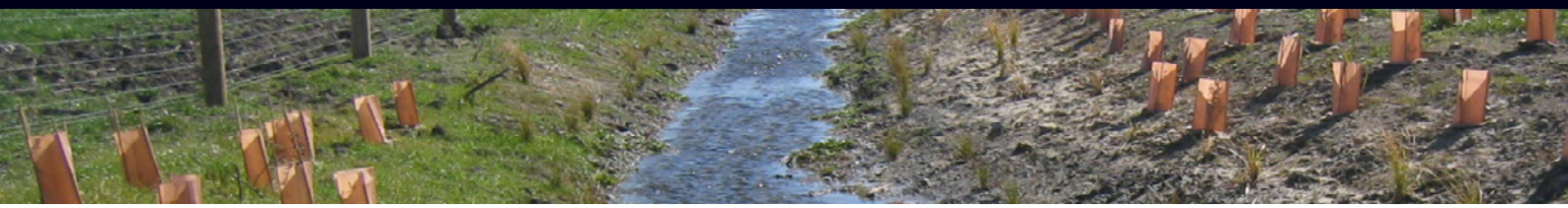
CAREX News

The CAREX project is funded by the Mackenzie Charitable Foundation



Newsletter of the Freshwater Ecology Research Group

September 2017

Welcome to our September newsletter - Spring has sprung and the CAREX team is busy with field work, outreach events & data analysis.

The CAREX approach

Here at CAREX, we are focussing on developing tools and solutions to improve agricultural waterway health and restoration success.

Fundamental to our approach are:

- Building strong partnerships with landowners, stakeholders & management agencies. These partnerships are built on open communication, trust and delivering promises.
- Identifying clear restoration objectives.
- Understanding and identifying the sources of multiple stressors, including aquatic weeds, nutrients and sediments.
- Developing and trialling tools to treat these multiple stressors multiple scales, from hotspots to whole waterways.
- Actively communicating scientific findings through multiple media to farmers, stakeholders, communities and the scientific community.

We are aiming to inform, engage and ultimately, make a difference to waterway management. To do this, we share our findings and learnings to meet the need for best available science.

WHO WE ARE

freshwater ecologists

science communicators
with diverse audiences

who co-develop solutions
with communities

seeking to transform waterways
& restore healthy ecosystems

Fifteen researchers
ONE EXPERIMENT

Phosphorus in waterway sediments

There has been considerable discussion and concern about nitrogen in streams in Canterbury, but phosphorus is also a key nutrient that can control algal and plant growth in waterways. Fertiliser use and soil erosion can add phosphorus to waterways and it often ends up in the sediments. The phosphorus in sediments can be released into the water column, be readily available for uptake by aquatic plants in the waterway, or it can be bound to other chemicals making it biologically unavailable. This month, we welcomed back members of the Auckland Freshwater Ecosystems Lab at University of Auckland. Angela Byrne (Honours student) and Dr Kevin Simon are interested in how much phosphorus is in agricultural waterway sediments.

Angela sampled sediments in a range of waterways on the Canterbury Plains, including all the CAREX sites and sediment traps. In the lab, Angela is using a chemical procedure that measures how much phosphorus is in the sediments, what chemical form it is in, and how available it is to fuel plant growth. She has also been running tests (called assays) to determine if waterway sediments are likely to be a source of phosphorus to the water column or if they are removing phosphorus from the water. Her research will help us understand how much of a problem phosphorus may be in our waterways and whether we can manage it using the tools CAREX has been testing.

Spring sediment sampling in CAREX waterways.

UC Sustainability award winner!

CAREX team members Jon, Katie, Kristy and Angus accept the award from Wendy Lawson, the Pro-Vice Chancellor Science at the University of Canterbury.

Congrats to the CAREX team on winning Gold at the UC Sustainability Awards. The awards celebrate excellence in sustainability amongst the UC community. we were recognised for our work improving freshwater sustainability through the development and evaluation of restoration solutions for agricultural waterways.

Water quality after heavy rain in July

Less than one week after the heavy rains in July, Hayley and her field team were out collecting monthly water samples. A lot of water went through our sites, with high water levels still evident from bent-over bankside vegetation. Several farmers we work with in South Canterbury noted the water had overflowed the banks, but subsided reasonably quickly. Our results showed that water at most sites in July was more turbid than usual and nitrate levels were slightly elevated, but within normal ranges. At most sites, nitrate levels have been increasing since the beginning of the wet season in April.

Aquatic weeds caught on a water height recorder seen here following the high flow event in July.

Getting work done on the farm?

Throughout our project, we have worked with several different contractors to complete earthworks and riparian planting at the CAREX sites. In our experience, not all contractors are equal, so it is best to ask around and do your research to get the best possible outcome for your waterway and dollar. As part of our toolbox info sheets, that will be available next month, we will include a list of helpful questions to ask digger drivers, plant nurseries, and other contractors before undertaking any works along your waterway.

Digging sediment traps with the Waimakariri District Council drainage engineering team in 2014.

Inspiring young scientists

Congrats to Sam Fauthy, a year 7 student at St. Joseph's school in Timaru, who won the 2017 CAREX Freshwater Scientist for a Day prize at the Sanford Science & Technology Fair in September. He tested the effects different concentrations of fertiliser have on algae. The judges from the CAREX team were impressed with the relevance of Sam's project for local waterways. We were also happy to see last year's winner, Jessica Vogel, back with another great project. Jessica developed "WHET" kits for the Canterbury schools so that students can test the water quality of their own rivers. Well done to you both!

Sam's interest in water quality issues inspired his fertiliser experiments.

Upcoming events

CAREX Open Day - Sunday October 29th, 1-4pm. Mark your calendars and join the CAREX team for an afternoon to see how the waterway at our Silverstream site has been transformed and learn more about our research. There will be talks about tools for rehabilitating agricultural waterways, on-site demonstrations, fish and bug displays, family-friendly activities, and a chance to chat with CAREX team members and the landowners. Be among the first to walk through the wetland on the new walking track to see the diversity of native plants and birds and see what 15 years of commitment to the environment on farm can look like. To register your interest and for more information, please email: carex@canterbury.ac.nz

Living Lakes Symposium 2017 - November 9-10th. CAREX will be presenting at this year's symposium, hosted by the Waihora Ellesmere Trust (WET), which will focus on "Streams of Action" in the wider Te Waihora/Lake Ellesmere catchment. CAREX will also be hosting a stop on the symposium field trip at our Silvestream site.

For more information and to register, please see: www.wet.org.nz

Toolbox info sheets coming soon!

Our new toolbox information sheets on weed control, building bioreactors, and sediment trap design will be added to our website in October. Keep a look out for them at www.carex.org.nz.

Ever wonder what tools our freshwater team uses for sampling water quality and in-stream habitat? Make sure to check out our regular "Tools of the trade" posts on Facebook (@UC.CAREX).

CAREX team news

Are you interested in having a member of the CAREX team talk to your organisation, group or class about our research? Please contact us at carex@canterbury.ac.nz for more information.

Please note: The information provided in this newsletter is based on preliminary findings and is subject to revision and peer review. We share our results and findings to meet the need for best available science. Newsletters and information within cannot be reproduced without our express permission.

CAREX Canterbury Waterway Rehabilitation Experiment

UC SCIENCE

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