosystem condition and trend

Program 2: Natural resources of the Torres Strait land and sea

Project: 2.1



Torres Strait is the dugong capital of the world and supports more than 10,000 dugongs.



Torres Strait has a globally significant population of Hawksbill turtles, and through the NERP we aim to improve knowledge of their status.

Photos: JCU

Outcomes

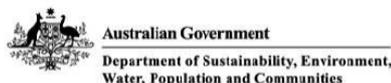
The project should lead to the following outcomes:

- Improved population viability and stability of marine turtles and dugongs.
- Improved stakeholder understanding, capacity and skills to better monitor and manage priority species.
- Improved non-indigenous participants' knowledge of traditional ecological knowledge and cultural aspects of dugong and turtle management.

For more information about this project, contact:

Dr Mark Hamann or Professor Helene Marsh (JCU)

mark.hamann@jcu.edu.au | helene.marsh@jcu.edu.au



NERP Tropical Ecosystems Hub Project Factsheet

Mangrove and freshwater habitat status of Torres Strait islands

Project leaders: Dr Norm Duke & Dr Damien Burrows (JCU)

Project summary

This project will examine the status, diversity and condition of mangroves and freshwater habitats in the Torres Strait. This will provide a baseline against which future changes can be assessed and will also enable planning for adaptation to potential sea level rise/increased storm surge. The project builds on Torres Strait Islanders' knowledge and understanding of mangrove habitats, with scientists working in partnership with Traditional Owners.

Why this research is needed

Torres Strait islands have extensive mangrove margins and several islands are predominantly made up of intertidal swamps. But there has been no thorough assessment of the diversity, extent and health of mangrove ecosystems on the islands. Establishing the baseline of mangrove status and condition is important as low-lying mangroves are among the most threatened ecological communities in Torres Strait. They are also a shoreline community that plays a vital role in mitigating the effects of oceanic intrusion by buffering coastlines against waves and providing erosion protection. It is thus important that these ecosystems remain intact and to understand the role they play in providing such protective and beneficial services.

Research-user focus

The project will deliver outcomes that are useful to a range of stakeholder organisations including local, state and Australian Government bodies, the tourism sector and conservation planners/managers. Identified research-user organisations include the Torres Strait Regional Authority, Tagai College, Australian Fisheries Management Authority, GBRMPA, the Department of Sustainability, Environment, Water, Population and Communities and the Queensland Department of Agriculture, Fisheries and Forestry.

Project Partners:



Find this project at www.nerptropical.edu.au

Theme 1: Assessing ecosystem condition and trend

Program 2: Natural resources of the Torres Strait land and sea

Project: 2.2



Surveys of entire island shorelines will provide baseline measures of the condition of tidal wetlands.



Ranger Troy Stow assists with aerial surveys of wetlands of Badu Island.

Outcomes

Expected outputs of the project include the following:

- An assessment of the status and condition of mangroves and freshwater habitats in Torres Strait.
- Extensive baseline data on mangrove condition, diversity and community structure against which future changes can be assessed.
- Extensive baseline data on freshwater habitats, fish and exotic fish and aquatic plants.
- A renewable and expanding archive of geo-referenced maps and imagery, available online with assessments of past and current condition of coastal and estuarine habitats, aided by a new web access platform called ShoreView, complemented by the MangroveWatch community monitoring program.
- Community dialogue on values and management of mangroves and freshwaters and increased awareness, especially among land and sea rangers.

For more information about this project, contact:

Dr Norm Duke (James Cook University)

norman.duke@jcu.edu.au

Photos: N. Duke

NERP Tropical Ecosystems Hub Project Factsheet

Monitoring the health of Torres Strait coral reefs

Project leader: Dr Ray Berkelmans (AIMS)

Project summary

This project will conduct a biodiversity assessment of coral communities on Torres Strait reefs to establish a baseline of coral condition and start a longer-term monitoring program of corals in the region. This monitoring will look for changes in the condition of coral reefs in the Torres Strait. As part of this project, an early warning system will be established for coral bleaching. This will give the Torres Strait Regional Authority (TSRA), Torres Strait communities, industry and other stakeholders, the ability to predict, prepare for and respond to coral bleaching.

