Rebecca S. Eivers, PhD

Freshwater Ecologist /Constructed Wetland Specialist

Education

PhD – Agricultural Constructed Wetlands, University of Waikato, 2018

MSc (Hons) – Environmental Science/Freshwater, University of Canterbury, 2006

BSc – Zoology & Psychology, University of Canterbury, 2001

Experience Highlights

- Wetland Ecologist, Waikato Regional Council, Hamilton, August 2014-August 2016
- Freshwater Ecologist, Morphum Environmental, Auckland, 2008-2010
- Environmental Consultant, Mouchel Parkman, London UK, 2007-2008
- Field Research Assistant, Operation Wallacea, Cusuco National Park, Honduras, 6 months, 2007
- Freshwater Ecologist, Selwyn

Rebecca has ten years' experience as a freshwater ecologist and scientist working in stream, wetland and lake environments focusing on freshwater resource management issues. She has excellent knowledge of land use impacts on water quality, sources of contaminants (nitrogen, phosphorus, sediment, heavy metals and pathogens) as well as transport mechanisms and pathways. Rebecca has a comprehensive knowledge of water quality impacts on ecological health, biodiversity and ecosystem resilience, particularly regarding macroinvertebrate, fish and zooplankton communities. Her PhD research on constructed treatment wetlands in agricultural landscapes and MSc investigating riparian buffers in pine forested catchments epitomizes Rebecca's passion for applied ecological solutions to land use impacts. Both local government and consulting experience enables Rebecca to provide sound and relevant expert technical advice regarding environmental and freshwater issues relating to land use impacts and developments within private, public and industry sectors. Rebecca has project management experience overseeing work plans, organising staff and managing budgets, and has excellent communication skills with a proven ability to translate technical work for non-technical audiences. She is also proficient in using GIS mapping software, and conducting statistical analyses using R software.

Specialty areas:

Water quality

Freshwater ecology

Constructed treatment wetlands

Environmental Impact Assessments

Integrated Catchment Management

Stream Ecological Valuations (SEVs)

Selected Examples of Relevant Experience

Constructed treatment wetland guidelines for agricultural shallow lake catchments, Waikato Regional Council, 2016. Created constructed treatment wetlands (CTW) technical guidance document based on PhD research. Details designs and considerations for CTWs treating diffuse sources of nutrients and sediment from intensive agricultural land use (dairy farming).

Constructed treatment wetland, Lake Rotopiko/Serpentine, Department of Conservation, 2015. Designed constructed treatment wetland on Lake Rotopiko/Serpentine South, Ohaupo. CTW was installed to improve the water quality of two streams draining an intensive agricultural catchment and four-laned highway, flowing into the lake.

Constructed treatment wetland, Lake Ngaroto, NZ Landcare Trust, 2015. Designed constructed treatment wetland on private land within the Lake Ngaroto catchment. CTW was installed to improve the water quality of a stream draining a large intensive agricultural catchment, flowing into the lake.

Integrated Catchment Management Plan – Lake Ngaroto, NZ Landcare Trust, 2014. Created ICMP for Lake Ngaroto with NZ Landcare Trust drawing upon field assessments of ecology,

Integrated Catchment Management Plan – Lake Rotomanuka. NZ Landcare Trust, 2013. Created ICMP for Lake Rotomanuka with NZ Landcare Trust drawing upon field assessments of ecology, engineering assets and water quality.

Meola Creek Watercourse Management Plan, Metrowater/Auckland City Council, 2009. Created a Watercourse Management Plan (WMP) drawing upon stream-walk assessments of ecology and engineering assets carried out by Morphum Environmental Ltd.

Peer Review of SEV and Stream Diversion Design, Auckland Regional Council, 2009. Critiqued an Assessment of Environmental Affects (AEE) for a proposed stream diversion including the diversion design and stream ecological assessments including Stream Ecological Valuations (SEVs).

Warkworth Stream Survey, Rodney District Council, 2009. Carried out stream surveys and ecological assessments on a number of rural streams in the Warkworth area. Included assessments of ecological and chemical variables as well as assessments of engineered assets and GIS mapping.

Station Rock Subdivision, Great Barrier Island, Private Developer, 2009. Surveyed 3 native-forested headwater streams on Great Barrier Island. Included macroinvertebrate sampling, assessments of channel morphology, stability, flow velocities, water chemistry (testing for drinking water standards) and GIS mapping.

Manukau Harbour Stream Assessment, Metrowater, 2008. Assessed 3 urban streams within partially forested catchments based on the Auckland City Urban Stream Classification 2004 (Technical Publication No. 232; NIWA, 2005), the ARC Air Land and Water Plan and the Stream and Asset Survey Stream Walk Methodologies (MEL, 2007). Included assessments of ecological and chemical variables as well as engineering assets.

Recent Peer Reviewed Publications

Eivers, R.S. (2018). Constructed treatment wetlands: Tools to attenuate diffuse agricultural pollution and enhance the biodiversity of eutrophic peat lake ecosystems. A thesis submitted in partial fulfilment of the requirements for the degree of Doctor of Philosophy in Biological Sciences at the University of Waikato.

