**PhD scholarship:**

**Food web resilience in lakes**

The Lakes Ecosystem Restoration group (School of Sciences, University of Waikato) has a fully-funded PhD scholarship available to investigate food-web resilience in lakes and the potential for food-web biomanipulation to help restore ecological integrity. The work would be conducted in multiple areas of New Zealand, and will involve working with a team of lake scientists from University of Waikato, University of Otago, Cawthron Institute and NIWA (see lernz.co.nz and facebook.com/NZLAKES).

**Context for the project**

Lakes are iconic features of the New Zealand landscape but many have undergone significant degradation due to a range of human pressures. One of the mechanisms for change has been through alteration in food webs which can have cascading influences on water quality and biodiversity, affecting ecosystem stability and resilience. Quantification of trophic pathways and food-web complexity in lakes is key for understanding lake resilience and the potential for biomanipulation as a management tool.

This PhD topic will address the role of lake food web structure in conferring ecological resilience and investigate opportunities to surmount barriers to lake improvement by (i) quantifying the relationship between food web structure metrics and measures of lake resilience to eutrophication, and (ii) measuring water quality changes in response to food web biomanipulation (for example manipulating trophic cascades from fish to algae via *Daphnia*). It is envisaged that the outcome of this PhD will provide important information on the vulnerability and assimilative capacity of lakes in relation to managing nutrient loads. The project will likely include the application of stable isotope and gut analysis methods to resolve food web relationships in the study lakes, and experimental analyses in at least one of these lakes to test specific hypotheses.

**Details of scholarship**

We are looking for a high calibre student with demonstrated skills in written and oral communication and strong self-motivation. The successful candidate will have a BSc(Hons) or MSc in freshwater ecology, demonstrating experience in sampling freshwater ecosystems, sound understanding of food-web dynamics, and expertise in quantitative analysis. They must be able to work in a team and be prepared to travel as part of the project. The successful applicant should be eligible to register for doctoral studies at the University of Waikato.

The three year scholarship offers an annual stipend of $NZ 25,000 and covers course fees and operating costs for three years. The PhD scholarship is open to both domestic and international students. Applications should be sent to Kevin Collier (kcollier@waikato.ac.nz) before 30 May, and should include a full CV with the names of two referees willing to provide confidential comments of your suitability for the project, a statement of research interests and experience, and an indication of your potential start date in 2016.