Why this research is needed

The reefs of Torres Strait are a key component of the lives and livelihoods of local communities. These reefs are threatened by a variety of local and global factors: notably coral bleaching, crown-of-thorns starfish, shipping and increasing levels of coral diseases. Compared to the Great Barrier Reef, little is known about the biodiversity or condition of reefs in the Torres Strait. Improved knowledge of Torres Strait coral reefs and monitoring their status and health will help identify problems and enable the TSRA to respond where necessary.

Research-user focus

The project will contribute knowledge for the conservation and management of regional biodiversity by the Torres Strait Regional Authority. Regular updates on environmental conditions, including real-time weather and oceanographic data, not only keeps stakeholders in touch with developments but provides a vehicle for stakeholder engagement, education and information sharing. The e-atlas will archive and display data collected as part of this project and enable integration with data from other research projects (past and present) in the Torres Strait.

Project Partners:



Find this project at www.nerptropical.edu.au

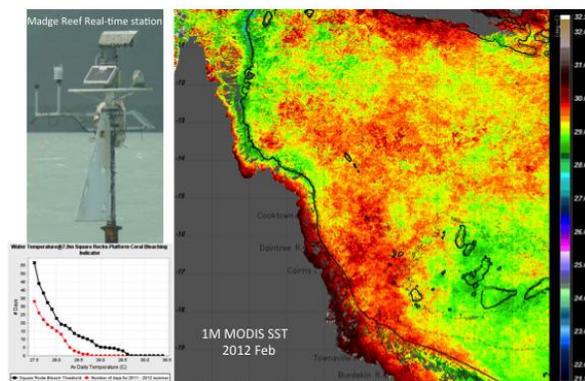
Theme 1: Assessing ecosystem condition and trend

Program 2: Natural resources of the Torres Strait land and sea

Project: 2.3



Very little is known about reefs in the Torres Strait. A detailed biodiversity assessment will be conducted as part of this project which will be followed by a longer-term monitoring program to check on their health.



Monthly updates on environmental conditions combine the latest satellite and in-situ observations to keep stakeholders informed of trends in key environmental variables and provide early warning of stressful conditions to coral reefs.

Outcomes

- A review of past research on coral reefs in the Torres Strait.
- A report on coral reef biodiversity in the Torres Strait.
- A monitoring program for Torres Strait reefs that meets community needs.
- Enhanced Torres Strait ranger capacity in monitoring coral reefs and in interpreting trends in the abundance of coral reef organisms.
- A program for long-term monitoring of reef temperatures.
- A real-time weather station and an early warning system for coral bleaching.

For more information about this project, contact:

Dr Ray Berkelmans (Australian Institute of Marine Science)

r.berkelmans@aims.gov.au



Australian Government
Department of Sustainability, Environment,
Water, Population and Communities



NERP Tropical Ecosystems Hub Project Factsheet

Hazard assessment for water quality threats to Torres Strait marine waters, ecosystems and public health

Project leader: Jon Brodie (JCU)

Project summary

The project team will assess and describe all existing and potential sources of pollution to the Torres Strait marine environment. This will be combined with information on water movement patterns to assess the hazard (and to some degree risk) of these pollutant sources to marine ecosystems and public health. The project will use the results to make recommendations to managers on priority pollutant management in the region, and to design a basic monitoring program for reporting on the status of water quality in the Torres Strait.

Why this research is needed

An understanding of the status of water quality in Torres Strait and its influence on marine food, human health, marine ecosystems and ecological processes is important for managing the health of people and the environment. Regional water quality issues include the potential discharge of pollution from the Fly River due to mining, and future projects involving oil palm plantations, the port at Daru, other mines in Papua New Guinea or West Papua and land clearing. Local sources of pollution potentially include sewage and stormwater discharge and shipping issues, such as oil spills and groundings.

Research-user focus

The project will provide information to the community and government organisations responsible for water quality management in the Torres Strait. These include the Torres Strait Regional Authority, Torres Strait Island Regional Council, Torres Shire Council, Torres Strait rangers, the Department of Sustainability, Environment, Water, Population and Communities, other researchers and the Torres Strait community.

Project Partners:



Find this project at www.nerptropical.edu.au

Theme 2: Understanding Ecosystem Function and Cumulative Pressures

Program 4: Water quality of the GBR and Torres Strait

Project: 4.4



Good water quality is important to the health of the Torres Strait community and the environment.



