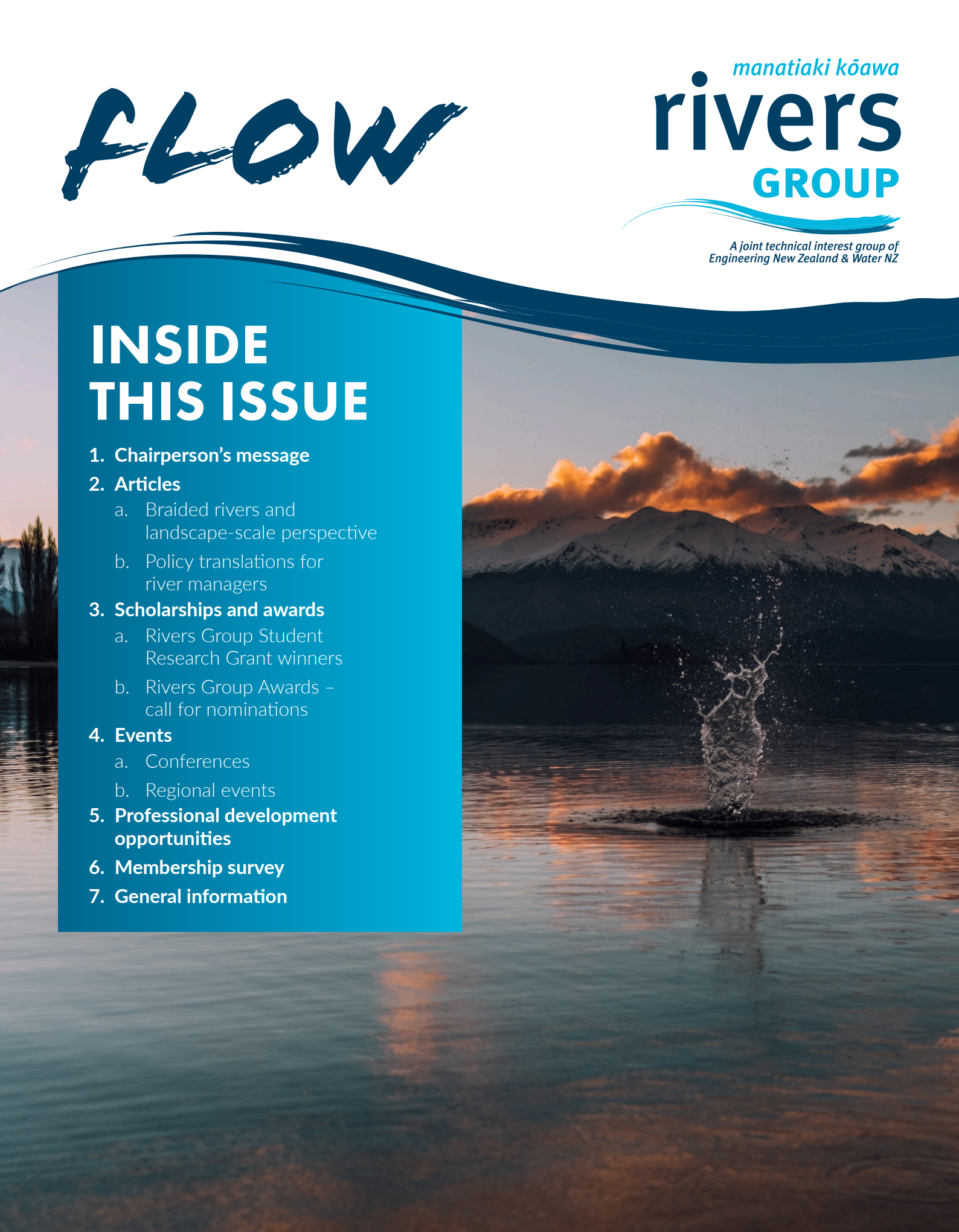
flow

manatiaki kōawa
rivers
GROUP

A joint technical interest group of Engineering New Zealand & Water NZ



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NEWSLETTER

Issue 44 | September 2024

FROM THE CHAIR

Richard Measures

Kia ora koutou,

Welcome to spring! Time flies and it seems like only a few weeks ago I was writing the update for our last newsletter. Looking back over the last three months and forward to the next, there's quite a lot going on in the rivers space.

Rivers Group Conference

This years' conference is in Napier from 6–8 November with the theme Ka Mua Ka Muri / walking backwards into the future. The final details of the conference program are being ironed out and abstract submissions closed recently. The speaker and field trip plans are looking really exciting. Registrations are a bit behind previous years at this stage, so if you are thinking about going, please go ahead and register soon so we can better plan for the correct number of people.

Awards

The Rivers Group annual awards are open for nominations, with details in this newsletter. If you know someone who deserves recognition, then please consider nominating them for one of our awards.

Survey

You should have received an email linking to our members survey. This is an opportunity to help set future priorities for the group and to let the committee know how well we are meeting the needs of the wider membership. We haven't had a survey for a few years so please take the time to click on the link – it shouldn't take long. The survey is scheduled to close on Friday, 13 September.

Advocacy

The last few months have been very busy for the Rivers Group in terms of advocacy. I have to say I'm looking forward to the pace of new legislation slowing down! In June, we presented our submission opposing the Fast Track Approvals Bill to the Environment Select Committee. It is pleasing that some of our points have subsequently been addressed in amendments to the Bill, although our primary concern (that the Bill's single focus on development will enable development in floodplains) remains. We also presented our submission (written last year) on Climate Adaptation to the Finance and Expenditure Select Committee, highlighting the reasons why we urgently need legislation and funding to support climate adaptation. This was echoed by almost all submitters so hopefully there is some traction in this space.

At short notice, we made a submission opposing the Resource Management (Freshwater and other matters) amendment bill, presenting our submission to the Primary Production Select Committee. This legislation seeks to remove the Te Mana o Te Wai hierarchy of obligations (in NPS-FM) from resource consenting. Reflecting on the Q&A following our and other submissions, I found it quite revealing that many of the ministers on the committee did not really understand Te Mana o Te Wai.

Regional council initiatives

The NZ Rivers Group is a technical interest group and is separate from the regional councils. However, the Rivers Group does collaborate closely with the regional council River Managers Special Interest Group, and the Resilient River Communities Initiative they are linked to. In the last couple of months, I've been fortunate to attend both the Flood Warning Symposium and the Gravel Management Workshop which they have organised. It was great to participate in these technical discussions.

Another notable development in the regional council space which has wide implications for river management is the significant central government co-funding for flood resilience infrastructure which was announced at the end of May. This funding boost was in response to the "Before the deluge 2.0" funding case made by the councils.

In closing

The Rivers Group wouldn't exist without the involvement of our members. Please do let us know via the survey or by contacting the committee directly (rivers.group@engineeringnz.org) if you have any suggestions or concerns. I look forward to seeing as many of you as possible at our conference.

