Envirolink Newsletter

Newsletter – Winter 2025

Coordinator's note

Greetings

I hope this newsletter finds you well and enjoying a pleasant Aotearoa winter. MBIE has confirmed that Envirolink will continue from 1 July 2025 so it is business as usual.

Envirolink continues to deliver value to regional councils transferring environmental research knowledge from government-funded science providers. The Envirolink fund will have a budget from 1 July of $2.0M (ex GST). Nominally $1.4M is allocated to advice grants and the remaining $0.6M to Tool projects but there is some flexibility in allocation.

The funding thresholds for the three advice grant classes remain at: Small ($10K), Medium ($40K), and Large (up to $80K). There will be a Tool round closing 7 October 2025. As per previous rounds the tool applications need to being submitted by a SIG. Details on how to apply are available on the website **http://envirolink.govt.nz/.**

Please contact me if you have any questions.

Bill - (BillDyck@xtra.co.nz)

New tools available

There are 57 resource management tools developed through the Envirolink scheme and available on the website, and more being developed. See https://envlink.govt.nz/envirolink-tools/

The most recent tool to be added is:

R18-2 DNA reference sequences for freshwater insects and marine fishes

This project has generated DNA sequences for priority New Zealand (NZ) freshwater insects and fishes to enable their detection using environmental DNA (eDNA). The team produced a video that describes the project purpose and motivation, and the project approach. Many more outputs and outcomes are included in the tool report.

New reports now available

Several new reports are available on the Envirolink website. There have been more than 1500 projects most of which have produced reports posted to: https://envirolink.govt.nz/envirolink-reports/. Newer reports include:

2423-MLDC170 Background information on the parchment worm Chaetopterus sp.

The University of Waikato was commissioned by the Marlborough District Council to conduct a desktop assessment of key technical information related to *Chaetopterus* sp. This assessment aimed to identify potential impacts on local marine ecosystems and industry, explore possible establishment pathways, and highlight gaps in current knowledge. Key findings are reported.

2423-MLDC170 Background information on the parchment worm Chaetopterus sp. info sheet

What we don't know yet:

- Whether they are invasive or native.
- Information regarding community dynamics and their broader impact on native fauna.
- Their impact on seafloor functioning, including their influence on the benthos.
- Information on population dynamics including growth rates and reproductive cycles.
- Their risk to commercial and recreational fisheries and other marine industries.

2309-NLRC233 Periphyton nutrient criteria and drivers for Northland rivers

NRC approached NIWA and LWP Ltd requesting further analysis of the NRC periphyton dataset. There were three main motivations for the request: (a) the requirement in Clause 3.13 in the NPS-FM 2020 to set concentration criteria for DIN and DRP for periphyton and other nutrient-affected attributes, (b) the recent availability of national nutrient criteria for periphyton and guidance around their use and (c) local deadlines related to notification of new Northland Regional Plan provisions to give effect to the NPS-FM.

2346-HBRC271 Risk assessment of sediment displaced in the Waitangi Catchment following Cyclone Gabrielle

Overall, the results from this study suggest that the toxicity and chemicals detected are what would be expected from a typical agricultural soil. The risk posed by the displaced sediment in the Waitangi catchment can be considered low. Nonetheless, some caution is warranted for handling and disposing of the sediment material.

2436-TSDC193 Cross section measurement methods during floods for surface velocimetry

This report provides a literature review of contact and non-contact cross section measurement methods. It covers both traditional well-established methods and state of the art methods being developed in New Zealand and internationally.

2436-TSDC193 Surface image velocimetry – Data collection from drones and helicopters – Field Check List

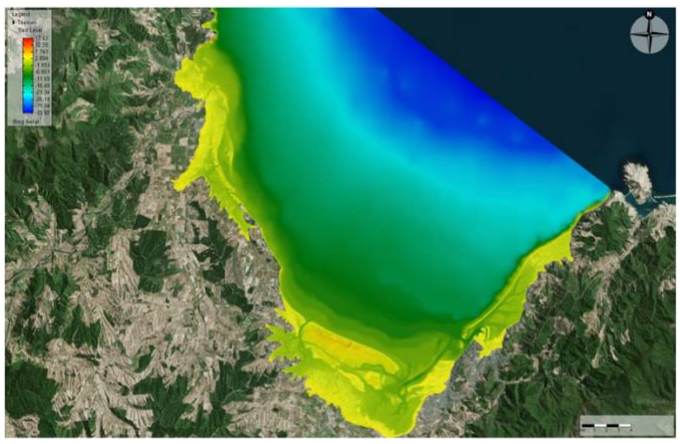
2437-ORC013 Potential development of a verified type locality database of species to support the protection of indigenous biodiversity by local government authorities

