

# Marine ecosystems considered in Kimberley survey

June 23 2015, by Brooke Hunter

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The Fitzroy River near Fitzroy Crossing. Credit: yaruman5

A multi-disciplinary team is closely monitoring the Kimberley's coastal and estuarine environment to better understand how present levels of organic nitrogen and carbon play a role in sustaining marine productivity.

A team of collaborators from CSIRO, the University of Western Australia and The Australian Institute of Marine Science made two boat trips from King Sound to Walcott Inlet to identify information needed for monitoring water flow in the region.

The aim was to understand the role of organic materials in [coastal ecosystems](#) in order to safeguard the ecosystems against [climate change](#) and commercial development.

The project, led by CSIRO researcher Andy Revill, combined expertise in climate science and catchment rainfall-runoff modeling to better understand how inshore environments are sustained by terrestrial carbon and nutrient sources.

"It is pretty obvious the rivers are higher in nitrogen than the coastal environments," Dr Revill says.

"One of the things we need to work out is where this [organic nitrogen](#) is actually coming from and what sort of transformations occur to this material."

## **Future developments may upset delicate balance**

While the Kimberley is among the most pristine environments in Australia, abundant water and energy resources will likely be developed in the near future which may have important implications for linked river, estuarine and inshore environments.

"We want to know what happens to material that is brought in with those fresh water streams and what role it will play in coastal production," Dr Revill says.

He says the team worked on collecting critical information on linkages

between terrestrial and marine ecosystems to find ways of minimising the impacts of climate change, catchment development and commercial or recreational fishing.

They collected data to estimate the annual freshwater run-off from rivers to coasts and the amount of organic matter supplied from the land to the coast.

They did this via a series of transects and measurements in the 40km-long Walcott Inlet.

Dr Revill says they monitored materials and water move through the inlet's mouth.

"There was a big lag of tides between inside and outside which led to very large water movements in short spaces of time," he says.

He says current data suggests an increased amount of land materials will start to move upstream.

The project team also had a sediment grab on board to monitor river and ocean bed material.

"We wanted to get a handle on how much material is coming off the catchment versus in-situ production," Dr Revill says.

Provided by Science Network WA

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