manatiaki kōawa

rivers GROUP

A joint technical interest group of IPENZ & Water NZ

INSIDE THIS ISSUE

NEWSLETTER Issue 20 | December 2017

FROM THE CHAIR

Kyle Christensen

WELCOME to Issue 20 of the Rivers Groups Newsletter, "Flow", our fourth and final for 2017.

This time of year brings about a time to reflect on the year that has been and prepare for the upcoming year with some well earned R&R (that's rest and recovery….not rainfall and runoff!). In this introduction to the newsletter I'm going to provide a summary of my top three notable events of the year in terms of river management in NZ as well as the highlights of the year in terms of the Rivers Group.

One of the most significant events of the year in terms of river management in New Zealand was the passing of the Te Awa Tupua (Whanganui River Claims Settlement) Bill which amongst other things confers a legal personality on the Whanganui River. This was a world first and it is going to be extremely interesting to see what benefits and issues arise from managing a river that has the same rights and responsibilities as a person.

Another major event was the breaching of the floodwall at College Road on the Rangitaiki River and the devastating consequences that it had, and continues to have on the community of Edgecumbe. This event served as a stark reminder of the vulnerabilities we face when choosing to live close to rivers and that stopbanks and floodwalls serve only to reduce the likelihood of being flooded by the river and not provide 100% reliable total protection. The management of risks, including residual risk behind stopbanks must utilise the full suite of tools available including planning controls, increased resilience and effective emergency management. The increased promotion and use of the concepts in NZS9401:2008 – Managing Flood Risk: A process standard would be of benefit.

To round out my top three for the year I would have to say the intense debate around water quality "swimmability targets" as well as the water tax during the election campaign was something that really highlighted the escalating problems that we have in terms of water quality in our rivers. There is certainly no quick and easy fix for this but the sooner we take significant positive steps to address the issues the more likely it will be that we will see real improvements in the quality and health of our river systems.

It has been a successful year for the Rivers Group with events held across the country ranging from lunchtime and afterwork networking events, through to 2 day short courses and culminating in the week long annual conference. These events bought together the diverse range of people that share an interest and passion in our river systems to share information, learn and connect with others. The idea of connecting with others through our common relationship with rivers is a really important one and is what I see is the real value of the events that the Rivers Group organises. We've also awarded $7,500 to three worthy projects that will further our understanding of the important and complex issues we are trying to deal with in our day to day work. As research is completed this will be shared with the Rivers Group membership through publication in the newsletter and presentations at our various events.

The newsletter has also evolved into the publication you are now reading thanks to the efforts of Brian Kouvelis and the team at On-Cue. It wasn't so long ago that the newsletter was a very basic word document! I believe this years newsletters have been the best we have ever created and have been full of interesting and relevant articles.

Looking ahead to next year there are a number of exciting initiatives that we are planning including a members only log-in area on the webpage with access to a "River Management Handbook" that has been put together by the Regional Councils over the past decade. We are also taking pre-orders for a reprint of Neil Ericksen's – Creating Flood Disasters as we have been granted hardcopy copyright permission from the Ministry for the Environment. You will need to fill in the membership survey in January to register for your pre-ordered copy. We are also working on a 2018 conference experience that will be like no other conference you have been on before…..please provide your input via the membership survey so we can push the boundaries whilst still making it attractive and achievable for as many people to attend as possible.

This is my final newsletter as Chairman with my three year term coming to an end in February next year. It has been an absolute pleasure to serve as Chairman of the Rivers Group and I would like to thank the rest of the management committee as well as the membership for their continued support. I am remaining on the management committee and will continue to focus on the organisation of our annual conference.

All the best for the festive season and I hope you all have some rest and relaxation and not too much rainfall and run-off during your well earned holidays.