One attribute for the designation of an SNA is the presence of the 'type locality' of an indigenous species. In this report we describe the definition of type localities and present an analysis of how this information could be collated and used. We include estimates for the work required to complete an inventory of New Zealand type localities and suggestions for prioritisation.

2418-ESRC508 Studying Anthropause effects on marine ecology in New Zealand - a statistical assessment

This project analysed ecological response variables to understand the possible ecological impacts of marine tourism. Our main hypothesis was that the reduction in marine tourism activity as a result of the COVID-19 travel restrictions (the Anthropause) led to measurable differences to our indicator ecological proxies. This study shows that there is some evidence for an effect of the Anthropause within each of the three different lines of evidence investigated: water quality, litter and biological.

2440-TSDC194 Moutere and Waimea estuary extreme sea level assessment



The numerical model investigation has demonstrated that the physical characteristics of Waimea Estuary, particularly the contrast between the open eastern basin and the constrained western basin and Moutere Estuary, lead to significant differences in how each estuary responds to tides, storm tides, and wave energy.

2442-NLCC130 The Threatened Marine Taxa (TMT) tool - software design and feasibility considerations

Cawthron reviewed the feasibility of designing and developing a cross-referencing software analysis tool that will identify and locate existing records of threatened indigenous marine taxa in Aotearoa New Zealand, i.e. the Threatened Marine Taxa (TMT) tool. The design of the TMT tool application (app) should consider two main functions: identifying TMT from selected or uploaded records / databases, and predicting where TMT might be present, based on species distribution layers.

2412-ORC008 Giving effect to councils biodiversity obligations for specified highly mobile fauna

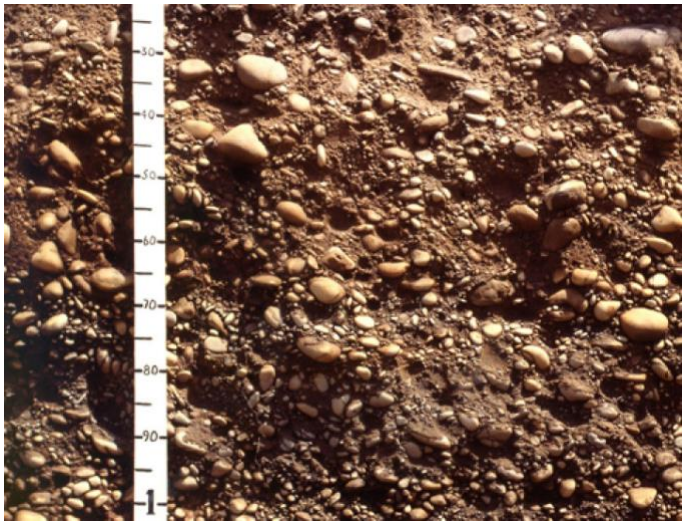
Several key outstanding data requirements have been identified for identifying and managing highly mobile fauna areas. The lack of accurate distribution data is a key impediment to implementing NPS-IB requirements. For local authorities, a key challenge is lack of a clear definition on what constitutes a highly mobile fauna area, especially given there is a significant temporal component to the distribution of highly mobile fauna.

2412-ORC008 Appendix 2 - Mobile Fauna factsheets Forest & Open

2342-ORC007 Using Radon to Understand the Lower Kauru River FINAL (002)

This report details a combined approach using Radon-222 and concurrent flow gauging to investigate groundwater – surface water interaction between the Kauru River and aquifer. The results show that the river and aquifer are highly connected along the lower Kauru River.

2502-TSDC196 Mitigating the leaching of nitrate from stony soils on the Waimea Plains - a literature review



The recommendation for this review was that given the shallow depth of Ranzau soils, it is critical to develop a thorough understanding of nitrogen cycling in these cropping systems, and the relationship of this cycling to management practices (including irrigation and fertiliser applications for the specific crops being grown), in order to better quantify the potential benefits of soil amendments to minimise nitrate leaching.