Noho ora mai,

Richard Measures
Chair

Braided rivers and landscape-scale perspective

Holly Harris

Floodplains are some of the most globally threatened ecosystems. These landscapes are dynamic environments that comprise both river and land where water periodically flows during high flow or flood events. Braided rivers are a specific subset of gravel-bed rivers and their associated floodplains which are naturally rare worldwide, although relatively common in New Zealand. These rivers are highly dynamic rivers which form in areas where steep gradients combine with flashy flows, an abundant supply of bedload-calibre material, and erodible banks to create extensive gravel-based floodplains. Notably, braided river floodplains are characterized by heterogeneous channels in longitudinal, lateral, vertical and temporal dimensions (Tockner et al., 2006; Figure 1). In New Zealand, these landscapes are subject to a myriad of homogenising land-use changes such as encroachment, weed invasion, development and water abstraction.

Barren, or high ecological value?

Traditionally, braided rivers were thought of as ecologically barren from an aquatic perspective. The major channels in the central gravel plain are home to a few invertebrate species such as Deleatidium mayflies and little chironomid midges. From a river management perspective, these rivers provide gravel resources and pose high flood risk, with little ecological value in the major channels. However, to an ecologist, braided rivers are a nexus of ecological diversity, dynamic changing environments that serve not only as their own special landscape but also and a corridor for migratory birds, fish, and, in the northern hemisphere, megafauna such as bears and moose.

We only glean this perspective by considering the whole braided river landscape. For example, we found the major channels of Te Awa-a-Takatamira | the Cass River, in Tekapo, have low invertebrate diversity (mean = 10 taxa). However, other channels in the braidplain, such as the minor-channels (mean = 17 taxa), mid-channel (mean = 16 taxa), and lateral springs (mean = 22 taxa), contribute different species to the overall landscape diversity (river total = 70 taxa). Each of these channel types has different hydrology, flow disturbance histories, and temperatures, which suit different invertebrate species, thus greatly increasing total biodiversity. Te Awa-a-Takatamira is not unique in this regard; Gray et al. (2006) found the greatest amount of biodiversity in lateral channels of braided rivers across New Zealand. These channels would not exist without the dynamic back and forth of the major channel and flow variability over time creating space for springs to emerge and old channels to shrink and become hydrologically separate. Additionally, over 500 (and over 1000 on the Tasman) recognisably different invertebrate species, including many native bees (Figure 1), have been identified in the native vegetated landscapes that form after flood disturbances in the gravel parts of the river (with 25-30% unique species between rivers; T Murray pers coms). Thus, it is the whole landscape and the variability within it that facilitates high biodiversity.

Figure 1. Native raoulia mats and their associated communities are often overlooked, yet contribute considerably to landscape biodiversity, aesthetics value, and resource availability. These communities require the reworking of gravel from moving river channels and floods, in the absence of invasive weeds, to flourish. Photo credit: AR McIntosh

Contributions of heterogeneity to regional stability and resilience

We found that the natural variability of braided rivers also contributes to ecological resilience and stability. At a local scale, sampling invertebrate community biomass in one area such as a major channel may seem variable and vulnerable to floods. However, when biomass from multiple channels across the landscape is aggregated to calculate regional variability, asynchrony between channel types dampens overall variability, creating a more stable system. This dampening effect is even more pronounced in species such as fish, which can move around the landscape to take advantage of favourable conditions in local areas (Figure 2). The fewer distinct local channels that exist within the river, the more variable and unstable the aquatic system becomes. Therefore, landscape simplification will increase variability, and thus decrease stability, by turning multi-channel braided rivers into rivers with a single thread and deep, fast flowing water.

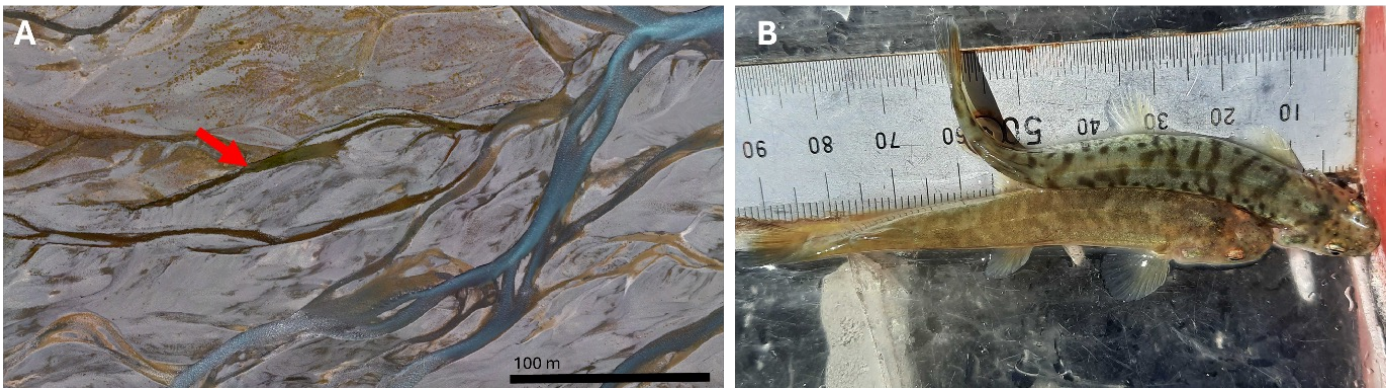

Figure 2. Braided river landscapes comprise many different channels (A) that shift through time, have different physico-chemical properties, and are home to different species assemblages, which are used by mobile species such as kōaro (B). Fish caught in a mid-channel spring (B) location indicated by the red arrow in panel A, display two colourings, one more golden than the other. Kōaro in turbid water turn a pale grey seen in the upper fish (B), thus indicating one fish has recently moved upstream from the turbid main channel shown in panel A. Photo Credit: H Harris

Heterogenous landscapes connected by mobile species

This landscape variability is utilised by mobile species that interact with the landscape on a broader scale. Bird species such as the endangered tarapirohe (Chilodonias albostriatus) nest on the exposed gravel of the river through the spring and summer, allowing them to take advantage of changing resources within the river landscape. In early nesting season, these terns will use fish from the channels as part of their courtship, then later in the summer will catch skinks from the surrounding tussock grasslands (Gurney, 2022; Lalas, 1977; O'Donnell & Monks, 2009; Figure 3). Kāki (Himantopus novaezelandia), the world's rarest wading bird, are highly adaptive foragers who will track prey abundance around the landscape following flow variation, feeding in minor channels when taking advantage of catastrophic mayfly drift at the start of a flood before moving to safer parts of the landscape such as back pools and tarns (Pierce, 1986). While these species can take advantage of the broader landscape, they are still river birds and thus are restricted in their ecology to river landscapes and vulnerable to landscape-scale changes.

