



Phil Taylor

Qualifications

MSc Ecology (Hons), Victoria University
BSc Ecology and Biodiversity, Victoria University

Professional affiliations

Environment Institute of Australia and New Zealand
Certified Environmental Practitioner (CEnvP)
New Zealand Society of Freshwater Sciences (NZFSS)
Advocates of the Tongariro River

Career Summary

Phil has 14 years of consulting experience as a freshwater ecologist. Phil has experience in botanical, macroinvertebrate, periphyton and fish ecology and extensive experience in data analysis using multivariate and univariate techniques. In his fourteen years of industry experience, Phil has gained experience in a number of compliance and environmental impact projects, and has conducted a number of research and development projects using new ecological tools such as Environmental DNA. Phil has worked on a range of small and large projects for clients in the mining and water utility sectors and also completed projects for Local, Federal and Commonwealth Government agencies.



Employment Record

Senior Freshwater Ecologist – Freshwater Solutions Ltd: 2020 – Present

Responsible for project management, preparing budgets and invoices, health and safety, preparation of proposals, freshwater sampling and technical report writing.

Senior Freshwater Ecologist – GHD, Water Sciences Group. Canberra, ACT: 2012 – 2019

Responsible for proposal preparation, technical report writing, health and safety and research & development. This role also included project management and representation on environmental reference committees, technical report writing, complex statistical analyses and modelling, research and development, business development and a busy field-work load.

Environmental Project Officer – Ecowise Environmental, Canberra, ACT: 2007-2012

Part of a multi-disciplinary water and environment team and was significantly involved in drinking water catchment restoration following the 2003 bushfires. This role included technical report writing, research and development and field-work.

Technician – Natural History, Te Papa, Wellington, New Zealand: 2005 -2007

Responsible for collection management in the botany and marine technicians' team. Undertook field work, taxonomy and quality assurance and control in the herbarium and marine collections.

Selected Project Experience

Mining sector

Bathurst Resources Limited – Assessment of inline culvert on fish passage

Cadia Valley Operations – Monitoring programme to assess impact of low flows on aquatic fauna. Study design and novel application of e-DNA to assess the impacts of a cease to flow regime on Mountain Galaxias and Platypus.

Cadia Valley Operations - Special investigation of stream contamination. Impact assessment relating to the aquatic macroinvertebrate communities and water quality following observations of elevated heavy metals in an ephemeral creek related to a mine. The resulting report was provided to the EPA.

Cadia Valley Operations – Freshwater ecosystem monitoring project – 10-year data review (2006-2016). Macroinvertebrate, fish and water quality have been monitored in the receiving waters in Cadia Valley in relation to a gold mine operation for the past ten years. A historical review of these data was completed to assess whether there any significant long-term trends and which key environmental or other factors may be driving these patterns. The outputs from this project fed into the environmental management plans for the mining operations and guide future reporting and monitoring requirements through optimisation analysis.

Confidential Client - Coal mine dam breach impact assessment – Freshwater Ecology. Contracted to undertake field work and report on whether or not there was a detectable impact to the aquatic macroinvertebrate communities and water quality following a breach of the main holding dam at a coal mine in a world heritage region. Completed the impact assessment, provided a summary of the existing condition of the river and conducted all statistical analyses on the macroinvertebrate and water quality data. This was a complex set of analyses owing to a general absence of data prior to the incident and multiple data sets from various organisations.

Dairy industry

Fonterra Co-operative Ltd - Ecological compliance monitoring. Mangapiko Stream ecological monitoring to meet Fonterra's Resource Consent Conditions

Local Government

New Plymouth District Council - New Plymouth City fish passage assessment. Implementation of a fish survey to assess the success of installing fish passes at barriers throughout the city of New Plymouth.

New Plymouth District Council - Inglewood infiltration gallery assessment. Completed a water quality and ecological effects assessment of the Inglewood Infiltration Gallery water take and WTP discharge; and an ecological effects assessment of the Contingency intake and weir.

New Plymouth District Council – Assessment of ecological effects. Completed a lake monitoring programme designed to assess the effects of drawdown options in Lake Mangamahoe.

New Plymouth District Council – Assessment of ecological effects. Waiwhakaiho River.

Waipa District Council - Mangapiko Stream water quality and biological monitoring.

Bega Valley Shire Council - Bridge and associated effluent pipeline repairs at the Bega STP, NSW – Review of Environmental Factors. Aquatic ecology component of the Review of Environmental Factors for the proposed bridge repair over an anabranch of the Bega River.

Cairns Regional Council - Water Quality Review for the Trinity Inlet (1999-2014). This review included trend analyses and group comparisons between treatment groups to assess temporal and spatial trends. Canonical Analysis of Principal Components was used to produce a model that could potentially be used to classify sites, whose treatment group membership was ambiguous. This review helped rationalise the councils monitoring programme for water quality.

Goulburn Mulwaree Council - Biological Monitoring Programme. Macroinvertebrate study to establish baseline river health characteristics prior to, and then following the upgrade of a regional STP.

Brisbane City Council. Local waterways health assessment: Fish, Macroinvertebrate and Macrophyte technical report.

Government

Australian Federal Police – options report for the decommissioning of an effluent pond. One of the options for the decommissioning of the effluent pond at an AFP site is to convert the existing pond into a functional wetland. Phil was responsible for delivering this as an option to the AFP, which included advice on the ecological assessment, costs and cost benefit of the project.