Kyle Christensen
Chairman

RIVER BED AND MARGINS – OWNERSHIP, ADMINISTRATION AND LEGAL POWERS TO CONTROL ACTIVITIES

Paula Warren

Senior Policy Advisor Dept Conseravtion

Disclaimer: This paper is not legal advice, and given the uncertainties and complexities of the law, should only be used as a general outline of the legal provisions relating to rivers. It is based on a talk given to the Rivers Group in Wellington on 29 August 2017 by Paula Warren, Senior Policy Advisor, Department of Conservation.

The bits of a river

Rivers comprise the bed, the banks and margins, and the water.

The bed is the land between the banks. It does not necessarily have water on it – braided riverbeds in particular have extensive gravel banks that may be stable and persist as dry land for long periods.

The RMA defines bed as

(i) for the purposes of esplanade reserves, esplanade strips, and subdivision, the space of land which the waters of the river cover at its annual fullest flow without overtopping its banks:

(ii) in all other cases, the space of land which the waters of the river cover at its fullest flow without overtopping its banks.

The water is not controlled by the owner of any land within the river. The legislation provides that no-one owns water, but the Crown controls its use. Those controls sit in the RMA.

The water surface is a somewhat distinct thing in the law. It is not entirely clear as to whether you can navigate across private riverbed (as long as you don't touch the bed). For tidal rivers in the coastal marine area, that was clarified in foreshore and seabed law.

Tidal rivers

Tidal rivers were traditionally treated differently in common and British law to non-tidal rivers. But in NZ, the distinction is now between areas within the "coastal marine area" and areas that are upstream of that. The new boundaries are often quite different – for example on the Whanganui River a distance of perhaps 20-30 km between the new boundary and where the tidal influence stops.

Foreshore and seabed (including tidal rivers) were managed under the Harbours Act 1950 until the RMA replaced those provisions. Various bits of Foreshore and Seabed legislation then progressively adjusted the way in which ownership rights over foreshore and seabed are managed. The current legislation is the Marine and Coastal Area (Takutai Moana) Act 2011.

Land held under that Act as "common marine and coastal area" is not owned by anyone – it's a unique legal entity. Small areas of seabed and foreshore are in private title or reserve, but generally you can assume it is common marine and coastal area land.

The inland boundary for that is the same as the boundary for the coastal marine area under the RMA. That's the boundary defined in the relevant regional coastal plan.

The land is managed under the RMA coastal provisions – NZ Coastal Policy Statement, Regional Coastal Plan, regional council consents.

Walking access and navigation is a public right unless restricted for good reason, through a regional coastal plan.

While no-one owns the land, the Minister of Conservation holds the residual functions that a landowner would normally have. That includes liability for abandoned structures and vehicles, dead stock, etc.

Navigable Rivers
In 1903 the Crown took ownership of all navigable riverbeds, through section 14 of the Coal-mines Act Amendment Act. That was amended in 1925, and then put into the 1979 Coal Mines Act.

The final version states that:
Bed of river deemed vested in Crown
(1) Save where the bed of a navigable river is or has been granted by the Crown, the bed of such river shall remain and shall be deemed to have always been vested in the Crown…
"Grant" includes surveyed title, and any surveyed title where the land area on the title must include the river.
"Bed" means the space of land which the waters of the river cover at its fullest flow without overflowing its banks:
"Navigable river" means a river of sufficient width and depth (whether at all times so or not) to be used for the purpose of navigation by boats, barges, punts, or rafts.

The Supreme Court decision on Paki vs Attorney General (number 1) (SC 7/2010 [2012] NZSC 50) provides case law on these provisions.

In broad terms:

- The river had to be navigable in 1903.
- That needs to be assessed for a particular reach. Presence of navigation barriers upstream or downstream do not mean a reach isn't navigable, but equally the fact that other parts of the river are navigable is not relevant.
- Navigable doesn't just mean a boat would float, or even that a ferry service operated across the river. It means it had to provide a practical navigation route (a "highway") that was of use to residents. Evidence that people moved goods up and down the reach is good.
- Navigation doesn't have to be possible all year or at all times of the day (if the river is tidal), but mustn't depend on the river being in flood.