2328-HBRC269 Assessing and accounting for the influence of changes in laboratory measurement methods on the interpretation of long-term time-series data

The broad approach recommended in this guidance involves taking parallel measurements using the old and new laboratory measurement methods. These measurements are then used to estimate the systematic difference between the results of the two methods, known as bias. Then, these estimates of bias can be used to make corrections.

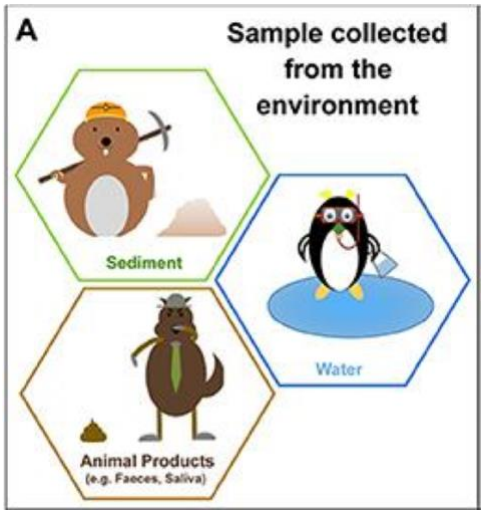
2430-MLDC171 Strategies for updating soil information for the Marlborough Sounds- pathways to strategic management of surface sediment loss and mass movement

The workshop concluded that a full-scale S-map soil survey would be cost-prohibitive, but that a modified approach, focusing on high-risk areas and using lower-resolution mapping where appropriate, would provide the most efficient use of resources. Adequate funding, along with strategic partnerships, will be essential to support this effort and ensure the delivery of high-quality, peer-reviewed science.

2424-ORC010 Land use change in Otago's hill and high country and implications for indigenous biodiversity

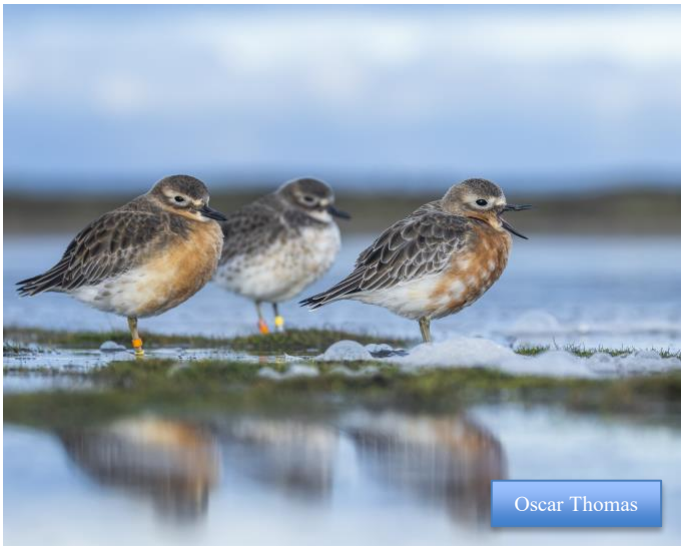
Otago's biodiversity is in a situation of vulnerability. This reports leverages knowledge about recent historical decisions and the resulting current biodiversity situation to strategise maintenance of biodiversity on a regional scale to achieve the objective of Resource Management Act (RMA) and the National Policy Statement on Indigenous Biodiversity (NPSIB).

2323-TSDC186 Use of eDNA in the assessment of groundwater



While environmental DNA can be a valuable tool in monitoring groundwater species, the current literature highlights that this methodology is still developing, and our understanding of optimally conducting and interpreting environmental DNA results is still progressing. This report provides an overview of environmental DNA methodology and outlines the advantages and limitations of this method when used in groundwater research.

2448-ORC015 ¬Species lists for regional and unitary councils to inform biodiversity management



The objectives of this project were to work with taxonomic experts to compile species lists by region for four taxonomic groups: amphibians, bats, birds, and reptiles. In addition, taxonomic experts were able to compile species list for indigenous vascular plants in Nelson-Tasman region and Southland region. For every taxon listed, the taxonomic experts assigned the unique identifier from the New Zealand Threat Classification System to ensure backward and forwards compatibility with the national tool to assess threat status. The output of these species lists is an Excel spreadsheet for each group.