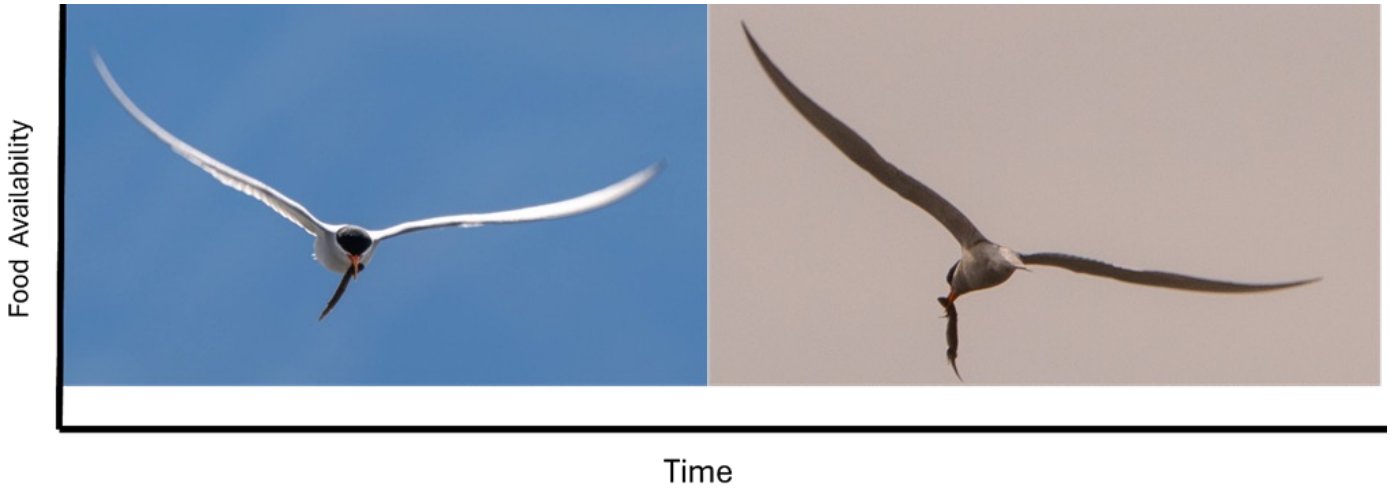

Figure 3. A tarapirohe (black-fronted tern) can integrate food sources spatially across a braided river landscape using fish from the major channels, particularly through spring, and catching skinks in the surrounding grasslands formed from old river bed movement. Photo credit: AR McIntosh

Landscape simplification

Landscape simplification will reduce the ecological resilience of braided rivers. Processes such as weed invasion reduce the braiding of channels and create negative feedback loops where water is channelised and channel movement becomes less likely (Gray et al., 2016; Stecca et al., 2019; Figure 3). These processes are compounded by slow legal recognition of the unique nature of braided river beds, and ad hoc flood protection works that reduce the ability for channel dynamism (Brower et al., 2024). Additionally, with increasing extreme flow events in parts of the country, homogenising floods will become more common and further destabilise braided river communities. Thus, there are many processes that will reduce heterogeneity in braided rivers. This is particularly true when management strategies do not apply broad-scale approaches that consider landscape contexts.

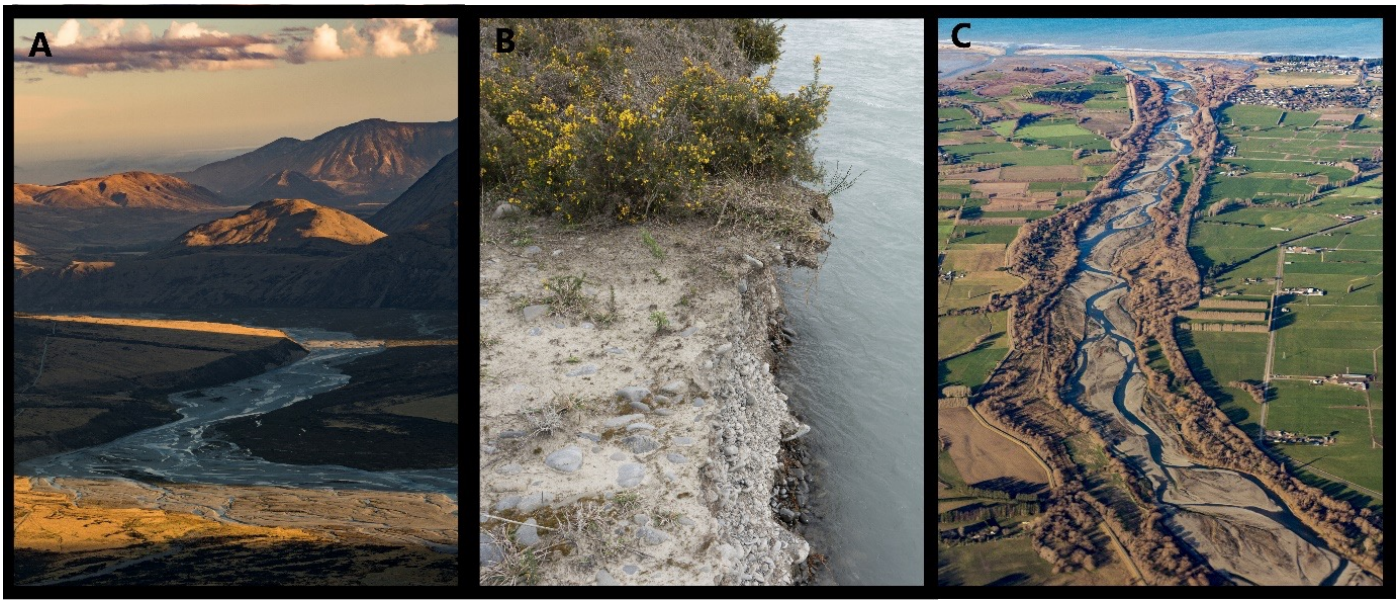

Figure 4. The Waimakariri river near its start in the Southern Alps runs free (A), but lowland weed and sediment entrapment (B), along with land acquisition and stop banks (artificial levees), can restrict braided river paths (C), causing a loss of heterogeneity and associated inherent resilience. Figure reproduced from Harris et al. 2023 "Multiscale ecological resilience in braided rivers" in "Resilience in Riverine landscapes"

Looking forward

Management strategies are changing. Removing stop banks in some areas has become a reasonable approach to increasing long-term social resilience to flooding and will have the added benefit of increasing ecological resilience if weed invasion is avoided. Mismatches between the scale of species interaction with the landscape and conservation strategies are starting to be recognised and tactics changed accordingly. Increasing the lateral components of floodplains, such as grassland, swamp, and spring areas may create nutrient buffers from runoff whilst additionally contributing to river refuge sites and increasing biodiversity. However, these are complex issues and cohesive planning and communication between a broad array of people responsible for land management and use will be necessary to find success across social, ecological, and economic outcomes for braided river landscapes.