Saibai Island sewage treatment plant.

Outcomes

- Collated information regarding Torres Strait water quality pollutant sources at a range of scales (regional to local).
- Better knowledge of water circulation patterns in the Torres Strait region through the development of a fine-scale model.
- A hazard assessment of the sources of pollutants that affect marine ecosystems and public health in the Torres Strait region. This will form the basis of recommendations to management authorities to prioritise investment and political action to minimise pollution and public health/marine ecosystem damage.
- Recommendations for a water quality monitoring program for the Torres Strait region, designed to assess the status of water quality and measure the effectiveness of pollution management actions.

For more information about this project, contact:

Jon Brodie (James Cook University)

jon.brodie@jcu.edu.au

NERP Tropical Ecosystems Hub Project Factsheet

Invasive species risks and responses in the Wet Tropics

Project leader: Dr Helen Murphy (CSIRO)

Project summary

This project focuses on understanding the current and future risks and responses of invasive species in the Wet Tropics. The aim is to develop a strategic approach to pest management that considers the complexity of ecological processes involved with establishment and spread and takes account of the values and assets in the region. The project will contribute to the management of invasive plants and animals by providing prioritisation tools that align with existing regional pest management frameworks.

Why this research is needed

Pest management planning in the Wet Tropics is primarily based on knowledge about current pest distributions and risks. Land managers in the region have identified the need to also consider potential future risks in strategic planning, taking into account pathways of spread, climate change and emerging or sleeper weeds and pests. However, there is a gap in our understanding about how to forecast future risks and responses and how to integrate them in existing management planning. This research project addresses this gap and provides tools for proactive and strategic management of pests, considering current and future risks and responses.

Research-user focus

The project will address high priority research needs of state and Australian Government agencies as well as providing information for conservation planners/managers. Research-user organisations include the Department of Sustainability, Environment, Water, Population and Communities, Biosecurity Queensland, Queensland Parks and Wildlife Service, the Wet Tropics Management Authority, Far North Queensland Regional Organisation of Councils and Terrain NRM.

Research Provider:



Find this project at www.nerptropical.edu.au

Theme 2: Understanding ecosystem function and cumulative pressures

Program 7: Threats to rainforest health

Project: 7.2



Stevia ovata along a powerline easement near Ravenshoe.



Collecting samples of invasive *Miconia calvescens*.

Photos (from top): Andrew Ford, CSIRO; Helen Murphy, CSIRO.

Outcomes

This project will improve understanding of how invasive species become established and spread in the Wet Tropics and identify strategic approaches for prioritising management activities at a regional scale, and allocating resources and effort on the ground.

Specifically, the project will identify:

- Networks of weed and pest animal spread throughout the Wet Tropics.
- Geographic areas and natural assets particularly at risk from invasive species
- Emerging weed threats in the Wet Tropics as a result of climate change.
- Strategic management options for minimising current and future impacts from invasive species.

The project has the potential to reduce the long-term cost of pest management in the Wet Tropics by forecasting future risks and responses and establishing pro-active and strategic management approaches for minimising future impacts.

For more information about this project, contact:

Dr Helen Murphy (CSIRO)

helen.murphy@csiro.au

NERP Tropical Ecosystems Hub Project Factsheet

Building resilient communities for Torres Strait futures

Project leader: Dr James Butler (CSIRO)

Project summary

This project is exploring potential future scenarios for the Torres Strait and will identify 'no regrets' strategies to improve livelihoods and achieve sustainable economic development. The project will help to deliver ongoing initiatives promoting climate adaptation, alternative livelihoods and economic development in the region.

Why this research is needed

The low-lying islands of the Torres Strait are vulnerable to climate change and the region faces a range of pressures including a growing population, future climate change, potential pollution as a result of rapid mining and resources development in Papua New Guinea, and increased shipping. In order to create a sustainable future for the peoples of the Torres Strait, it is important to understand potential future environmental and economic changes and proactively plan for them.