Eivers, R.S., Duggan, I.C., Hamilton, D.P., Quinn, J.M. (2018). Constructed treatment wetlands provide habitat for zooplankton communities in agricultural peat lake catchments. *Wetlands*, Volume 38, Issue 1, pp 95–108

Eivers, R.S., Hamilton, D.P., Quinn, J.M. (in review). Constructed treatment wetland design considerations to mitigate diffuse pollution from intensive agricultural peat lake catchments. *Submitted to Ecological Engineering*.

Eivers, R.S., Hamilton, D.P., Quinn, J.M. (in review). Spatial and temporal complexity of nutrient and sediment loads to peat lakes from intensive agricultural catchments. *Submitted to Nutrient Cycling in Agroecosystems*.

Eivers, R.S. (2006). The response of stream ecosystems to riparian buffer width and vegetative composition in exotic plantation forests. *MSc thesis, Department of Biological Sciences, University of Canterbury, Christchurch, NZ.*

Eivers, R.S., Norton, D.A. & J.S. Harding (in prep). The response of pine forested stream invertebrate communities to forest age and riparian composition. *Journal of Marine and Freshwater Research.*

Eivers, R.S. & J.S. Harding (in prep). The influence of vegetative age and composition at multiple scales on stream geomorphology and water chemistry in pine plantations. *New Zealand Journal of Marine and Freshwater Research*.

Selected Reports

Eivers, R.S. (2016). Guidance & considerations for design and installation of constructed wetlands in shallow lake catchments. Waikato Regional Council Internal Series 2016/10. *Technical report prepared for Waikato Regional Council.*

Eivers, R.S. (2014). Lake Serpentine South: Inflowing Drain Water Quality. Centre for Biodiversity and Ecology Research, The University of Waikato. *Report prepared for Waikato Regional Council*.

Eivers, R.S. & D. Young (2009). Little Shoal Bay Stream - Stream Ecological Evaluation. *A report prepared for the North Shore City Council.*

Eivers, R.S. & D. Young (2009). Alexandra Stream - Stream Ecological Evaluation. *A report prepared for the North Shore City Council.*

Eivers, R.S., Coup, J. & D. Young (2009). Meola Creek Watercourse Management Plan. *A report prepared for Auckland City Council & Metrowater.*

Clarke, C. & **R.S. Eivers** (2009). Stream Survey and Asset Assessment of the Warkworth Catchment. *A report prepared for Auckland City Council & Metrowater.*

Coup, J., **Eivers, R.S.** & D. Young (2009). Manukau Harbour Streams Survey and Classification. *A report prepared for Auckland City Council and Metrowater.*

Eivers, R.S. & J.S. Harding (2005). Assessment of the ecology of Tumbledown and Te Oka Bay streams. *A report prepared for Selwyn Plantation Board Ltd.*

Recent Presentations

Eivers, R.S., Hamilton, D.P., Quinn, J.M. (2013). A decision making toolbox for constructed wetland design within areas of intensive agricultural land-use. Poster presentation. *New Zealand Freshwater Sciences Society Annual Conference, Hamilton, NZ.*

Eivers, R.S., Hamilton, D.P., Quinn, J.M. (2012). Attenuating Sediment and Nutrient Losses from Intensive Agriculture – Restoring Eutrophic Shallow Lakes. Oral presentation. *13th International Conference Wetland Systems for Water Pollution Control, Perth, Australia.*

Eivers, R.S., Hamilton, D.P., Duggan, I.C., Quinn, J.M. (2012). The dual benefits of constructed wetlands: Pollutant attenuation and habitat provision. Poster presentation. *National Wetland Symposium, Invercargill, NZ.*

Eivers, R.S., Hamilton, D.P., Quinn, J.M. (2011). Restoring Eutrophic Shallow Lakes using Constructed Wetlands: Pollutant attenuation & Habitat Provision. Oral presentation. *Joint Australian Society for Limnology and New Zealand Freshwater Sciences Society Conference, Brisbane, Australia.*

Eivers, R.S., Hamilton, D.P., Quinn, J.M. (2011). Attenuating Sediment and Nutrient Losses from Intensive Agriculture – Restoring Eutrophic Shallow Lakes. Oral presentation. *15th International Conference of the IWA Diffuse Pollution specialist Group, Rotorua, NZ.*

Eivers, R.S., Hamilton, D.P., Duggan, I.C., Quinn, J.M. (2011). Lake Restoration and the Dual Benefits of Constructed Wetlands - Habitat Provision and Pollutant Attenuation. Oral presentation. *New Zealand Ecological Society Annual Conference, Rotorua, NZ.*

Eivers, R.S., Hamilton, D.P., Quinn, J.M. (2010). Attenuating Sediment and Nutrient Losses from Dairy Farms – Restoring Shallow Peat Lakes. Poster Presentation. *New Zealand Freshwater Sciences Society Annual Conference, Christchurch, N.Z*