Acknowledgements

Holly Harris is a PhD candidate at the Te Whare Wānanga o Waitaha | University of Canterbury (UC) working with Angus McIntosh and Jono Tonkin of UC's Freshwater Ecology Research Group and Tara Murray of Te Papa Atawhai | Department of Conservation. Her work has been funded by a UC Aho Hīnātore Scholarship and the Environment Canterbury/Department of Conservation Braided Rivers Regional Initiatives fund. The fieldwork for this project was conducted on Te Awa-a-Takatamira, in the rohe of Arowhenua Rūnanga. Ethics approval was given by the Department of Conservation (AEC404 and AEC406), and the University of Canterbury Animal Ethics committee (2021/16R). Thanks also to DOC for the use of their bird sampling protocol, and to the many field assistants who volunteered their time, company, and ideas. to Jenny Ladley and UC for the use of Mt John Field Station, and Glenmore station for access to the upper river and surrounding land for sampling.

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Policy translations for river managers

Tom Kay

Communities in Aotearoa NZ have strong connections to rivers, lakes, wetlands, and estuaries. These freshwater environments are generally in very poor health, and river management and engineering for flood mitigation has contributed to this state. Public pressure to address freshwater degradation has been high, with surveys indicating it is among the top concerns of New Zealanders (e.g. Stats NZ, 2019). The previous Government's Essential Freshwater package of legislation—including the National Policy Statement for Freshwater Management (NPS-FM)—was in part a response to this concern.

The professional rivers community, including engineers, geomorphologists, ecologists, and planners, have at times wondered how to best implement the NPS-FM. This has included the need to prioritise freshwater health under the Te Mana o te Wai framework, which the Rivers Group and Te Uru Kahika have put significant effort into helping the practicing rivers community understand.

To further help with interpretation of the NPS-FM, and to collate evidence of effective regional policy and actions to address freshwater degradation, a group of organisations has produced some guidance to make it easier. Fish & Game, Forest & Bird, and Choose Clean Water have produced a series of 'practice notes' on effective planning to improve freshwater health and published them on the website.

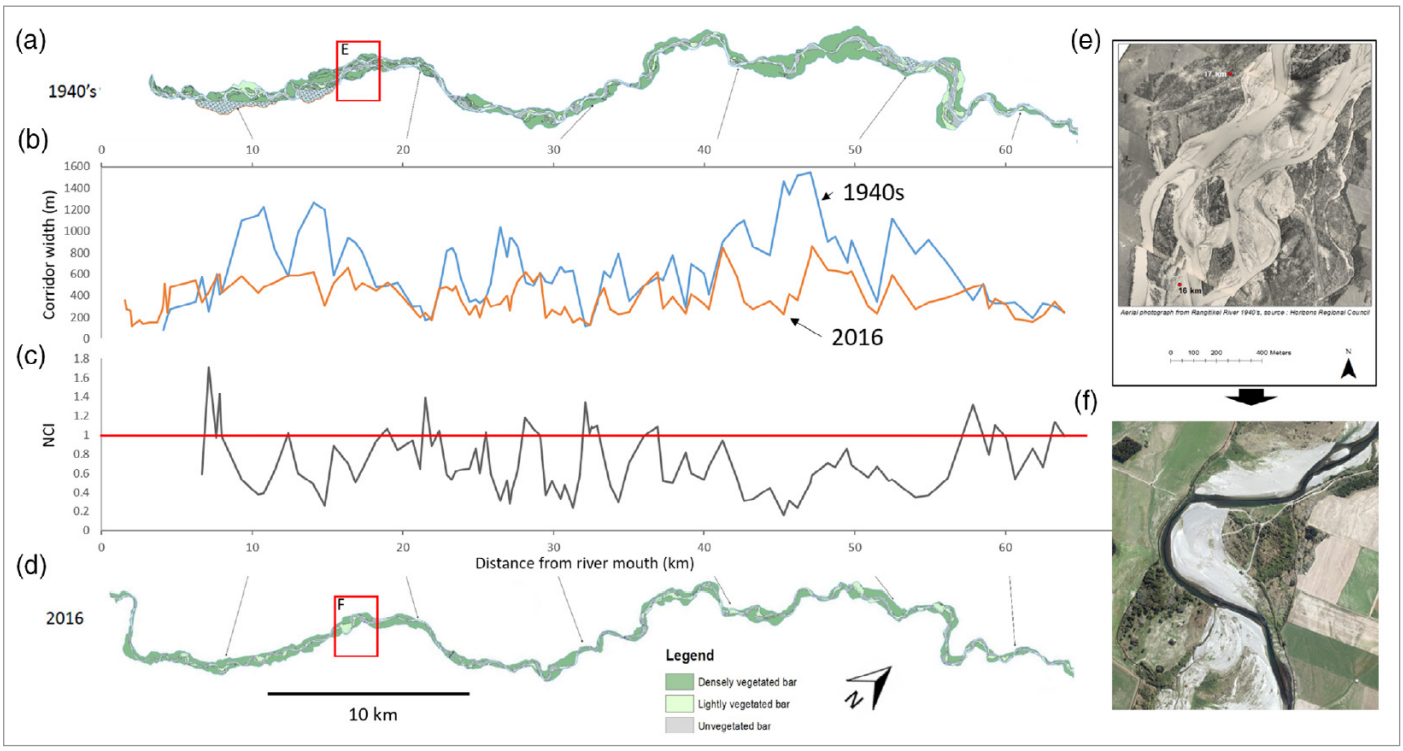
Each practice note focuses on a key issue or direction under the NPS-FM and offers methods to improve freshwater health that are science-based and founded on an integrated approach to catchment management. The practice note on 'Protecting natural form and character, and river extent' will be of particular interest to NZ Rivers Group members, as it suggests ways to map, monitor, and protect natural character at different scales.

The practice notes will be reviewed as the Government makes its proposed changes to the NPS-FM and RMA. However, the fundamental ideas in the practice notes are likely to endure, as the focus has been on what we have evidence to believe will be effective to improve river health.

If you work in a regional council and are interested in trying to integrate some of these ideas into your regional plan, the organisations that founded this initiative would love to work with you on how this could be achieved. It is the hope of the contributing organisations that these resources can support your work creating regional plans that meet the needs of your communities while safeguarding freshwater health for current and future generations.

In addition to regional council science and policy teams, the WaiGoodPolicy practice notes will be of interest to councilors, iwi and hapū groups, Department of Conservation scientists, policy staff, and environmental and community groups.

If you or your organization have feedback on the ideas, or successful case studies of natural character restoration or protection, it would be welcome.



Caption for figure: An example of the sort of natural character analysis promoted by environmental organisations on the WaiGoodPolicy website, which will help river managers improve freshwater health and implement the National Policy Statement for Freshwater Management. This example shows changes in the Rangitikei River from the 1940s to 2016: (a) 1940s river corridor planform, (b) river corridor widths 1940s and 2016, (c) Natural Character Index score variability along the reach (NCI of 1 (no change) highlighted by red horizontal line), (d) 2016 river corridor planform, (e) braided channel, 1943 at 16–17 km upstream, (f) single thread channel, 2016, 16–17 km. From Fuller et al., 2020. [doi.org/10.1002/rra.3672](doi.org/10.1002/rra.3672)

Endnote

The WaiGoodPolicy website was created by Fish & Game, Forest & Bird, and Choose Clean Water with the support of planners. Eighteen topics are covered and include 'Protect the habitat of indigenous freshwater species', 'Protecting water bodies & freshwater ecosystem health', 'Setting instream nutrient outcomes', and 'Protecting natural form and character,
and river extent'.