***Ad medium filum* common law doctrine (*amf*)**
This doctrine states that the adjoining landowner owns to the middle of the river. It applies in New Zealand where the river is not navigable. It was this doctrine that the 1903 Act was designed to overturn.

If an adjacent property has a fixed boundary beside the river (i.e. the boundary is a surveyed line), *amf* probably doesn't apply. If the title just says the boundary is the river, or the river is within the title, *amf* probably does apply.

If the adjacent landowner is a public agency (central or local government), the riverbed is probably unallocated Crown land (UCL) administered by LINZ under the Land Act. It does not become added to that adjacent public title (e.g. a paper road).

The margins and the "Queen's Chain"
The Queen's chain (i.e. a strip of public land along the margins of the coast and all lakes and rivers) does not exist and was never intended to exist. Queen Victoria instructed surveyors to set aside parts of riverbanks that were needed for public purposes, not to create a continuous public edge. But in many rivers there is an extensive network of public lands along the margins, mostly created by roads, marginal strips, and larger areas of public land (e.g. national parks and conservation areas).

Marginal strips
Marginal strips are areas adjacent to a river (or lake or the sea) set aside when Crown land is disposed of.

Older strips (referred to as section 58 strips) were surveyed, and are fixed. So if the river moves, the strip doesn't move. If the river ends up inside the strip, the riverbed becomes marginal strip. If the riverbed moves the other way, the marginal strip ends up not marginal.

Newer strips are created under Part 4A of the Conservation Act. They have only been surveyed since 1 July 2007, and after that date only for mapping purposes (they do not have their own legal descriptions on title plans). Prior to 2007 the title was simply annotated with "subject to Part 4A". They move with the river, so are always on its edge. If the river moves so much that they cease to be within the area of the original Crown title, they disappear, but if the river moves back again, magically reappear.

Most marginal strips are 1 chain or 20m. But they can be narrower or wider.

They are administered by DOC, and are conservation areas under the Conservation Act.

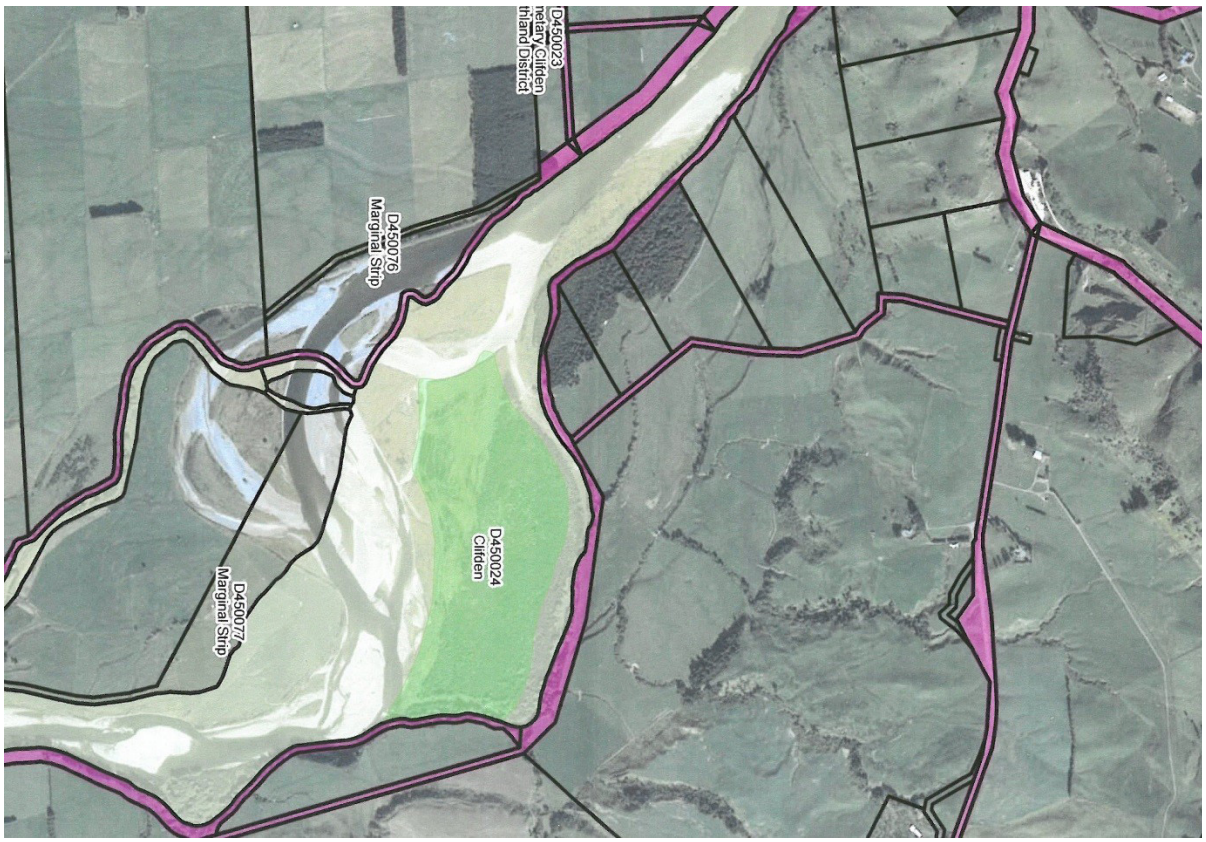
For example here is a piece of Southland river with the marginal strips (section 58 strips) shown in brown (wide on one side of the river and narrow on the other). The green is conservation area (stewardship land). Because there is public land on both side, the bed of the river is Crown land, held as UCL under the Land Act.

