



Kudos to Chris McBride

Chris McBride received the Hill Laboratory Technician's Kudos Award for his "web-accessible water monitoring stations that provide real-time data for the management and restoration of lakes" in October.

Chris started working with LERNZ soon after completion of his M.Sc. in Biological Sciences at the University of Waikato in 2005. He has so far installed 13 high-frequency monitoring buoys in NZ and overseas. This network of monitoring buoys has meant that LERNZ has been a leading contributor to an international scientific community, the Global Lake Ecological Observatory Network (GLEON). The latest project undertaken by Chris has been solar powered profiler buoys. Instead of having a fixed cable suspended from the floating buoy and having to replicate sensors, the profiler buoy can slowly move between the surface and the bottom, allowing for a whole water column profile to be taken by each sensor. Chris McBride, Ari Santoso and colleagues have put together a short video clip of the first profiler buoy on Lake Rotoehu (vimeo.com/76822941). Several other profiler buoys will be deployed in NZ from next year.

Runner-up to Chris was the ever-reliable Dudley Bell who has provided LERNZ researchers with valuable technical support since the research programme commenced. Dudley has provided field work and technical support to more than 100 postgraduate students during his career.



LERNZ Workshop

A joint LERNZ/Department of Conservation two-day workshop on Invasive Fish Management and Catchment Water Quality Modelling was held at the University of Waikato in September. It brought together a range of organisations involved in lake management and research.

For more information go to www.lernz.co.nz

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The invasive fish management workshop covered organisational roles in management, incursion responses, efficacy of different control methods, ecological changes associated with introduced fish species, and human dimensions associated with coarse fish spread. The session included 17 presentations from eight agencies (selected presentations are shared: youtube.com/NZLakes), and there were 75 attendees. The Catchment Water Quality Modelling workshop provided an overview of available catchment models to quantify the impact of land management practices on water quality. It focused on the models INCA and SWAT, and there were discussions on the key issues faced in catchment management and how catchment models could best be utilised. For this part of the workshop, 8 presentations were given and there were 53 attendees.

Welcome to Dr Moritz Lehmann

Moritz started on 1 December as a Research Fellow in LERNZ IO1. He comes to us from Halifax, Canada, where he completed his Ph.D., Post-doc and most recently held a senior scientific position in one of Atlantic Canada's leading engineering and environmental consulting firms. Moritz is an experienced aquatic scientist with an interdisciplinary background in oceanography, marine biology, computer science, mathematics and statistics. He will be working on applying models to lakes in both the South and North Islands.



Visitors

From August to December 2014, we welcomed Dr Dale Robertson from USGS Wisconsin (USA), Associate Professor Helene Cyr from the University of Toronto (Canada), Chaturangi Wickramaratne from the University of Adelaide (Australia) and Alex Eppinger from the University of Applied Sciences Weihenstephan Triesdorf (Germany). Dale gave a number of seminars in both the North and South Islands and actively contributed to discussions on catchment models while he was here in NZ. Helene will be in NZ on sabbatical until July 2015, working on development of computer models for Canadian lakes.

Watershed Technology Conference

LERNZ and NIWA co-hosted the “21st Century Watershed Technology Conference” and workshops at the University of Waikato in November. The conference was part of a series from the American Society of Agricultural and Biological Engineers. The focus was on tools to mitigate adverse environmental impacts from intensive agriculture (see: <http://www.radionz.co.nz/news/rural/258498/nz-hosts-%27timely%27-water-conference>). Several members of LERNZ took part in the conference as part of the organisation and with presentations. The conference culminated in field trips to the lower Waikato River and Rotorua Lakes.

Water Symposium

The Water Symposium was hosted in Blenheim on 24–28 November 2014 as a joint conference of the New Zealand Freshwater Sciences Society, New Zealand Hydrological Society and the Institution of Professional Engineers New Zealand Rivers Group. LERNZ members contributed talks and posters on topics from rivers, lakes, and groundwater aquifers to wetlands. Over 500 attended the conference. To view the programme go to: 2014watersymposium.co.nz

NALMS 34th Symposium

Monica Peters attended the North American Association of Lake Managers Symposium (NALMS) in Tampa, Florida (Nov 12-14). Representation by community lake associations and volunteer organisations was of interest given the lack of comparable entities in NZ despite increased focus on citizen science and water quality decline. NALMS provided funding for symposium attendance, and a Fulbright Travel Award combined with funds from winning the 2013 Three Minute Thesis) competition also covered Monica’s costs.