SCHOLARSHIPS AND AWARDS

Student Research Grant winners

The Rivers Group is pleased to announce three recipients of this year's $1000 research grants! Congratulations to the following students for their exciting river research:

- **Megan Thomas (University of Auckland)** for her project titled "Anthropocene Landscapes of Aotearoa New Zealand".
- **Ciara Espiner (University of Canterbury)** for her project titled "Woody habitat utilisation and instream wood requirements of native New Zealand freshwater fish: Implications for river management practices".
- **Aashish Khadka (University of Canterbury)** for his project titled "Exploration of an IoT-based approach for detection of culvert blockage".

Look out for updates on their projects in future editions of FLOW!

Rivers Group Awards – call for nominations

Arch Campbell, Wahine Toa and Early Career awards

Deadline for submission of nominations: 9 October 2023

Awards will be presented to the award winners at the 2024 NZ Rivers Group conference in Napier.

Arch Campbell Award

This Award was established in memory of Arch Campbell to recognise his very significant contribution to soil conservation and river control and management in New Zealand. More about the Award can be found on the NZ Rivers Group website.

Nomination categories

Select either:

- a notable published paper, presentation or written report pertaining to e.g. catchment hydrology, river hydraulics and/or geomorphology, catchment or river management; or
- a notable contribution over a number of years to the advancement of knowledge or practice in the fields of catchment hydrology and/or hydraulics, fluvial geomorphology, or catchment / river management and river engineering.

Supporting statement

Please provide a written statement supporting the nomination in either of the above categories. Your supporting statement needs to provide the adjudication committee with sufficient information on which to base a full assessment of the nominee. The statement may include:

- a brief biographical summary of the candidate
- evidence that satisfies the criteria for the award and supports the worthiness of the candidate to receive the award.

Nominators

Nominations are to be made by a current Rivers Group member and supported by a secondary nominator. If you would like to nominate someone to be the recipient of this award, please complete the form on the NZ Rivers Group website and email it to rivers.group@engineeringnz.org

Wahine Toa Award

Historically, women have been under-represented in the river management and engineering professions. This award aims to celebrate a female role model who is leading the way in a river-related field.

Applicants should be female Rivers Group members. If you are considering nominating someone who has made a significant impact over an extended period, then you may also want to consider nominating them for the Arch Campbell Award.

Applications/nominations
Candidates can apply directly or be nominated. To make an application/nomination please email rivers.group@engineeringnz.org

Applications must contain:

- a summary describing why the candidate deserves the award (500 words or less)
- a CV
- names and contact details of at least 2 referees.

Early Career Award

The Early Career Award recognises a young/early career person who has already made a significant contribution towards sustainable management of New Zealand rivers. This may be at a local, regional or national scale and could include (but is not limited to) achievements in river-related research, engineering, community engagement, planning, policy or advocacy.

Applicants should be Rivers Group members who have less than 10 years' experience in river-related work (this includes postgraduate study relating to rivers but excludes time taken for parental leave).

Applications/nominations
Candidates can apply directly or be nominated. To make an application/nomination please email rivers.group@engineeringnz.org

Applications must contain:

- a summary describing why the candidate deserves the award (500 words or less)
- a CV
- names and contact details of at least 2 referees
- a summary of how the candidate meets the eligibility criteria.

EVENTS

2024 Rivers Group Conference

Manatiaki Kōawa | The New Zealand Rivers Group invites you to join us for our 2024 conference from **6–8 November, in Ahuriri | Napier**

The website is live for registrations!

Our theme for this year is Ka Mua, Ka Muri | walking backwards into the future. Over two and half days we want attendees to reflect on the past and consider how we best navigate an increasingly uncertain future. We will get out alongside the awa to learn from tangata whenua and others about the past before moving inside to consider kōrero on the future. This year we also want to hear more of your stories, thoughts, experiences, and learnings in a longer open session and a series of 'lightning' talks to accompany posters. Keep your eyes peeled for our website updates with all the details you need, including for registrations and abstracts. We also want to give you an early heads up that we'll be asking for a short paper to accompany any abstracts to help record these stories and learnings for the future. So, what are you waiting for? Mark the dates in your diary and get writing!

Ngā mihi nui,

Amanda Death
Conference Chair

Other conferences

New Zealand Geographical Society Conference

20–22 November 2024
Tauranga

In light of recent Rivers Group Conferences focusing on living with rivers and living with urban rivers, we plan to run a workshop session at the NZGS Conference where the conference theme is 'Fluid Geographies'. Our session will focus on 'Living with living rivers' and provide a cross-disciplinary opportunity to discuss how we should operationalise Room for the River interventions. How should we make this happen in Aotearoa? To successfully address this question, we need to understand our awa as living entities in our physical, social and cultural landscapes. We invite participation from across the spectrum of the Rivers Group, as well as Geographers in Aotearoa to workshop the challenge of living with living rivers in Aotearoa New Zealand – please join us in Tauranga!

nzgsconference2024.co.nz

Please contact Ian Fuller (i.c.fuller@massey.ac.nz) for any further information on the session.

Ian Fuller and Jon Tunnicliffe (session convenors)

New Zealand Coastal Society Conference

19–22 November 2024
Christchurch

The 2024 New Zealand Coastal Society Conference is being held in Christchurch from 19-22 November. The conference will cover a range of topics related to coastal management. Keep an eye on the website for updates on registration and session details.

coastalsociety.org.nz/conferences/2024

The New Zealand Freshwater Sciences Society Conference

18–22 November 2024
Rotorua

The theme of the NZFSS 2024 Conference is Haere i mua whakakotahi – Moving forward as one. The conference is being held from 19-22 November in Rotorua. See the website for more information on the theme and proposed topics, which range from Indigenous perspectives, science communication, policy and practice, catchment management, waterways resilience, and more!

Earlybird registration changes to Standard on 11 October.

nzfssconf2024.co.nz

Regional events

Wellington

On July 4th the Rivers Group members gathered for a social event at Shed 22 on the Wellington waterfront near the buried mouth of Waimapihi stream. The event was a great success with faces old and new coming together to share some laughs and stories of work and adventure. We discussed the upcoming conference, policy changes, and also welcomed post-grad research students from Victoria University to the group. Thanks to all those who came along. Please reach out if you would like to see Rivers Group social event in a town near you!

Christchurch

We've got some ideas in the works for a Christchurch regional event. Stay tuned!

PROFESSIONAL DEVELOPMENT OPPORTUNITIES

A great resource to find information about professional development opportunities is the Resilient Rivers Communities professional development programme webpage. Make sure to visit the Resilient Rivers Communities webpage for the most recent updates and detailed information regarding upcoming workshops and webinars. Note that past professional development programme webinar recordings can also be accessed on their webpage. And recall that past NZ Rivers Group webinars can be accessed in the NZ Rivers Group members area.

