

# CAREX News

The CAREX project is funded by the Mackenzie Charitable Trust



Newsletter of the Freshwater Ecology Research Group

December 2014

Welcome to the first CAREX newsletter - here are some highlights of what the research team has been up to recently.

## Testing sediment tools

One of the main contaminants in our agricultural waterways is excessive fine sediment. Too much sediment clogs the stream bed and reduces habitat for stream insects and fish. It also enables aquatic weeds to grow easily and spread, and as phosphorous binds to sediment, having a lot of sediment means more phosphorous stays in the waterways. We are testing different tools to reduce in-stream sediments.

## Bank re-battering and planting

A major source of this sediment is unstable banks which undermine and collapse. At a number of our waterways we have worked on bank stabilisation and reducing "hot spots" where sediments might enter the waterway. Our team has been busy re-battering the banks of a number of CAREX waterways and arranging the planting of native plants. This has been possible due to funding from Environment Canterbury's Immediate Steps biodiversity fund, the DOC-Fonterra Living Waters partnership and the Waimakariri District Council.



## In-stream sediment trap trials

We are trialling the construction of in-stream sediment traps. Surprisingly, there has been virtually no research on how effective these traps might be done in New Zealand. With Greg Bennett (Waimakiri District Council Drainage Engineer), we have constructed a 12m long and 0.7m deep sediment trap and are monitoring sediment transport in the waterway.



## He Puna Pūtaiao - Science Outreach

As part of the University of Canterbury College of Science Outreach programme, we recently had Māori high school science students visit our DOC-Fonterra Living Streams waterway at Silverstream. A total of 27 students from four Canterbury High Schools (Burnside, Cashmere, Lincoln, and Linwood) visited the waterway, heard about our research, and sampled water chemistry and stream invertebrates. Field visits and school outreach programmes are an important means of communicating our research results to the wider community.



## First fish survey complete!

Many of you have seen our research teams out in your waterways over the last year. We have been doing habitat assessments and just recently completed the first round of fish surveys of all 10 waterways. Some waterways have reasonable numbers of fish – mainly upland bullies, short-finned eels (tuna) and brown trout. We have even caught a few crayfish (koura). Several waterways have very few fish. Our teams have been also been carrying out monthly water quality monitoring, including measuring nitrate, phosphorous, and faecal bacteria levels. These in-stream surveys and monitoring will continue throughout the project.



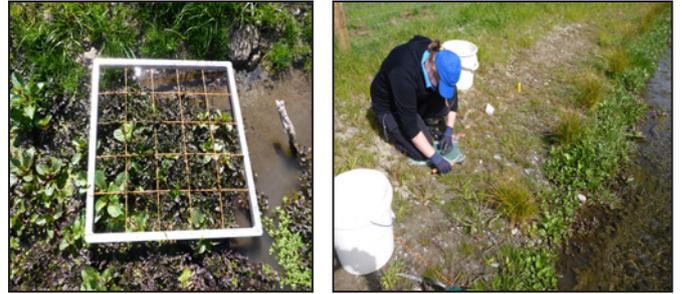
## Starting at the top - news story

Recently, Whakaora te Waihora spoke to Professor Jon Harding about the work that the CAREX team are doing. Two of the ten research sites from our project are in the Te Waihora/Lake Ellesmere catchment. Read what Professor Harding says about how “starting at the top” is critical for the restoration of the lake on their website: [tewaihora.org/starting-at-the-top](http://tewaihora.org/starting-at-the-top)



## Macrophyte control trials started

Macrophytes, or aquatic weeds, can fill waterways, raise water levels, and accumulate sediment. In our CAREX waterways, Monkey Musk and Watercress are major nuisance weeds. Several different methods to control the growth and spread of macrophytes are being currently being trialled at Silverstream. These methods include: hand weeding, flower removal, physical disturbance, sediment removal, herbicide application, weed mat, shade cloth, and a control. This trial includes 56 quadrats (2m x 2m) set up along the stream bank with the different treatments replicated several times. Once the effectiveness of the different methods are determined, larger-scale trials will be completed at other CAREX sites.



## New CAREX team members

Our CAREX team welcomes Katie Collins and Kristy Hogsdon.



Katie has come to us from Auckland Council and prior to that completed her Masters on agricultural waterways flowing into Te Waihora (Lake Ellesmere). Katie’s main focus for her PhD research will be looking at ways of limiting and controlling the spread of aquatic weeds.



Kristy is a research associate and will be our community liaison. She will be working with landowners and stakeholders involved in stream management and with the CAREX team to design, implement, and communicate their research. Kristy completed her PhD on food webs in streams affected by coal mine drainage and has previously worked as an environmental consultant.

The CAREX team thanks Maggie Bayfield for all her work in getting the project set-up and for sharing her riparian plant expertise. We wish her all the best in her future endeavours!

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