Public roads

Both formed and unformed roads have the same legal status. They are surveyed strips, and administered by territorial local authorities under the Local Government Act.

Many public roads are also within riverbeds, either because they were put there by the original survey, or the river has moved. For example, here is a section of a Southland river, with the roads shown in pink.

Again, the green is stewardship area, and the riverbed will be UCL.



Roads can only cease to be roads if they are "stopped" in accordance with the Local Government Act. That requires a public process, and potentially Environment Court hearing. The presumption is in favour of retention of roads. If a road that is adjacent to a river is stopped, the land will probably become either marginal strip or esplanade reserve under s118(1)(b) Public Works Act 1981. Roads vested in the Crown are subject to Part IVA of the Conservation Act (the marginal strip provisions

Esplanade reserves and strips, and blue water title
When land is subdivided, there are specific provisions in the RMA if the land adjoined or includes a river.

Section 220
Without limiting section 108 or any provision in this Part, the conditions on which a subdivision consent may be granted may include any 1 or more of the following:
(a) where an esplanade strip is required under section 230, a condition specifying the provisions to be included in the instrument creating the esplanade strip under section 232:
(aa) a condition requiring an esplanade reserve to be set aside in accordance with section 236:
(ab) a condition requiring the vesting of ownership of land in the coastal marine area or the bed of a lake or river in accordance with section 237A:
(ac) a condition waiving the requirement for, or reducing the width of, an esplanade reserve or esplanade strip in accordance with section 230 or section 405A:
where any condition requires land to be amalgamated, the territorial authority shall, subject to subsection (3), specify (as part of that condition) that such land be held in 1 certificate of title or be subject to a covenant entered into between the owner of the land and the territorial authority that any specified part or parts of the land shall not, without the consent of the territorial authority, be transferred, leased, or otherwise disposed of except in conjunction with other land; and

237A Vesting of land in common marine and coastal area or bed of lake or river
(1) Where a survey plan is submitted to a territorial authority in accordance with section 223, and any part of the allotment being subdivided is the bed of a river or lake or is within the coastal marine area, the survey plan shall—
(a) show as vesting in the territorial authority—
(i) such part of the allotment as forms part of the bed of a river or lake and adjoins an esplanade reserve shown as vesting in the territorial authority; or
(ii) such part of the allotment as forms part of the bed of a river or lake and is required to be so vested as a condition of a resource consent:
(b) show any part of the allotment that is in the coastal marine area as part of the common marine and coastal area.
(2) Any requirement to vest the bed under subsection (1)(a)(i) shall be subject to any rule in a district plan or any resource consent which provides otherwise.