Monica spent a week at the University of Florida investigating "Lakewatch" a well established volunteer monitoring programme. She then visited the Cary Institute in upstate New York and met with researchers engaged in citizen science and also visited the Lake Sunapee Protective Association (LSPA) in New Hampshire. The LSPA coordinates a volunteer monitoring programme. The focus of the trip was to gain understanding of volunteer monitoring programmes in order to examine the potential for developing similar programmes in New Zealand.



The photograph of northern end of Lake Wakatipu, December. Note the brown/green delineation on the mountains – where aerial fertiliser spreading stops.

GLEON in Montreal

Ari Santoso and Theo Kpodonu participated the 16th Global Lake Ecological Observatory Network (GLEON) meeting held in Montreal Canada in October (photo below), with support from a USA National Science Foundation travel scholarship. Ari and Theo presented their research on New Zealand lakes: “Pulsed emissions of methane from a small eutrophic lake” and “Changes in proportions of phosphorus species result in changes in phytoplankton community in a deep temperate oligotrophic lake”, respectively. Kohji Muraoka assisted with the organisation of the conference. He recently completed a three-year period as the graduate student chair in GLEON.



Recent publications

Collier KJ, Hamer MP, Moore SC (2014). Littoral and benthic macroinvertebrate community responses to contrasting stressors in a large New Zealand river. *New Zealand Journal of Marine and Freshwater Research* 48: 560-576. DOI:10.1080/00288330.2014.925480.

Clarkson BD, Pudney KJ, Duggan IC, Hamilton DP, Kirby CL, Bylisma RJ, Cornes TS (2014). Report to Hamilton City Council on the context for decision-making relating to the 5.1 hectares of public land adjoining Waiwhakareke Natural Heritage Park. ERI Report 38., University of Waikato .

Duggan IC, Neale MW, Robinson KV, Verburg P, Watson NTN (2014). *Skistodiatomus pallidus* (Copepoda: Diaptomidae) establishment in New Zealand natural lakes, and its effects on zooplankton community composition. *Aquatic Invasions*. 9: 195-202. DOI:10.3391/ai.2014.9.2.08.

Puddick J, Prinsep MR, Wood SA, Kaufononga SAF, Cary SC, Hamilton DP (2014). High levels of structural diversity observed in microcystins from *Microcystis* CAWBG11 and characterization of six new microcystin congeners. *Marine Drugs* 12: 5372 – 5395. DOI:10.3390/md12115372.

Rose KC, Hamilton DP, Williamson CE, McBride CG, Fischer JM, Olson MH, Saros JE, Allan MG, Cabrol N (2014). Light attenuation characteristics of glacially-fed lakes. *Journal of Geophysical Research: Biogeosciences*. Volume 119. Issue 7. 1446-1457. DOI:10.1002/2014JG002674.

Simmonds B, Wood SA, Özkundakci D, Hamilton DP (2014). Phytoplankton succession and the formation of a deep chlorophyll maximum in a hypertrophic volcanic lake. *Hydrobiologia*. Volume 745. Issue 1. 1-16. DOI:10.1007/s10750-014-2114-z.

Spears BM, Maberly SC, Pan G, Mackay E, Bruere A, Corker N, Douglas G, Egemose S, Hamilton DP, Hatton-Ellis T, Huser B, Li W, Meis S, Moss B, Lurling M, Phillips G, Yasseri S, Reitzel K (2014). Geo-engineering in lakes: a crisis of confidence? *Environmental Science & Technology* 48: 9977-9979. DOI:10.1021/es5036267.

Wood S, Pochon X, Luttringer-Plu L, Vant BN, Hamilton DP (2014). Recent invader or indicator of environmental change? A phylogenetic and ecological study of *Cylindrospermopsis raciborskii* in New Zealand. *Harmful Algae* 39. 64-74. DOI:10.1016/j.hal.2014.06.013.



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