

NZFSS Conference 2012

LERNZ sent a strong contingent of researchers and students to the New Zealand Freshwater Sciences Society (NZFSS) conference in Dunedin from 3rd to 7th December. Three students were successful in winning awards. Recently-submitted PhD student Jennifer Blair won the Fish and Game NZ prize for the student presentation most valuable to sports fish and game management for her talk titled 'Rainbow Trout Growth In The Rotorua Lakes: What Can A Day Out Fishing Teach Us About The Effects Of Climate Change?'. PhD student Steve Woods won the Golder NZ award for the best applied poster which was on the effects of pest-fish on zooplankton communities. BSc(Tech) student Ashley Webby won the award for Best Conservation Poster for which was on comparative sensitivity to rotenone of fish and charophytes from the Serpentine lakes.

The 2012 conference theme 'Beyond the Limits' focused on the capacity of freshwater ecosystems in New Zealand and elsewhere to cope with current and future intensification of land use. Professor David Hamilton, as President of NZFSS, produced several media statements to inform the public of the activities of NZFSS and raise topical issues.

Prior to the conference, the LERNZ team took time out with a weekend at Otemamata where they visited Lake Benmore, one of the most oligotrophic lakes in New Zealand with a TLI of 2.1.



Members of LERNZ at Lake Benmore

Lake Kuwakatai pest fish removal

Dr Adam Daniel and summer students Jasmine Whanga and Mark Shaw, have begun the final pest fish mass removal operation, which forms part of a large multi-year project for LERNZ and will run until late January 2013. The goal of the mass removal program is to reduce the biomass of pest fish populations in five lakes to allow recovery of indigenous biodiversity and water quality. The threshold of reduction has been set at decreasing the pest fish population to under 100 kg/ha.

The final lake chosen for pest fish mass removal is Kuwakatai, a small dune lake on the south head of Kaipara Harbour. Lake Kuwakatai is a suitable site for numerous reasons including an active and committed local Landcare group, which will be valuable for future plans to manage nutrient inputs into the lake. The catchment surrounding the lake is in private ownership with controlled access to the lake, offering a high degree of security.

Lake Kuwakatai (below) has a large population of exotic invasive fish species, including koi carp, perch, rudd and goldfish. As there have been no regular fish removal efforts in the lake the current population provides a baseline for documenting the effectiveness of the removal techniques. The supertrophic condition of the lake allows large scope for water quality improvement. These characteristics alongside the availability of long-term Auckland Council monitoring data allow for an effective measure of progress and make Lake Kuwakatai an excellent candidate for mass removal.



The Lake Kuwakatai mass removal is an integrated approach, with LERNZ researcher Mat Allen looking to create a nutrient model of the selected catchment in order to identify appropriate management strategies for reducing nutrient inputs to the lake, at the same time as fish removal is being undertaken to reduce their influence on nutrient cycling within the lake.



Electrofishing boat at Lake Kuwakatai, Kaipara Harbour

Farewell

LERNZ would like to say goodbye to Konrad Gorski. Konrad has been a valuable member of the Large Rivers Group, provided valuable advice to students and developed an excellent research programme on the Waikato River. Konrad is taking up a post-doc position at the University of Concepcion in Chile. We wish him good luck in his new position and country and hope that he may continue collaboration from afar.

Welcome

LERNZ would like to welcome two new people.

Tamara Rodríguez Castillo has joined LERNZ for 3 months from Instituto de Hidráulica Ambiental "IH Cantabria" in Spain. Tamara is a PhD student working on water quality modeling in freshwaters, specifically waters with long residence time (backwaters in rivers, lakes, reservoirs, etc.). Tamara's research involves prediction by numerical modeling of the oxygen concentration (ecosystem metabolism) for a variety of river reaches located in the northern part of the Iberian Peninsula, and modeling of the large reservoir hydrodynamics with the model ROMS.

Sam Shute has joined LERNZ as a summer student working on 'B3', an open source software for QA/QC of high-frequency environmental datasets (e.g. lake buoy data), which was developed by student Luke Barnett last summer. Sam is looking at expanding the

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Department of Biological Sciences, Science and Engineering, The University of Waikato, Private Bag 3105, Hamilton 3240, New Zealand

B3 toolset and incorporating feedback from other users following presentation of the tool to the global community in October by Chris McBride.

Fact sheets

A range of LERNZ fact sheets are now online:

<http://www.lernz.co.nz/publication.html>

We welcome suggestions for other fact sheets of interest.

Conferences

In October, PhD students **Ari Santoso**, **Kohji Muraoka** and LERNZ researcher **Chris McBride** attended GLEON 14 in Mayo, Ireland where they were involved with workshops on Team Science & Professional Development, Challenges for GLEON Science - Now and into the Future, Global Water Management public panel discussion, Working Group meetings and a field trip to the Marine Institute by Lough Feeagh and the Burrishoole Catchment.

In October, **David Hamilton** and **Chris McBride** were hosted at Tongji University College of Environmental Science and Engineering in China as part of the continuing collaborations between Tongji University and the University of Waikato.

Recent Publications

Morgan, D. K. J. And Hicks, B. J. 2012. A metabolic theory of ecology applied to temperature and mass dependence of N and P excretion by common carp. *Hydrobiologia* DOI 10.1007/s10750-012-1388-2.

Morgan, D. K. J., Verbeek, C. J. R., Rosentrater, K. A. and Hicks, B. J. 2012. The palatability of flavoured novel floating pellets made with brewer's spent grain to captive carp. *New Zealand Journal of Zoology*. DOI 10.1080/03014223.2012.719912.

Özkundakci, D., McBride, C. G. and Hamilton, D. P. 2012. Parameterisation of sediment geochemistry for simulating water quality responses to long-term catchment and climate changes in polymictic, eutrophic Lake Rotorua, New Zealand. *Water Pollution XI*. Edited by C. A. Brebbia.

<http://www.witpress.com/978-1-84564-608-0.html>

Górski, K., Collier K. J., Hamilton, D. P. and Hicks B. J. 2012. Effects of flow on lateral interactions of fish and shrimps with off-channel habitats in a large river-floodplain system. *Hydrobiologia* DOI: 10.1007/s10750-012-1352-1