2413-GSDC174 Combustion of LWD immersed in seawater

This report assessed the processes and the potential impacts of open-firing of seawater-immersed wood on human health and environment based on available literature. The impacts are related to released compounds from combustion of wood and absorbed salts from seawater. Combustion of the seawater immerged wood would increase the negative impacts of burning non-immerged wood as the wood would be wetter thus the combustion temperature is lower and requires longer time to burn completely than normal slash wood. Release of Cl and SO related compounds would be undesirable.

2403-NLRC240 Droughts in Northland - A Local and Regional Analysis

This report examines drought for the whole Northland region. Analysis is restricted to droughts characterised by severity, duration and frequency or return period. Severity is measured by the Standardised Precipitation Index. Based on severity alone, the three worst drought years (with the first year the worst) were: 1987, 1913 and 1990. Based on duration alone the three worst drought years were: 2019, 1993 and 1913. Tests of Standardised Precipitation Index values showed no consistent and significant temporal trend in drought occurrence.

2427-ESRC301 Identifying knowledge gaps to aid in managing three shallow coastal lakes in Southland

The analysis of water quality data for all three lakes studied showed that all three lakes are currently eutrophic. It is important that immediate action is taken to prevent any further degradation of these lakes. This will require ongoing monitoring and

targeted studies as outlined in the recommendation section below. This work will help determine the likely causes of degradation and ensure the effective use of resources to enhance protection and restoration.

2428-TSDC192 Evaluation of cyanotoxin risk in shallow groundwaters using SPATT samplers

Due to a lack of anatoxin- producing cyanobacteria in the Wai-iti River during the sampling period the case study was unable to provide clarity on whether anatoxins can enter the groundwater supply. However, the sampling protocols and decision frameworks developed will be useful for future evaluations of the cyanotoxin risk in groundwater supplies close to cyanotoxin-contaminated surface waters.

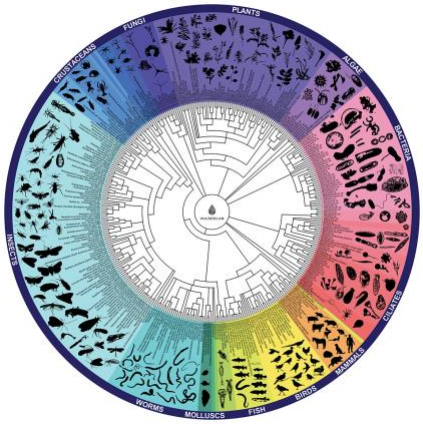
2414-MLDC168 Potential influence of Wairau Catchment historical land cover change on Wairau Aquifer levels

This report examines the impact of historical land cover changes on the groundwater levels of the Wairau Aquifer in the Marlborough District from the 1960s to the present. The results from this study do not provide conclusive evidence that land cover changes have directly contributed to the reduction in groundwater levels in the aquifer. The impact of land cover change may be relatively small compared with abstraction.

2524-TRC011 Investigating drivers of temporal patterns in freshwater macroinvertebrates metrics in Taranaki

This project summarised the temporal and spatial data readily available for potential proximate stressors of macroinvertebrates at SOE macro-invertebrate monitoring sites. It also examined whether sites showing degrading or improving trends in macroinvertebrate metrics differ in key contributing attributes. In addition, it explored relationships between temporal patterns in macroinvertebrate metrics and potential key stressors, including climatic conditions.