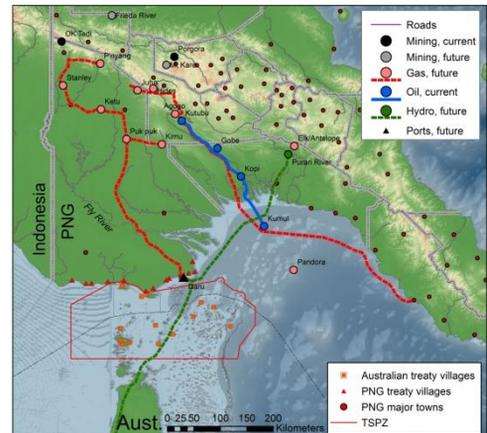
Research-user focus

The project will work with stakeholders to provide important information for planners and other decision-makers in the region. Research users include the Torres Strait Regional Authority, Australian Fisheries Management Authority, the Department of Sustainability, Environment, Water, Population and Communities, the Department of Foreign Affairs and Trade and the Queensland Department of Agriculture, Fisheries and Forestry.

Research Provider:



Find this project at www.nerptropical.edu.au
Theme 3: Managing for resilient tropical systems
Program 11: Resilient Torres Strait communities
Project: 11.1



Current and planned resource development in PNG provinces bordering the Torres Strait.



Mer Island, Torres Strait (Source: John O'Halloran).

Outcomes

The main outcome of the project will be the improved capacity of communities and other decision-makers in the Torres Strait to anticipate and respond proactively to future sustainability challenges through:

- Greater awareness of drivers of change at local and regional scales.
- Exploration of alternative livelihoods and 'no regrets' strategies and policies.
- Increased capacity to avoid mal-adaptive strategies
- Development of community-based holistic plans to support adaptation planning for climate change and sustainability challenges.
- Future-proofing of relevant international, national and regional policies and strategies to ensure sustainable and resilient communities.

For more information about this project, contact:
Dr James Butler (CSIRO)
james.butler@csiro.au

NERP Tropical Ecosystems Hub Project Factsheet

Improved approaches for the detection and prevention of wildlife diseases in the Torres Strait

Project leader: Dr Susan Laurance (JCU)

Project summary

This project focuses on improving methods to detect the introduction of exotic animal diseases into the Torres Strait. The researchers will examine the environmental factors that influence the establishment and persistence of wildlife diseases in the region. They will study insect disease vectors and the incidence of disease in birds in a range of habitats in order to identify where disease risk is greatest.

Why this research is needed

Animal-borne diseases pose serious threats to human health, agriculture and to Australia's biodiversity. There is a real possibility of disease entering Australia through people or animal movements through the Torres Strait so for this reason surveillance and reliable methods of disease detection are vital

Research-user focus

The project will deliver outcomes that are useful to a range of stakeholder organisations including state and Australian government bodies. Research users include the Torres Strait Regional Authority, Biosecurity Queensland, the Department of Sustainability, Environment, Water, Population and Communities and the Australian Quarantine and Inspection Service.

Outcomes

This project will develop improved methods for detecting the establishment and persistence of disease incursions in Torres Strait. This will result in increased capacity to protect Torres Strait biodiversity and people from disease.

Research Provider



Find this project at www.nerptropical.edu.au
Theme 3: Managing for resilient tropical systems
Program 11: Resilient Torres Strait communities
Project: 11.2

For more information about this project, contact:
Dr Susan Laurance (James Cook University)
susan.laurance@jcu.edu.au



Capturing birds such as this silveryeye for the detection of blood borne parasites (avian Malaria)



Dagmar Meyer Steiger, JCU Masters Student studying disease vectors

Photo: Dr Susan Laurance

NERP Tropical Ecosystems Hub Project Factsheet

Governance, planning and the effective application of emerging ecosystem service markets: climate change adaptation and landscape resilience

Project leader: Dr Allan Dale (JCU)

Project summary

This project will work with a range of stakeholders to identify the most effective governance systems for managing climate change adaptation in the Wet Tropics through the emergence of new ecosystem service markets. The project will directly contribute to:

- Regional climate change adaptation policies and planning processes.
- Regional Natural Resource Management (NRM) organisations' role in guiding emerging carbon markets in Australia and the region.

