

# NERP Tropical Ecosystems Hub Project Factsheet

## Tracking coastal turbidity over time and demonstrating the effects of river discharge events on regional turbidity in the GBR

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### Project summary

Turbidity is a measure of water clarity that quantifies the amount of small particles suspended in the water, and is a fundamental environmental parameter influencing coastal marine ecosystems. Turbidity reduces the light needed for photosynthesis by corals and seagrasses, and suspended particles also transport nutrients, pollutants and diseases. Previous research based on 3 years of turbidity data collected from 15 inshore reefs by the Reef Rescue Marine Monitoring Program has shown that it can take several months for water clarity to improve after river floods. This project will analyse a 12-year data set to demonstrate the explicit link between variations in discharge (sediments and nutrients) from the major rivers in each Natural Resource Management (NRM) region adjacent to the Great Barrier Reef (GBR) and seasonal and annual variations in water clarity in the inshore GBR.

### Why this research is needed

Quantification of the relationship between terrestrial runoff and turbidity is critical to demonstrate that water quality in the inshore GBR can be improved through improved land management in adjacent catchments. The new knowledge generated by this project will improve the scientific basis underpinning the Australian Government's Reef Rescue program, Reef Plan and the refinement of water quality targets. The project will also determine the spatial extent of declining water quality on the inshore GBR and allow validation and calibration of a Receiving Waters Model.

### Research-user focus

Specified research-users include the Great Barrier Reef Marine Park Authority, Department of Sustainability, Environment, Water, Populations and Communities, Queensland Department of Premier and Cabinet, Queensland Department of Environment and Heritage Protection, Queensland NRM bodies adjacent to the GBR, the agricultural industry and WWF.

Project Partners:



Find this project at [www.nerptropical.edu.au](http://www.nerptropical.edu.au)

Theme 2: Understanding Ecosystem Function and Cumulative Pressures

Program 4: Water quality of the GBR and Torres Strait

Project: 4.1



Satellite images will be used to determine spatial and temporal patterns in water clarity. Here a Modis satellite image taken on 10 February 2007, when moderate river floods reduced water clarity along the GBR coast.



High water clarity is important for healthy inshore coral reef ecosystems.

### Outcomes

- Specific quantitative relationships between river discharges and seasonal and annual variation in inshore water clarity on the GBR adjacent to each NRM region.
- Strengthened scientific basis for Reef Rescue and Reef Plan and the refinement of water quality targets.
- Data to assist validation and calibration of the Receiving Waters Model and a WQ Risk Analysis.

Photos (from top): Modis Imagery, processed by M. Slinkoff; K. Fabricius