

Project update, October 2018

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This research is supporting water planning and fisheries management in the Gulf through increasing our understanding of the links between river flows, estuaries and ecosystem assets such as migratory birds and fisheries.

What's new?

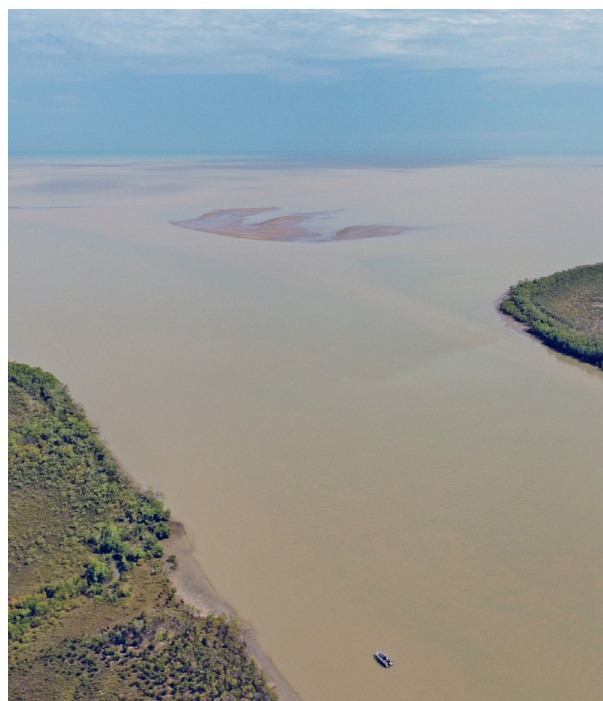
- Over the past few months we've been analysing field samples and writing up results.
- In March 2018, we sampled flood plumes from the Gilbert and Mitchell Rivers for nutrients, chlorophyll and suspended solids. We also recorded parameters such as temperature, conductivity, dissolved oxygen, pH and turbidity.
- In late February/March, we sampled prawns and water quality in the Flinders River and adjacent coastal areas during a flood event. We returned to these sites after the flood waters had receded in May to collect post-flood samples.
- In November 2017, we collected a second year of data on prawns that live in and near the mangroves in the three estuaries. Prawns are currently being sorted, counted, measured and will soon be analysed for their geochemical signature.
- During the trip we also measured the productivity of the estuarine mudflats which provide an important food source for prawns and other aquatic animals. We found that the mudflats in all three rivers were equally productive but vary in magnitude from year to year.
- We have finished analysing data from our November 2016 field trip. This showed that there was an abundance of juvenile prawns in all three estuaries studied, i.e. Mitchell, Gilbert and Flinders Rivers, with no obvious differences in densities between the estuaries. The geochemical signature of the prawns varied between the estuaries reflecting the different geochemistry of the catchments.
- The areal extent of mudflats is currently being quantified using remote sensing so the total area of productivity and habitat can be determined.
- Several metrics for barramundi catch have been produced including catch/effort, year-

class strength and catch-at-age indices. This data is now ready for analysis.

- We've been modelling links between flow and banana prawn catches to inform a predictive model comparing the three rivers.
- Analysis of socio-economic data from the prawn and barramundi fisheries is underway, and information is being gathered on potential use of the Gulf rivers for agriculture, Indigenous fisheries and recreation/tourism.

What's next?

- We'll be in the field this December, measuring primary productivity in sub-tidal and inter-tidal locations in the Mitchell, Flinders and Gilbert river estuaries.
- As part of the trip, we'll be undertaking sampling for our new project on the links between Gulf rivers and food for migratory shorebirds.
- We'll also be analysing 2016/17 prawn trawl data to provide information for a more targeted approach to prawn trawling in and out of the estuary.



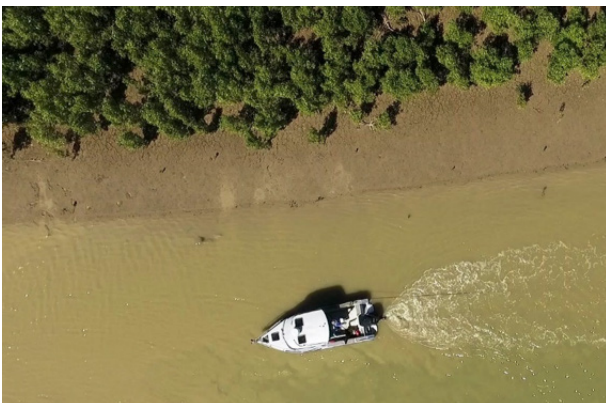
Sampling mudflats at the mouth of the Flinders River, photo Stephen Faggotter.



Project team in the field, photo Stephen Faggotter.

Project summary

River catchments of the Gulf of Carpentaria support many ecological assets of high value which are likely to be threatened by intensive water resource development and climate change. This project aims to quantify the importance of a range of river flows to flood-driven aquatic production, with environmental and economic implications. This project will examine 1. the relative contribution of major southern Gulf of Carpentaria rivers to floodplain and coastal productivity and key species that depends on the flow, and 2. predict the consequences of changes in flow regimes on flood-driven subsidies in specific rivers and better understand other potential risks associated with these changes. This will provide key information needed for prioritising rivers for development as part of future water planning.



Trawling for prawns, photo Stephen Faggotter.



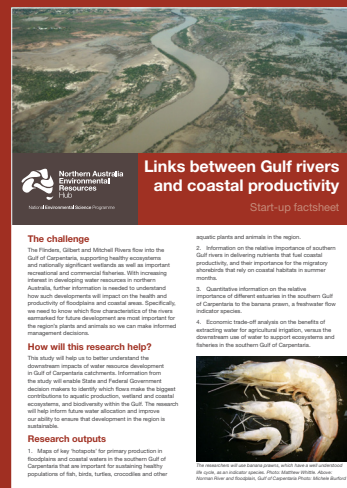
This project focuses on the estuaries of the Mitchell, Gilbert and Flinders rivers.

Further information

Contact project leader, Michele Burford at m.burford@griffith.edu.au

The project page can be found on the [Hub website](#), along with the [project start-up factsheet](#).

This project is due for completion in September 2019.



Northern Australia Environmental Resources Hub

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