Some upcoming Resilient Rivers Communities events and webinars are listed below. Please see the Resilient Rivers Communities webpage for more information and to register!

For those interested in the flood risk area, various online training opportunities in the form of digital badges are available on the Āpōpō website. There are 3 courses in the flood risk learning framework starting with WM 104 – Introduction to Flood Risk Asset Management, then taking a deeper dive into key areas with WM 240 – Inspection and Performance and WM 241 – Risk Management and Planning.

Upcoming workshops

Essentials of Engagement

Thursday 3 October 2024
Dunedin
Presenter: Chris Meme

Content

- Introduction
- The role of the engagement practitioner
- Core Values Code of Ethics Contemporary Engagement
  - Engagement definition
  - Community engagement
  - Uses of engagement
  - Benefits of community and stakeholder engagement
- Five Essential Elements of Engagement Practice ('Design Platform')
- Understand context
- Scope the project
- Understand people
- Set purpose of the engagement
- Shape influence
- Quality assurance standards

Who should do this course?
Engagement Essentials has been designed for those who will be responsible for:

- those wishing to obtain the Certificate in Engagement.
- experienced practitioners who are looking for a refresher.
- those considering a career, or career change, in community engagement.
- professionals, such as planners and engineers in related fields.

Benefits

- Validate your knowledge of sector best practice.
- Clarify how the core models should work in practice.
- Ask questions from IAP2's experienced trainers.
- Form a professional network.

Engagement Essentials Training | IAP2 Australasia
This course is the pre-requisite for the IAP2 Australasia Certificate in Engagement. Engagement Essentials the perfect starting point for anyone involved in community and stakeholder engagement, at any level or function.

Participants will receive a certificate and gain 7 CPD hours upon completion.

To register email Rachael.Armstrong@hbrc.govt.nz

Poplars and Willows as Bioengineering Tools

Tuesday 3 – Wednesday 4 December 2024
Christchurch
$750 (Members will receive a $250 discount)
Presenter: Ian McIvor

The New Zealand Poplar & Willow Research Trust is offering national training 2-day workshops for new and experienced practitioners:

Workshop Programme

- Using poplar and willow in bioengineering.
- Research supporting the bioengineer.
- Role of nurseries to support River Groups.
- River engineering in the region.
- Tools and resources for the practitioner.
- Field visit to river sites.
- Canterbury workshop: visit easily accessible sites along the Waimakariri and Ashley rivers.

To register email Rachael.Armstrong@hbrc.govt.nz

Level One Asset Management Course

Wednesday 11 December 2024, 9am–5pm
Wellington
$900 +GST (Council staff $200 discount)
Presenter: Catherine Bayly

This course provides a contextual overview of the core elements of Asset Management (AM). Using case studies across different industries we will explore the benefits of Asset Management, required practices, lifecycle management, risk management and how to move forward on the AM journey. At the conclusion of this introductory course, participants will have a clear understanding of the key elements of AM and how to compile an asset management plan that aligns with organisational outcomes.

Syllabus

- Introductions and Course Overview.
- Asset Management Overview.
- Asset Management – The Organisational Context.
- What is the State of my Assets?
- Valuing Assets and Understanding lifecycle implications.
- Levels of Service – Do my assets deliver what is needed?
- Risk Management.
- Lifecycle Management.
- The Asset Management Plan.
- Continuous Improvement.
- Managing the AM Journey.
- Summary.

Presenter bio

Catherine is an experienced Infrastructure and Asset Manager. She has worked with and for local government organisations for over 20 years in NZ, Australia and the UK. Example work includes physical delivery of capital projects up to $300m, management of city assets, auditing AM competency of international water and river management schemes and most recently the design and completion of a national asset management system for the NZ Water Industry. Cath has co-developed competency based asset management courses in Australia which have been delivered to large scale asset owners including BHP Billiton, the defence force and the water industry. Cath has competencies in all elements of asset management and is particularly passionate about continuous improvement to efficiently deliver community services.

If there is enough interest, we can do this workshop again in Auckland – mid-late January or potentially Nelson but we will need 20pax to run this.

To register email Rachael.Armstrong@hbrc.govt.nz

River Management Practice Workshop

Wednesday 29 January 2025, 9am–5pm
Wellington
$500 +GST (Council rate: $400 +GST)
Presenter: Gary Williams

A one-day workshop on practical examples of river management practices, and the context in which options are considered. Participants to bring case studies of recent works or current sites where works are proposed. The workshop will be discussion based, with a short overview of the wider context of river management.

Key themes
River management options: relating to river type and reach character.

Site context and pre-flood conditions: of flood history, channel changes and sediment transport activity.

Option selection: from potential bank protection and channel management measures.

Relating works to site: dimensioning structural bank works, scoping channel measures and margin vegetation management.

Learning from mistakes: all river management measures are temporary, thus monitoring and observation skills to learn from the river is essential.

Outcomes
A better understanding of river dynamics and the requirements of river engineering, and of different practices used on different types of rivers and around the country.

To register email Rachael.Armstrong@hbrc.govt.nz

Poplars and Willows as Bioengineering Tools

Tuesday 11 – Wednesday 12 February 2025
Hawkes Bay
$750 (Members will receive a $250 discount)
Presenter: Ian McIvor

The New Zealand Poplar & Willow Research Trust is offering national training 2-day workshops for new and experienced practitioners.

Workshop Programme
- Using poplar and willow in bioengineering.
- Research supporting the bioengineer.
- Role of nurseries to support River Groups.
- River engineering in the region.
- Tools and resources for the practitioner.
- Field visit to river sites.
- Sites visits will include the Tutaekuri north bank to the junction with the Mangaone River.
- Hawkes Bay will be a good study of the impacts of Gabrielle and resilience of willow and poplar bioengineering.

To register email Rachael.Armstrong@hbrc.govt.nz

Strategic Overview of Rivers & Catchments: Geomorphology & River Management

Monday 10 – Tuesday 11 February 2025, 8am–5pm (exact times to be confirmed)
Wellington and Waikanae
Cost: $950 +GST(Council rate: $800 +GST)

Key Learning Objectives/Outcomes: familiarity with key principles in fluvial geomorphology and their application to various river management situations (eg catchment (and regional) planning, sediment flux issues, and relation to flood hazards).

Topics:

- Management issues for which geomorphic insight is fundamental.
- Spatial Dimensions of geomorphologically-informed river management.
- Temporal dimensions of geomorphologically-informed river management.
- Processes of geomorphic river adjustment.
- Evolutionary trajectory of rivers (and recovery potential).
- Geomorphology and river health (condition).
- Geomorphic relations to Māori conceptualisations of rivers.
- How geomorphology can support river management (indicative only – set up follow up specialist courses).