229 Purposes of esplanade reserves and esplanade strips
An esplanade reserve or an esplanade strip has 1 or more of the following purposes:
(a) to contribute to the protection of conservation values by, in particular,—
(i) maintaining or enhancing the natural functioning of the adjacent sea, river, or lake; or
(ii) maintaining or enhancing water quality; or
(iii) maintaining or enhancing aquatic habitats; or
(iv) protecting the natural values associated with the esplanade reserve or esplanade strip; or
(v) mitigating natural hazards; or
(b) to enable public access to or along any sea, river, or lake; or
(c) to enable public recreational use of the esplanade reserve or esplanade strip and adjacent sea, river, or lake, where the use is compatible with conservation values.

Section 2 states that:
esplanade reserve means a reserve within the meaning of the Reserves Act 1977—
(a) which is either—
(i) a local purpose reserve within the meaning of section 23 of that Act, if vested in the territorial authority under section 239; or
(ii) a reserve vested in the Crown or a regional council under section 237D; and
(b) which is vested in the territorial authority, regional council, or the Crown for a purpose or purposes set out in section 229

esplanade strip means a strip of land created by the registration of an instrument in accordance with section 232 for a purpose or purposes set out in section 229

Key differences between esplanade reserves and esplanade strips are:

- Esplanade Reserves are fixed, they do not change through accretion or evulsion and are generally vested in local authority. They are generally local reserves under the Reserves Act.

- Esplanade Strips are retained by the land owner – registered on title as an agreement between land owner and Territorial Authority. The width of the strip is not affected by erosion or accretion – if land is eroded, the strip moves.

Reserves
The Reserves Act allows any public lands (and in some cases private land) to become a reserve, held for the purpose for which the reserve is classified. Reserves can be classified for any public purpose. There are some standard classifications (e.g. scenic, scientific), but most

are either local purpose or government purpose, with the specific purpose added into the title (e.g. local purpose (navigation aid) reserve, government purpose (lighthouse) reserve).

Reserves are to be administered to achieve the primary purpose, and to the extent that doing so is no inconsistent with that purpose, also some secondary purposes, which include soil and water and biodiversity purposes.

Reserves may be vested in an administering body, in which case they have almost all the powers of a landowner, or the administering body may have "control and manage" powers which are more limited. The Minister of Conservation has oversight, and can step in if the reserve is not being administered in accordance with the Act. Administering bodies include local authorities, Crown agencies, reserve boards, iwi authorities, and other public bodies.