Fire Services NSW - PFAS sampling in the marine environment. This work involved the collection and post sampling logistics of water, sediment and fauna samples for a PFAS investigation relating to human health. Sample integrity and equipment decontamination were vital for the success of this project.

National Capital Authority - Lily Pond specifications review. Review of the tender specifications relating to the dredging and transport of sediment and aquatic biomass from Lily Pond in Commonwealth Park.

National Capital Authority - SolarBee Trial assessment on Lake Burley Griffin. Analyses of destratification trials carried out for the National Capital Authority to test the efficiency of the solar units.

Western Australia Department of Water - Lower Ord River Biological Monitoring and Assessment Programme. This programme was designed to monitor the ecological values identified in the Lower Ord River in relation to a water sharing programme. An impact assessment and power analysis was performed on a number of fish metrics and macroinvertebrate community data to determine the effect of the water sharing programme.

Roads and Maritime NSW - Gee Gee Bridge replacement REF. Aquatic Ecology Component of the Review of Environmental Factors for the bridge upgrade on the Wakool River.

Roads and Maritime NSW- Lansdowne Bridge Replacement. Freshwater Ecology Component of the review of environmental factors for the proposed bridge realignment on the Mulwaree River.

ACT integrated water quality monitoring framework – ACT Government. This project involved a holistic approach to the integration of groundwater, surface water and biological monitoring across the ACT and aimed to bring the ACT's current monitoring network up to date to meet the requirements of the Murray-Darling Basin Plan. Phil's role on this project was to produce: 1) a critical review of the temporal and spatial aspects contributing to the operational effectiveness of Waterwatch; 2) a review of all ACT macroinvertebrate monitoring sites in terms of their appropriateness to the objectives of the monitoring programme; 3) statistical analysis of default water quality parameters used in MUSIC modelling versus actual event-based samples collected from six sub catchments with various degrees of imperviousness and agricultural land use categories; 3) Power analysis of base line and event sampling data to determine current gaps in the monitoring network.

Water Utilities

Icon Water - Cotter Catchment Rehabilitation Projects. Following the bushfires in Canberra in 2003 the major water supply catchment was severally burnt, compromising the quality of Canberra's drinking water. The resulting rehabilitation work involved: 1) Water quality sampling design and analysis of time series data; installation and analysis of rising stage samplers in key sites in the Lower Cotter Catchment; 2) a critical review and analysis of catchment wide water quality data pre- and post-bushfire. This component of the project specifically addressed water quality recovery times to pre-fire conditions; and assessed how water quality responded to changes in land-use practices in the lower catchment; 3) Semi-

quantitative erosion monitoring was conducted on cut slopes in the Lower Cotter to estimate the relative sediment volumes delivered from the slopes compared to the forestry roads; 4) design of artificial fish habitat.

Murrumbidgee Ecological Monitoring Project – Icon Water. The Murrumbidgee Ecological Monitoring Programme began in spring 2008 to assess any potential impacts of Icon Water's major water security initiative. This work encompasses both broad scale and finer scale assessments of macroinvertebrate, periphyton and water quality through much of the watershed.

Icon Water - Lower Molonglo Water Quality Control Centre (LMWQCC). Project management, field work and delivery of the long-term compliance monitoring programme.

Icon Water - TDS tolerance in Lower Molonglo River. The aim of this project was to provide a detailed assessment of the aquatic ecosystem tolerance to TDS, with consideration of the major ionic components, with the intention of improving knowledge of risk posed by TDS inputs to the Upper Murrumbidgee Catchment from the LMWQCC effluent discharge.

Icon Water - Review of water quality and streamflow guidelines in the Murrumbidgee River and Burra Creek. The operation of Icon waters M2G water security project, is governed by a streamflow and water quality management plan. A detailed review of water quality trigger values and hydrological data was undertaken using Quantile regression, trend analysis and equivalence testing procedures.

Icon water - Lower Molonglo Water Quality Control Centre – Fish Survey. The purpose of this study was to confirm the absence of Golden Perch and Murray Crayfish downstream of the Lower Molonglo River Waste Water Treatment Plant.

Shoalhaven Water - Porters Creek Dam Options Study. Ecological evaluation and recommendations of the potential risks associated with three drawdown options for the required construction and reinforcement of Porters Creek Dam wall.

Icon Water - Review of the impacts of horses in water supply catchments.

Icon Water - Hydrological study of flow times on the Murrumbidgee River. Investigation of flow travel times between key gauging stations on the Murrumbidgee River under various high flow events. The results from this study were used to assess the feasibility of install SMS warning messages at specific stations on the Murrumbidgee River. Polynomial regressions were used to derive algorithms as a prediction tool.

Icon Water - Interstitial oxygenation in the Cotter River, ACT. Pilot study to investigate a novel way of measuring the impacts of fine sediments on oxygen exchange in the hyporheic zone and the impacts on macroinvertebrate communities.

Other

Western Sydney Airport. Co-author of the environmental impact statement for the new western Sydney Airport development in Badgery's Creek. Identified risks to the aquatic environment in relation to the project and relate this back to the current condition of the water ways.

Ardmore Airport. Assessment of ecological effects of a WWTP located at Ardmore Airport. This work involved a field survey of fish, macroinvertebrates and water quality monitoring as part of the airports consenting process,