To register email Rachael.Armstrong@hbrc.govt.nz

Upcoming Webinars

Fish Passage Improvement Programme

Tuesday 10 September 2024, 12pm
Presenter: Aoibhe Charlott Kennedy

This presentation will look at the Fish Passage Improvement Programme.

This programme focuses on remediating broken fish passages or fish barriers in streams so the fish can successfully swim upstream and continue their migration cycle. We focus on sustainable solutions to make sure we align to naturalising stream conditions.

Presenter bio
Aoibhe is the project manager for the programme. Aoibhe works in healthy waters and got her interest in environmental services through helping out the marine biologists in her previous job as a scuba diving instructor.

Register now.

Woody Debris

Tuesday 24 September 2024, 12pm
Presenter: Dr Murry Cave

While “slash” on beaches has been in the national news since Cyclone Gabrielle the impact of large woody debris in the rivers and coast of Gisborne Tairawhiti has been an issue since at least 2017 and to a lesser extent on a smaller scale earlier.

In the 2017 event a major storm (Cyclone Cook) generated large volumes of woody debris which was jammed up against bridges, along riverbanks and on beaches. Much of the commentary in the local media was that it was “largely willows and poplars from farms”. This didn’t gel with what I was seeing in the field so an investigation was undertaken which lead to a comprehensive report.

The assessment concluded that the primary source of the woody debris was exotic planation forestry, and not willows and poplars or indigenous material. During this investigation a standardised methodology to determining woody debris contributions. The most recent version of this methodology is available on the GDC website.

In 2018 a larger event occurred with even more woody debris migrating to the catchments. During this event one dwelling was partially destroyed and the family sheltering on the roof had to be rescued by chopper. Subsequently multiple forestry companies were prosecuted by Gisborne District Council.

In 2023 the region suffered multiple major storms with associated influxes of large woody debris. Following Cyclone Hale in January a boy was killed by a log on Waikanae Beach and in Cyclone Gabrielle many bridges were lost or badly damaged as a result of woody debris. Large woody debris also resulted in significant damage to the Gisborne water supply pipeline. Since then a large sum has been invested in cleaning up woody debris in the rivers and on the beaches but we expect there to be ongoing influxes for many years.

Presenter bio
Dr Murry Cave is the Principal Scientist with the Gisborne District Council having joined the council in late 2016. Prior roles included management roles in the Ministry of Energy and then Ministry of Commerce as well as a consultant with Ernst and Young where he worked in the energy and international consulting group.

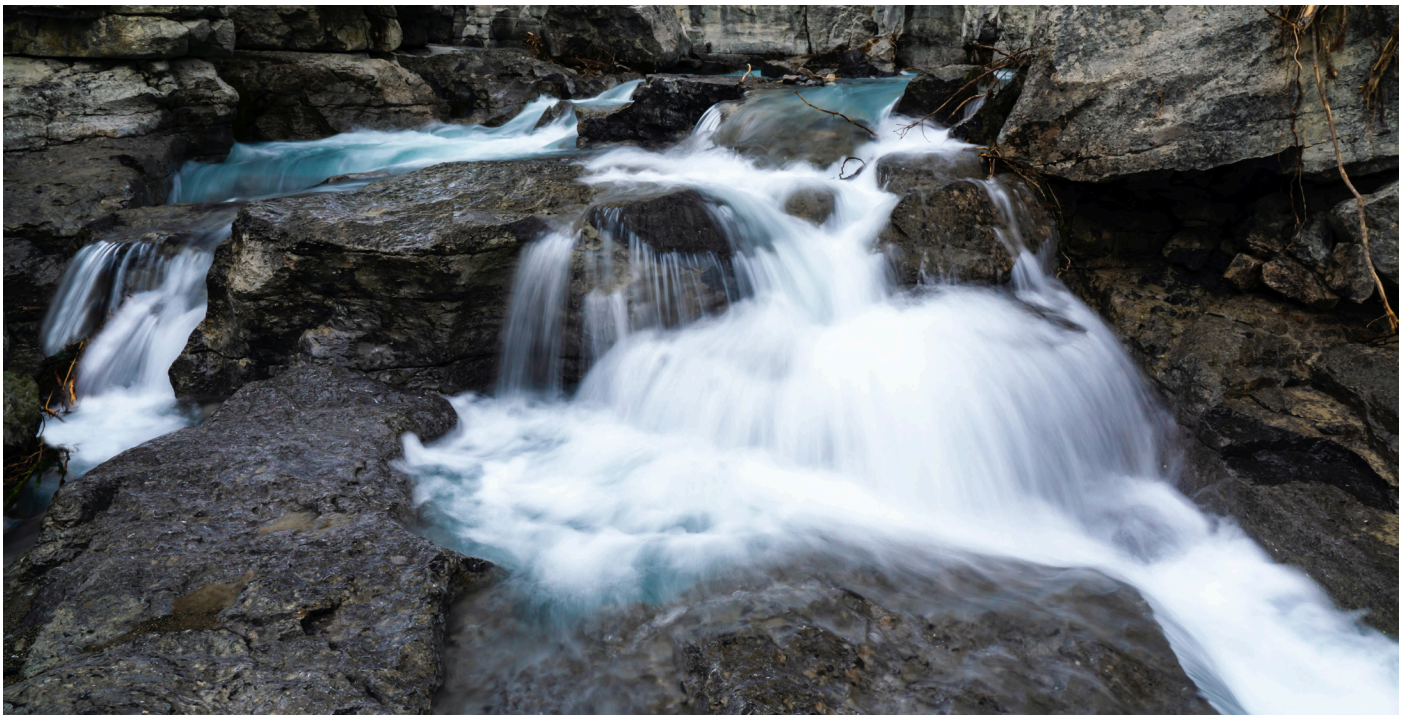
Dr Cave is an experienced Expert Witness having appeared in consent hearings related to Gisborne consent compliance issues relating to Gisborne Forestry and farming prosecutions. He has also been an expert witness before the Environment Court relating to Kuratau River Erosion, Buller Water Conservation Orders, & the Pike River Coal Mine Resource consents. He was an Expert Witness to the Pike River Royal Commission for the Department of Conservation and others.

At Gisborne District Council, he undertook an in-depth investigation into the impacts of forestry woody debris during Cyclone Cook in 2017 and was lead Council expert for the 2018 Queens Birthday Tolaga Bay Storms Forestry prosecutions. He developed the business case for funding the acquisition of LiDAR over the Gisborne/Tairawhiti region. The many storms the Gisborne-Tairawhiti region since 2017 has been a major focus and he is presently focussed on the science response and recovery for the 5 major storms that have impacted the region so far in 2023.

Dr Cave coordinates funding for strategic research within the Council and works closely relationships with external agencies such as GNS, the Universities, NIWA, EQC, Manaaki Whenua LandCare Research and others.

He is a member of the Regional Council Science Managers group, and the Flood Warning group, the Landslides working group and the Natural Hazards Special Interest Group.

Register now.