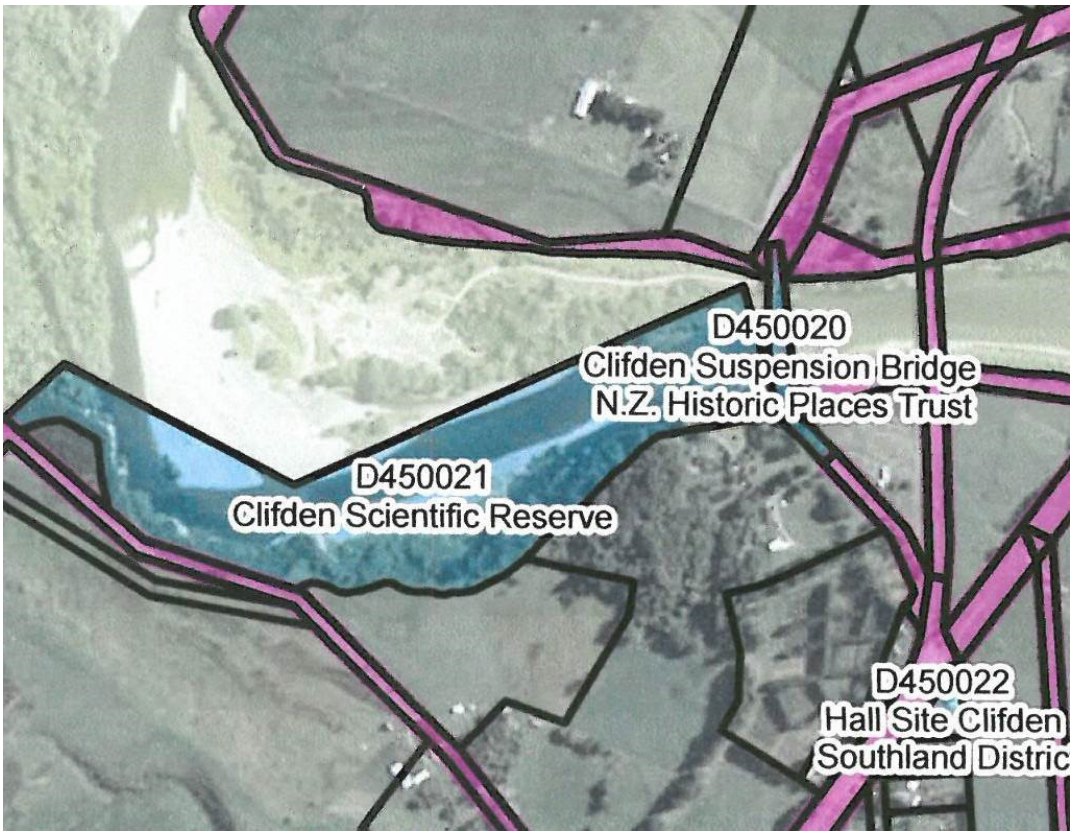
Any UCL land including riverbed can become conservation area or reserve by agreement between the Minister of Lands and Minister of Conservation (sections 7 and 8 of the Conservation Act). The only major braided river that is completely protected is the Hunter River, which was transferred to DOC using those provisions. There are also reserves that encompass small parts of riverbed that have specific values. For example in this case, the scientific reserve was created to protect fossils, and the historic reserve to protect a historic bridge. One is administered by DOC, and the other by Heritage NZ.

Overseas Investment Act

This identifies riverbeds as sensitive land, which must be offered to the Crown as part of the purchase of the land.

17 Factors for assessing benefit of overseas investments in sensitive land

(f) if the relevant land is or includes foreshore, seabed, or



a bed of a river or lake, whether that foreshore, seabed, riverbed, or lakebed has been offered to the Crown in accordance with regulations:

Administration of public riverbeds

Unless the land is specifically allocated (e.g. as a reserve), it will be UCL administered by LINZ. There is no right of public access, and the Land Act gives no guidance on how the land should be managed. The land is legally "surplus" Crown land and can be disposed of.

In some cases a river that might appear to be allocated (e.g. is surrounded by conservation park) may not be, and may still be UCL.

Shifting rivers

Rivers aren't stable, unmoving things. Some rivers in particular wander around quite rapidly.

There are a few technical terms used in talking about river movements:

- Accretion is a gradual change of bed into dry land, as a result of natural processes. You see it a lot in braided riverbeds.
- Dereliction is where a river abandons its current bed and moves into a new bed.
- Avulsion is a sudden change, e.g. as a result of a flood or tectonic movement.
- Erosion is the opposite of accretion and avulsion, and

may be slow or sudden.
- Diluvion is the gradual wasting away of soil from the edge of a river.

If land accretes next to a property with a fixed boundary, the adjoining landowner can seek to have it added to their property. Those claims are made to LINZ.

A landowner cannot claim land created by an avulsion.

Erosion will not result in land ownership changing unless the adjoining property does not have a fixed boundary and do not claim *amf* rights (or are a local authority), in which case they will lose the land – it becomes UCL riverbed.