Why this research is needed

Emerging carbon farming legislation is driving the need for new arrangements to guide carbon-based and other ecosystem services markets. In the face of climate change, we need to better understand how we can better integrate landscape planning with biodiversity conservation to take advantage of these markets. The project will provide stronger regional partnerships and knowledge to guide these emerging ecosystem services markets and build capacity within the region to capitalize on these markets.

Research-user focus

The outcomes of the project will be useful to a range of stakeholder organisations including regional NRM bodies and state and Australian Government agencies. Research-users include Terrain NRM, Cape York Peninsula NRM, Wet Tropics Management Authority, the Department of State Development, Infrastructure and Planning, Far North Queensland Regional Organisation of Councils and the Department of Sustainability, Environment, Water, Population and Communities.

Research Provider:



Find this project at www.nerptropical.edu.au
Theme 3: Managing for Resilient Tropical Systems
Program 12: Managing for Resilience in Rainforests
Project: 12.4



Photos (from top): CSIRO Image library; Suzanne Long

Outcomes

This project will deliver tangible benefits that will:

- Result in higher-quality regional NRM plans over the next three years.
- Guide the emerging ecosystem services market
- Build capacity within the region to mobilise access to this market.
- Contribute to national and state policy on NRM planning and ecosystem services markets.

For more information about this project, contact:

Dr Allan Dale (James Cook University)

allan.dale@jcu.edu.au

NERP Tropical Ecosystems Hub Project Factsheet

e-Atlas

Project leader: Dr Eric Lawrey (AIMS)

Project summary

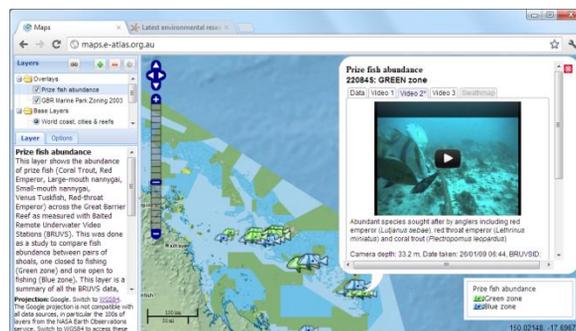
The e-Atlas is a website, mapping system and set of data visualisation tools for presenting research data in an accessible form that promotes greater use of this information. The e-Atlas will serve as the primary data and knowledge repository for all NERP Tropical Ecosystems Hub projects, which focus on the Great Barrier Reef, Wet Tropics rainforest and Torres Strait. The e-Atlas will capture and record research outcomes and make them available to research-users in a timely, readily accessible manner. It will host meta-data records and provide an enduring repository for raw data. It will also develop and host web visualisations to view information using a simple and intuitive interface. This will assist scientists with data discovery and allow environmental managers to access and investigate research data.



Find the latest research data and all existing content through the front page of the e-Atlas website.

Why this research is needed

Existing research data is often underused. Much of it is not readily accessible or else not in a form useful for potential end-users, limiting the ability for science to inform environmental decision making and policy development, or inform the wider community. By providing a data catalogue and repository, the e-Atlas will ensure the knowledge gained is safely stored and made accessible, encouraging collaboration and knowledge sharing. In addition, by providing a web-accessible mapping system and a set of data visualisation tools, the e-Atlas is able to display a wide variety of spatial data, ensuring broad discoverability and easy comprehension.



Preview and investigate a wide range of research data through the e-Atlas mapping portal.
Map data: BRUVS (AIMS), Zoning (GBRMPA)

Research-user focus

The e-Atlas will deliver timely, rich content that will communicate research outcomes from the NERP TE Hub to government, scientists, community groups and the general public.

Project Partners:



Find this project at www.nerptropical.edu.au
Program 13: Knowledge Brokering and Communications
Project: 13.1

Outcomes

- Maintain existing content on the e-Atlas website www.e-atlas.org.au.
- Develop new content from NERP TE Hub projects, to ensure projects are documented and the data safely stored.
- Provide a catalogue of NERP TE Hub projects to Research Data Australia (meta-data records).
- Develop a Torres Strait e-Atlas for NERP TE Hub research as well as Torres Strait Regional Authority (TSRA) data holdings and priority historical Torres Strait research data.

For more information about this project, contact:
Dr Eric Lawrey (Australian Institute of Marine Science)
e.lawrey@aims.gov.au

