

Northern Australia Aquatic Ecological Assets

Identifying those of high conservation value

Aquatic ecosystems and their importance

Aquatic ecosystems depend on flows of water, or periodic inundation for their ecological integrity. Northern Australia hosts a range of aquatic ecosystem types, the most common being estuaries, rivers, lakes and wetlands. These ecosystems have important intrinsic and cultural values and, among other things, provide clean water, food and recreational opportunities for people. They also support high biodiversity and many species of aquatic plants and animals found nowhere else.

What is being done to manage and protect them?

The values and importance of aquatic ecosystems have been recognised by governments. Two examples of this are:

1. Assessment of aquatic ecological assets

The National Water Initiative (NWI), an agreement between the Australian Government and all the States and Territories, is a comprehensive strategy to improve water management across the country. The NWI states that there is a 'national imperative to ensure the health of river and groundwater systems'. All States and Territories need to 'identify and acknowledge surface and groundwater systems of high conservation value'.

How to do this? The Aquatic Ecosystem Task Group is developing a common framework to identify and classify High Conservation Value Aquatic Ecosystems (HCVAEs).

2. Northern Australia Water Futures Assessment

The Northern Australia Water Futures Assessment (NAWFA) is an Australian Government initiative to provide the science needed for sustainable development and protection of Northern Australia's water resources. One project being undertaken as part of the NAWFA is the TRaCK Northern Australia Ecological Assets Project. This work will identify key aquatic ecological assets (i.e. highly valued components of the environment) in northern Australia.

Northern Australia Aquatic Ecological Assets Project

The Project has four main tasks:

- i. Determine the impact of development alternatives on the status of the northern Australian aquatic ecosystems and aquatic biodiversity (part of the Northern Australia Land and Water Science Review 2009: http://www.nalwt.gov.au/science_review.aspx)
- ii. Map aquatic ecosystems (assets) across northern Australia
- iii. Undertake a trial of the draft High Conservation Value Aquatic Ecosystems (HCVAE) Framework, and
- iv. Identify knowledge gaps and priorities for regional aquatic ecosystem assets.

The project is being undertaken by the Tropical Rivers and Coastal Knowledge (TRaCK) Commonwealth Environmental Research Facility in collaboration with the Department of the Environment, Water, Heritage and the Arts (DEWHA).



Freshwater turtles. Photos by Brad Pusey.

TRaCK – Research to support river and estuary management in northern Australia

TRaCK brings together leading tropical river researchers and managers from Charles Darwin University, Griffith University, University of Western Australia, CSIRO, James Cook University, Australian National University, Geoscience Australia, Environmental Research Institute of the Supervising Scientist, Australian Institute of Marine Science, North Australia Indigenous Land and Sea Management Alliance, and the Governments of Queensland, Northern Territory and Western Australia.

Foodwebs
and Biodiversity





Katherine River. Photo by Michael Douglas.

Trial of the Draft High Conservation Value Aquatic Ecosystems (HCVAE) Framework

As one component of the Northern Australia Aquatic Ecological Assets Project, researchers are trialling the draft HCVAE Framework. This involves:

- i. identifying and evaluating aquatic ecosystem characteristics in northern Australia
- ii. developing a method to apply and assess the draft HCVAE criteria that is based on the best available science and knowledge
- iii. supporting ongoing collaboration between Commonwealth, State and Territory departments responsible for managing aquatic ecosystems
- iv. identifying knowledge gaps and making recommendations for further work to refine the draft HCVAE framework

How are we doing this?

Researchers are assessing aquatic ecosystems against the six draft criteria for identifying HCVAEs. These are biophysical diversity, distinctiveness, vital habitat, evolutionary history, representativeness and naturalness.

To do this, researchers are collating aquatic biodiversity (species and genetic level) and environmental data, and classifying types of aquatic ecosystems. They are also producing bioregional maps and predictive models of the distribution of fish, aquatic insects and crustaceans, turtles and waterbirds.

Researchers will also use a number of other tools to identify the strengths and weaknesses of the framework. These include systematic conservation planning tools, expert panel workshops and sensitivity analyses. The use of multiple sources of information will allow researchers to more objectively and accurately identify the HCVAEs across all of northern Australia.

What comes next?

The lessons from this trial, along with feedback and stakeholder consultation, will contribute to the development of the national HCVAE framework.

The next phase of the Northern Australia Water Futures Assessment Ecological Program is to assess the likely impacts of development and climate change on these assets and consider management options to minimise the impacts.

Who is on the team?

The project is led by Dr Mark Kennard who is working with a team of other researchers from Griffith University, Charles Darwin University, the Australian National University, ERISS and CSIRO.



Where is the research happening?

Researchers will use existing information available from all catchments from the Kimberley to the tip of Cape York Peninsula.

Contacts

For more information on this project contact:

Cameron Colebatch

Northern Australia Water Futures Assessment
Department of the Environment, Water,
Heritage and the Arts

cameron.colebatch@environment.gov.au

phone: 02 6275 9021

web: www.environment.gov.au

Mark Kennard

Tropical Rivers and Coastal Knowledge (TRaCK),
Australian Rivers Institute, Griffith University

m.kennard@griffith.edu.au

phone: 07 3735 7401



Australian Government
Department of the Environment,
Water, Heritage and the Arts
National Water Commission

To find out more about TRaCK
visit www.track.gov.au
email track@cdu.edu.au
phone 08 8946 7444