Unclaimed land
There are riverbeds and other lands in NZ where ownership has never been established. They are best treated as UCL.

Other rights over land
Any land may also be subject to leases, licences, Treaty settlement requirements, and other legal instruments.

Legal powers to control activities
There are a range of legal powers available to control activities within rivers. A few are listed here:

Freshwater Fisheries Regulations 1983 – fish passage
Regulations 41-50 control structures that might pose a barrier to fish passage – culverts, fords, dams, weirs, etc. Essentially authorisation is needed from DOC for any such structure. That authorisation will approve the level of effect on fish passage that is acceptable.

Freshwater Fisheries Regulations 1983 – faunistic reserves
Regulation 68 allows the creation of faunistic reserve, which simply ban all fishing.

RMA section 13
This requires that most activities in riverbed require regional council consent. In many cases regional councils issue generic consents for regular activities in riverbeds, such as flood control works, gravel extraction, etc.

13 Restriction on certain uses of beds of lakes and rivers
(1) No person may, in relation to the bed of any lake or river,—

(a) use, erect, reconstruct, place, alter, extend, remove, or demolish any structure or part of any structure in, on, under, or over the bed; or
(b) excavate, drill, tunnel, or otherwise disturb the bed; or
(c) introduce or plant any plant or any part of any plant (whether exotic or indigenous) in, on, or under the bed; or
(d) deposit any substance in, on, or under the bed; or
(e) reclaim or drain the bed—
unless expressly allowed by a national environmental standard, a rule in a regional plan as well as a rule in a proposed regional plan for the same region (if there is one), or a resource consent.

(2) No person may do an activity described in subsection (2A) in a manner that contravenes a national environmental standard or a regional rule unless the activity—
(a) is expressly allowed by a resource consent; or
(b) is an activity allowed by section 20A.
(2A) The activities are—
(a) to enter onto or pass across the bed of a lake or river:
(b) to damage, destroy, disturb, or remove a plant or a part of a plant, whether exotic or indigenous, in, on, or under the bed of a lake or river:
(c) to damage, destroy, disturb, or remove the habitats of plants or parts of plants, whether exotic or indigenous, in, on, or under the bed of a lake or river:
(d) to damage, destroy, disturb, or remove the habitats of animals in, on, or under the bed of a lake or river.
(3) This section does not apply to any use of land in the coastal marine area.
(4) Nothing in this section limits section 9.

RMA section 14, section 15, and National Policy Statement on Freshwater Management (NPSFM)
These control the taking of water, damming of water, diversion of water, and discharges into water.

The NPSFM requires that all regional councils create regional plans that set out objectives for every freshwater management unit (i.e. all waterbodies), and limits and other steps to achieve those objectives. It also sets some bottom lines that councils must achieve.

Heritage Orders
These are provisions added into a district plan by a Heritage Protection Authority (HPA), under part 8 of the RMA. They can control any activity that a district plan can control (so not the taking of water). Essentially, once a heritage order is in place, any activity contrary to it needs approval from the HPA. If use of the land is unreasonably restricted, the HPA may be required to purchase the land.

These are a particularly useful mechanism for protecting values that are not threatened by the existing landuse but could be at risk from changing landuses. They are mostly used to protect historic places, but can equally be used to protect biodiversity or geological values.

The Minister of Conservation and local authorities are HPAs. The Minister for the Environment can agree to make any body corporate an HPA.

ZERO CARBON ACT NZ

Summary Paper

This document is a summary of the Zero Carbon Act blueprint released in April 2017.
Explore the full blueprint at www.zerocarbonact.nz

The Zero Carbon Act will drive meaningful climate change action in New Zealand. The Act will commit New Zealand to zero carbon by 2050 or sooner, set a legally binding pathway to this target, and require the Government to make a plan.

