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Can we rehabilitate our problem waterways?

Identifying problems with Canterbury's waterways isn't difficult, but solving those problems is another matter.

In the Canterbury Waterway Rehabilitation Experiment, or CAREX for short, a team of freshwater ecologists has been working to test solutions for important in-stream problems in lowland Canterbury waterways associated with intensive agriculture. The group has worked closely with farmers and other stakeholders to trial solutions in nine kilometres of waterways.

University of Canterbury (UC) Professor Angus McIntosh says findings so far highlight the need for channels to be protected from their source — 'start at the top' — and for measures to prevent contaminants bypassing the protection system — or 'prevent leaky plumbing'.



Finding solutions to problems in Canterbury's waterways isn't a challenge isolated to the region or New Zealand says Professor Angus McIntosh. Finding jointly developed practical solutions will be important for restoring and future-proofing ecosystems.

Research objectives

Professor McIntosh is the Mackenzie Foundation Chair of Freshwater Ecology in the School of Biological Sciences at UC. He is also a Principal Investigator in the Centre for Integrative Ecology at UC, a member of the Waterways Centre for Freshwater Management and involved in the Biological Heritage National Science Challenge.

"Work tackling three important stressors, fine sediment deposition, excessive weed growth and high nutrients, is now focusing on promising solutions including bank re-shaping, sediment traps, targeted shading and bioreactors for nutrient removal.

"Finding solutions to problems in Canterbury's waterways isn't an isolated challenge. Freshwater health is failing across New Zealand and around the world, and finding jointly developed practical solutions will be important for restoring and future-proofing ecosystems."

Research from Phase 1 indicates that several factors influence the effectiveness of fencing and planting on waterway health.

In many cases, the riparian management is not in the right place, or "hotspots" of sediment and nutrient inputs into the waterway remain.

Moreover, controlling the source of impacts does not solve the legacy of long-term contaminants which have accumulated in a waterway over decades, nor does it restore key species that have been lost.

Ultimately, says Dr McIntosh, the project aims to trial management tools and strategies that are practical and sustainable using existing resources that are widely available. There are ten waterways across Canterbury (from Rangiora, and Te Waihora Lake Ellesmere to Hinds) typical of those in need of rehabilitation. The waterways represent gradients of agricultural intensity, extent and age of riparian management activities and in-stream water quality and biodiversity.

By Fiona Clayton