Making Space for Water

Tuesday 8 October 2024, 11am
Presenter: Tom Mansell

Making Space for Water programme was developed by Auckland Council in response to the extreme storms that impacted Auckland in early 2023. During this time, local and national states of emergency were declared and over 7,000 homes were evacuated. rainfall overwhelmed the stormwater network, and many people were not prepared for such significant flooding. Responding to and recovering from these events is complex and extends further than fixing damage to infrastructure. It was clear that the city could not afford to rebuild in the same way and that space must be made to accommodate water. Solutions must work with water, rather than seek to contain it and that nature-based solutions, such as restoring streams to their natural floodplains, are essential to manage the increasing volumes of rain Auckland is expected to face. This session will cover the development of the Making Space for Water programme, its objectives, and the interventions required to reduce Auckland's flood risk, increase resilience, and ensure residents are prepared for future flood events.

Presenter bio
Tom is the head of the Healthy Waters Sustainable Partnerships unit at Auckland Council, where he leads a new partnership approach to water-related initiatives, developing projects collaboratively with input from the community, iwi, local boards, and government agencies. A key project under his leadership is Auckland Council's flagship climate adaptation programme, 'Making Space for Water,' a 10-year flood resilience initiative developed in response to the severe storms that impacted Auckland in 2023.

With over 20 years of experience in delivering sustainable stormwater projects, Tom aims to transform Auckland's approach to stormwater management by prioritising nature-based solutions that enhance ecological health and community well-being. Committed to sustainable practices, Tom brings extensive technical expertise to his role, having successfully led numerous projects that integrate environmental stewardship with practical infrastructure development, ensuring that Auckland's stormwater infrastructure not only meets current needs but is also prepared for future challenges.

Register now.

Blue Green Projects

Tuesday 15 October 2024, 11am
Presenter: Konrad Heinemann

Blue-green network is a system of interconnected green spaces and water bodies that work together to manage stormwater in urban areas. The streams and green spaces mitigate the impact of flooding by creating natural ponding areas and making space for water to flow through the landscape. In heavy storms, rainfall can be diverted into these areas with reduced risk to people and property. During the Auckland Anniversary weekend storms, the city experienced record-breaking rainfall causing unprecedented levels of flooding, slips and damage across the region. Many existing blue-green networks performed well in the floods with the watercourse and surrounding vegetation capturing rain and directing flows away from properties, allowing the water to drain away safely. This session will discuss how blue green projects are being developed in Auckland in response to the storms in areas identified as having critical flood risks, feasible stormwater solutions and the opportunity to create wider community benefits.

Presenter bio
Konrad is the programme manager for the Blue Green Network Programme in Auckland Council's Healthy Waters Department, responsible for the development and delivery of a series of blue-green network projects across Tāmaki Makaurau over the next 10 years.

With a specific focus on integrating natural solutions into urban planning and development, Konrad aims to lead a step change in the way Auckland approaches its large urban stormwater assets, away from concrete lined conveyance to those that mimic nature and enhance the environment for the community to enjoy.

With over 20 years of experience as a stormwater engineer, Konrad brings a wealth of technical expertise to this role. Prior to managing the blue green network programme, Konrad led the departments in-house design office, overseeing the design and construction supervision of all scales of stormwater projects. Now, as the programme manager, Konrad leverages his engineering background to lead a team of project managers, consultants and contractors in implementing the ecological restoration of a number of the city's streams, while also maximising the streams stormwater conveyance role in an environment of increasing urbanisation and climate change.

Register now.

MEMBERSHIP SURVEY

Survey closing soon – open until 13 September

As a Rivers Group member, hopefully you have now received an email inviting you to complete a membership survey.

To enable you to steer the direction of the River Group and to enhance what the committee does on behalf of the members, we would love to hear your feedback. The Rivers Group survey is an important opportunity for you to let us know what you want from the group and set the direction of the Group for the coming year.

Please take some time to complete the survey via the link in your email. The survey will be up and running for 3 weeks from the release date (open 23 August – 13 September) and we really want your valued response.

CALL FOR CONTRIBUTIONS

We are always looking for contributions from our membership for FLOW. Consider submitting an article, case study, update or notice for the next issue of FLOW. News from the different regions are very much appreciated.

The final submission deadline for 2024 is:

Issue	#	Deadline for contributions
December 2024 issue	#45	Monday 18 November 2024

Please format your contribution as follows:

- Length of around 500–1,500 words, preferably in Microsoft Word format (articles should include: title, name of the author(s), affiliation(s), and section headings. Note that illustrations and/or tables are strongly encouraged)
- If possible, attach figures/images/artwork, eg. in .jpg format, at high-resolution separately
- Provide credits and captions for your figures/images/artwork.

If you have articles which are longer, please email us and we will work out a way forward together with you.

Email rivers.group@engineeringnz.org to submit your FLOW contributions or any news you want to share. We look forward to receiving your contributions.

RIVERS GROUP MANATIAKI KŌAWA MISSION STATEMENT

The New Zealand Rivers Group Manatiaki Kōawa was formed in 2009 to provide a forum for 'Working with Rivers'. It is a place for people with an interest in rivers, flood risk management and the operational and environmental issues of catchments and river systems to come together.

We currently have over 400 members, and promote a multi-disciplinary approach to river management, reflecting cultural and societal diversity in an integrated and holistic manner. Our membership reflects this, with our members coming from a wide range of river management, science and engineering, and planning backgrounds - working as consultants, or in local, regional and central government, research institutes and universities.

New members can sign up online

RIVERS GROUP COMMITTEE MEMBERS

Chair:
Richard Measures
richard.measures@niwa.co.nz

Vice Chair:
Clare Wilkinson
clare.wilkinson@niwa.co.nz

Secretary:
Jacqui McCord
jacqui.mccord@auckland.ac.nz

Treasurer:
Kyle Christensen
kyle@christensenconsulting.co.nz

Membership Coordinator:
Verity Kirstein
verity.kirstein@ecan.govt.nz

Advocacy:
Tom Kay
t.kay@forestandbird.org.nz

Ian Fuller
i.c.fuller@massey.ac.nz

Student Liaison:
Jacqui McCord
jacqui.mccord@auckland.ac.nz

Communication Coordinator:
Selene Conn
sconn@tonkintaylor.co.nz

Awards and Scholarship Coordinator:
Markus Pahlow
markus.pahlow@canterbury.ac.nz

FLOW Coordinator:
Clare Wilkinson
clare.wilkinson@niwa.co.nz

Academic Liaison:
Ian Fuller
i.c.fuller@massey.ac.nz

Conference Liaison:
Amanda Death
amanda.death@gw.govt.nz

Events Coordinators:
Rachael Armstrong
rachael.armstrong@hbrc.govt.nz

Tim Dodd
tim.dodd@morphum.com

Website Coordinator:
Alex Sims
alexsims@alluviumgroup.co.nz

River Managers Liaison:
Shaun McCracken
shaun.mccracken@ecan.govt.nz

Water NZ Liaison:
Nicci Wood
nicci.wood@waternz.org.nz

New Committee Member:
Damian Velluppillai
dvelluppillai@tonkintaylor.co.nz