Tropical Water Quality Hub

National Environmental Science Programme

Project 3.1.4 Optimizing the management of riparian zones to improve the health of the Great Barrier Reef

Project Summary

This project will use an evaluation of past investments in riparian remediation works to demonstrate effectiveness, and enable improved targeting, of such work for reducing streambank erosion to achieve improved water quality outcomes within the Great Barrier Reef. By re-visiting previous riparian erosion-control investments the project will identify what factors result in generating a functional riparian zone, including the conditions under which the investment occurred (rainfall zone, fencing arrangements, soil type, etc.), and the type of remediation revegetation (width of revegetation, connectivity of riparian area, species mix established, etc.). The work will focus on two contrasting catchments, one from the Wet Tropics (Tully or Johnstone) and one from the Dry Tropics (Fitzroy Basin). With stakeholder input, the project will develop an initial framework to guide future investment in riparian remediation works.

Problem

Sediment tracing suggests that streambank erosion contributes ~30-40% to end of catchment sediment yields in the Great Barrier Reef (GBR) catchments. Researchers have made considerable progress into understanding the processes and key source areas delivering sediment to the GBR. But despite having tools available to estimate which catchments to target for riparian management, knowledge gaps remain on what sort of management activities have the greatest success in minimising bank erosion.

How Research Addresses Problem

It is timely to develop a reliable framework to guide investment in riparian remediation works, particularly given the growing interest in using trees and vegetation to reduce the rates of erosion from stream banks through the utilisation of carbon markets. The project will work with our partners and stakeholders to provide evidence-based recommendations for targeted remediation activities that have the greatest chance of success in reducing erosion, improving water quality, potential to be partially funded through carbon markets and provide biodiversity benefits.

The management of riparian zones has an impact on the extent of bank erosion

Photo: Shane Westley

Photo: Rebecca Bartley

Landscape position and soil type may play important roles in the risks to the success of riparian remediation projects

This project will have several important outcomes for the selected catchments, including:

- Better targeting of riparian erosion-control investments to maximize the water quality benefits via decreased sediment export from bank erosion control (i.e. determining best bang for revegetation buck);
- Aligning investments in riparian revegetation with the co-benefits of carbon sequestration through increased woody biomass, with the carbon market potentially subsidizing the costs of these investments (i.e. determining how the investment buck can be 'stretched'), and;
- Aligning investments in riparian revegetation with the co-benefits of improving biodiversity outcomes, particularly through the provision of biodiversity corridors.

The planned outputs from this project include:

- A report that describes methods and summarizes results on what investments conditions and types were most successful;
- Compendium or manual with recommendations to guide future investment in riparian erosion-control remediation works, and estimates of the likely co-benefits for carbon and biodiversity, and;
- Communication products as per the projects communication strategy, which may include; (i) presentations and audio-visual materials for focus group discussions with service providers (e.g. Greening Australia) to evaluate their response to proposed measures of revegetation; and (ii) presentations for technical workshops to embed results into Government investment planning (e.g. Regional Body groups, Queensland State Government policy and modelling groups, and the Reef Trust Unit).

Further information

See **www.nesptropical.edu.au** or contact:

Dr Keryn Paul – CSIRO
T: +61 (0)418 420 103
E: keryn.paul@csiro.au

Dr Rebecca Bartley – CSIRO
T: +61 (0)7 3833 5578 or +61 (0)427 223 100
E: rebecca.bartley@csiro.au

CSIRO

terrain
NATURAL RESOURCE MANAGEMENT

fba
FITZROY BASIN ASSOCIATION

Reef & Rainforest
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