2526-HBRC277 Building an effective eDNA biosecurity dashboard



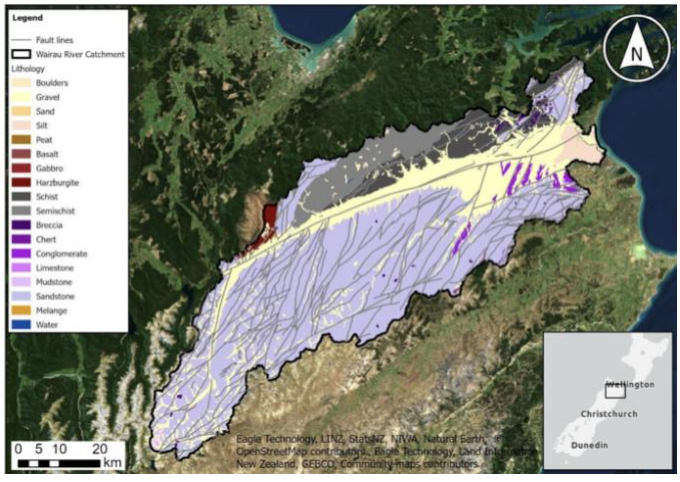
This report summarises the outcomes of a February 18, 2025, workshop convened in Wellington to explore the development of an environmental DNA (eDNA) biosecurity dashboard for New Zealand. This initiative aims to improve the early detection of invasive species, enable more effective biosecurity responses, and potentially support broader biodiversity monitoring. Although eDNA is being

used for biosecurity purposes now, the lack of a coordinated, interoperable, and sustainable approach to data sharing and use is limiting its effectiveness.

2505-NLRC243 Review of current control methodologies of Madagascar ragwort (Senecio madagascariensis) and control trial design

This project reviewed current methods of control for Madagascar ragwort and proposes trials that would provide reliable advice for the control of the weed. Overseas experts were contacted for advice and to gain insights about unpublished research. Local farmers and weed control operatives were interviewed to understand the impact of the weed and how they are currently controlling it. Key finds are reported and avenues of research identified.

2525-MLDC177 Wairau River and Lagoon Geomorphic Assessment



MDC commissioned NIWA to help them understand the geomorphic processes of the Wairau River that have formed and continue to form the river, particularly as it flows across the lower Wairau Plains and its connection with Vernon Lagoon. This geomorphic assessment is part of a larger work package intended to enhance their understanding of the local physical landscape and inform some of their core functions, including science, policy, river management, and infrastructure management.

2408-NLRC241 Technical advice for environmental monitoring and nutrient modelling in Lake Ngātu

The objective of this project was to provide technical advice on environmental monitoring, model input requirements, and an action plan and cost estimate for nutrient modelling for Lake Ngātu in Northland. It is suggested that a catchment model (e.g., SWAT) be developed to simulate nutrient loads from overland runoff after rainfall, linked to a lake water quality model (e.g., PCLake/PCLake+) that simulates nitrogen and phosphorus dynamics in Lake Ngātu.

2444-ORC14 Natural uncommon ecosystems - recommendations for updating the list

The project utilised expert knowledge to review and make recommendations for updating the list of naturally uncommon ecosystems (NUEs). This report documents the discussions and information gathered to support that update, including collating the information for systems that we agreed needed revision or adding, and for the suggested revisions

and additions that were not supported at this stage. The report suggests that as new research is carried out and a better understanding of the systems is gained, the NUE list will again evolve to reflect the new knowledge.

Any changes or modifications need to be aligned with the work being done elsewhere on NUEs (by the Department of Conservation and Ministry for the Environment), and on the wider question of aligning New Zealand ecosystem classification with that of the IUCN GET.

Emergency Weather Recovery Advice Fund (WRAF) Reports

In addition to Envirolink reports there are reports from the Emergency Weather Recovery Advice Fund that was managed by the Envirolink Coordinator. This MBIE fund enabled regional councils affected by the North Island extreme weather events in early 2023 to access science advice to inform their ongoing recovery efforts.

WRAF002 Assessing the effectiveness of trees for landslide mitigation in Hawke's Bay [PDF, 1.8 MB]

WRAF003 Resilience beyond the storm - harnessing environmental DNA (eDNA) insights to inform post-extreme weather recovery strategies [PDF, 7.4 MB]

WRAF005 Poplars and willows as bioengineering solutions for riverbank flood protection –learnings from Cyclone Gabrielle [PDF, 12 MB]

WRAF006 An overview of available frameworks and data requirements to account for direct, indirect and intangible flood costs for business-case development [PDF, 2.5 MB]

WRAF007 Advice on and preparation of evacuation risk and survivability guidelines for New Zealand flood waters [PDF, 1.3 MB]

WRAF008 Independent Review and Gap Analysis of the Gisborne District Council Flood Warning Manual [PDF, 509 KB]

Related reports not funded by WRAF.

Ecological impacts of Cyclone Gabrielle [PDF, 17 MB]

And more at Envirolink Reports Web: http://envirolink.govt.nz/