

LERNZ Workshops

Following the successful nationwide roadshow, LERNZ and the University of Waikato are hosting a free workshop series focussed on freshwater restoration techniques. The workshop will be held on campus at the University of Waikato, August 28-29th 2012.

Workshop topics:

Genetic identification tools: Pest fish and Cyanobacteria

Presented by Adam Daniel, Susie Wood and Craig Cary (University of Waikato)

Modelling and managing water quality contaminants from farm to catchment scale

Presented by Rich McDowell (AgResearch)

Aquatic plants – new tools

Presented by John Clayton (NIWA)

Lake Modelling

Presented by David Hamilton and Deniz Özkundakci (University of Waikato)

Remote Sensing

Presented by Mat Allan and Glen Stichbury (University of Waikato)

Registrations close 15th July 2012. Please contact Jo Faber for further information and a registration form j.faber@waikato.ac.nz

Fielddays: Nurturing one wetland at a time

The University of Waikato was proud to be a strategic partner of the 2012 National Agricultural Fielddays for the sixth year. As part of reinforcing the University of Waikato's commitment to innovative and sustainable development, Rebecca Eivers' work was on show at the University of Waikato stand this year.

Rebecca is a PhD student studying remediation measures to mitigate sediment and nutrient inputs from agricultural catchments to Waikato peat lakes. Through investigating different systems including constructed wetlands and silt traps implemented to reduce sediment and nutrient loads to lakes, Rebecca is developing a toolbox to allow landowners and lake managers to confidently design and implement appropriate treatment systems to improve water quality and enhance lake restoration.

Another component of Rebecca's research is studying the effectiveness of a 'biological' fertiliser that is applied according to a tailor-made programme for each area of the farm to reduce nutrient leaching.



Floating wetland constructed by PhD student Rebecca Eivers

Welcome

LERNZ would like to introduce and welcome Monica Peters and Hannah Mueller. Hannah and Monica have recently joined LERNZ as PhD students concentrating on socio-economic research to assist with lake restoration.

Hannah completed a Master of Social Science in Environmental Politics at the University of Waikato on *Sustainable citizenship as a key to sustainability: Establishing a common ground on technology use in New Zealand's dairy sector*. Hannah joins LERNZ from Kessels & Associates Ltd, where she has been working in environmental communications.

Monica joins LERNZ from a role with NZ Landcare Trust as Waikato Regional Coordinator. Monica has a MSc in Ecology from the University of Otago focussed on *New Zealand Maori Farmers and Soil Health: Indicators, understandings and monitoring methodology*. She is well known to many stakeholders and management staff who have land interests around lakes and wetlands.

Conferences and Presentations

In June, PhD student, **Jennifer Blair** presented a talk entitled 'Epic missions and awesome climbs: the surprising abilities of New Zealand's native freshwater fish' to the Junats (Hamilton Junior Naturalists Club).

Adam Daniel has recently given talks on pest fish and lake water quality to primary school students at Nethererton School in Hauraki and five schools at the Hamilton Zoo.

In late June, **Adam Daniel** and **Nick Ling** attended the Carp Management in Australia forum in Melbourne, Victoria. Following on from the last conference in 2002 focussing on carp control options in Australia, the emphasis of this forum was on how recent work enables management of carp.



Adam Daniel measuring pest fish caught in Lake Serpentine

Recent Publications

Blair, J. M. and Hicks, B. J. 2012. Otolith microchemistry of koi carp in the Waikato region, New Zealand: a tool for identifying recruitment locations? *Inland Waters* 2(3): 1-10.

<https://www.fba.org.uk/journals/index.php/IW/article/viewFile/480/304>

Carraro, E., Guyennon, N., Hamilton, D., Valsecchi, L., Manfredi, E. C., Viviano, G., Salerno, F., Tartari, G. and Copetti, D. 2012. Coupling high-resolution measurements to a three-dimensional lake model to assess the spatial and temporal dynamics of the cyanobacterium *Planktothrix rubescens* in a medium-sized lake. *Hydrobiologia* DOI: 10.1007/s10750-012-1096-y.

<http://www.springerlink.com/content/h487626882064854/fulltext.pdf>

Carey, C. C., Ibelings, B. W., Hoffmann, E. P., Hamilton, D. P. and Brookes, J. D. 2012. Eco-physiological adaptations that favour freshwater cyanobacteria in a changing climate. *Water Research*. 46 (5): 1394–1407

<http://www.sciencedirect.com/science/article/pii/S0043135411007883>

Clapcott, J. E., Collier, K. J., Death, R. G., Goodwin, E. O., Harding, J. S., Kelly, D., Leathwick, J. R. and Young, R. G. 2012. Quantifying relationships between land-use gradients and structural and functional indicators of stream ecological integrity. *Freshwater Biology* 57 (1): 74-90.

<http://onlinelibrary.wiley.com/doi/10.1111/j.1365-2427.2011.02696.x/full>

Duggan, I. C. and Eastwood, K. R. 2012. Detection and distribution of *Craspedacusta sowerbii*: Observations of medusae are not enough. *Aquatic Invasions* 7(2): 271-275.

http://www.aquaticinvasions.net/2012/AI_2012_2_Duggan_Eastwood.pdf

Kara, E. L., Hanson, P., Hamilton, D. P., Hipsey, M. R., McMahon, K. D., Read, J. S., Winslow, L., Dedrick, J., Rose, K., Carey, C. C., Bertilsson, S., da Motta Marques, D., Beversdorf, L., Miller, T., Wu, C., Hsieh, Y.-F., Gaiser, E. and Kratz, T. 2012. Time-scale dependence in numerical simulations: Assessment of physical, chemical, and biological predictions in a stratified lake at temporal scales of hours to months. *Environmental Modelling and Software* 35: 104-121.

<http://www.sciencedirect.com/science/article/pii/S136481521200062X>

Kleinteich J., Wood S. A., Küpper F. C. Camacho A., Quesada A., Frickey T., and Dietrich D. 2012. Temperature related changes in polar cyanobacterial mat diversity and toxin production. *Nature Climate Change*. 2: 356-360.

<http://www.nature.com/nclimate/journal/v2/n5/full/nclimate1418.html>

Paul, W. J., Hamilton, D. P., Ostrovsky, I., Miller, S. D., Zhang, A. and Muraoka, K.. 2012. Catchment land use and trophic state impacts on phytoplankton composition: a case study from the Rotorua lakes' district, New Zealand. *Hydrobiologia* (DOI) 10.1007/s10750-012-1147-4.

<http://www.springerlink.com/content/e374375m3320381r/fulltext.pdf>

Rhodes, L. and Wood, S. (in press). Micro-algal and cyanobacterial producers of biotoxins "Toxins and Biologically Active Compounds from Microalgae", G. P. Rossini, Ed., to be published by Science Publishers, Enfield, New Hampshire, USA.

Smith, F., Wood, S. A., Wilks, T., Kelly, D., Broady, P. and Gaw, S. 2012. Survey of *Scytonema* (Cyanobacteria) and associated saxitoxins in the littoral zone of recreational lakes in Canterbury (New Zealand). *Phycologia*. 10.2216/11-84.1

Wood, S.A., Dietrich, D.R., Cary, S.C., Hamilton, D.P. 2012. Increasing *Microcystis* cell abundance enhances microcystin synthesis: a mesocosm study. *Inland Waters*. 2: 17-22.

<https://www.fba.org.uk/journals/index.php/IW/article/viewFile/424/292>



Deployment of destratifier in Lake Rotoehu
Photo: Andy Bruere