Climate change is a pressing global crisis that is already impacting on our homes and livelihoods. The planet has warmed by around 1°C since pre-industrial times, mainly due to human greenhouse gas emissions. The world has agreed that we must limit warming to well below 2°C, and aim for below 1.5°C. This requires global CO_2 emissions to reach net zero by early in the second half of the century, along with deep cuts in other greenhouse gas emissions.

All countries must undergo their own transition to a zero carbon society. While many other countries are reducing their emissions, New Zealand's continue to rise. There is no plan to meet existing national targets. The longer we delay our own transition, the more costly it will be. We also miss out on the many benefits and opportunities of early action.

Climate change is bigger than politics - we need political parties to work together and look beyond election cycles. Getting to zero carbon by 2050 or sooner is possible. It will require broad political commitment, immediate action, and coherent long-term planning. A clear and stable path will help New Zealand businesses and citizens plan for their future and invest with confidence in low-carbon solutions.

The Zero Carbon Act is an idea for a powerful new law to get our country on the right track. It is based on a proven concept: the UK's 2008 Climate Change Act. The UK Act has cross-party support and has been adopted in several other countries. The Zero Carbon Act will pursue three key objectives:

1. Getting us to zero carbon

The Act will commit New Zealand to zero carbon by 2050 or sooner, and drive a fair and cost-effective transition. The Government must set binding five-year 'carbon budgets' well in advance, and produce credible plans to meet these budgets.

We propose two key changes from the UK Act to suit New Zealand's circumstances:

- **The Two Baskets Approach**
  The Act will set separate targets and pathways for long-lived greenhouse gases (mainly carbon dioxide and nitrous oxide) and short-lived greenhouse gases (mainly methane). Long-lived gases must go to net zero by 2050 or sooner (accounting for carbon sinks). Short-lived gases must be significantly reduced to sustainable levels, but not zero.
- **The Firewall Principle**
  The targets in the Act will apply to New Zealand's domestic emissions only. This will create a 'firewall' between domestic action and international carbon trading, to ensure our own zero carbon transition is on track.

> ***Key elements:***
> - *Legally binding long-term targets*
> - *Pathway of five-year carbon budgets*
> - *Independent Climate Commission to guide the transition*
> - *Government must produce policy plans to meet carbon budgets*

Climate Commission

The Zero Carbon Act will establish an independent Climate Commission, consisting of 6 - 10 experts appointed by Parliament. The Commission has two main functions:
1) providing expert advice on targets, policies and climate risks;
2) holding the Government to account.

Principles

The Act will ensure New Zealand's zero carbon transition is fair and cost-effective. The Act will honour Te Tiriti o Waitangi. The Government must take into account a range of factors when setting carbon budgets, including environmental and social impacts, business competitiveness and intergenerational equity.

2. Adapting to our changing climate

The Act will also ensure a comprehensive national response to the impacts of climate change. Even if we limit global warming to less than 1.5°C, New Zealand faces significant challenges from rising seas, more frequent extreme weather events and other impacts.

> ***Key elements:***
> - *National Climate Risk Assessment prepared every five years with expert input from the Climate Commission*
> - *Adaptation Programme produced to address the identified climate risks*

3. Supporting global climate action

Finally, the Act will ensure New Zealand delivers on its international climate change obligations in a transparent manner. New Zealand has duties under the Paris Agreement to support mitigation and adaptation in developing countries, such as low-lying Pacific states.

> ***Key elements:***
> - *Annual reports (covering international carbon trading, climate finance, technology transfer and capacity building)*

A simple overview of the Zero Carbon Act's key elements:

	Legal framework		
	Binding targets	Climate Commission	Transparent planning and reporting
Domestic mitigation	✓	✓	✓
Domestic adaptation	✗	✓	✓
International contributions	✗	✗	✓

The Zero Carbon Act framework is uniquely suited to cross-party agreement. It sets out legally-mandated outcomes and process, without prescribing specific policies. It combines long-term clarity on policy direction with flexibility in its delivery.

The Zero Carbon Act is a proposal developed by Generation Zero with support from other organisations and individuals. Go to www.zerocarbonact.nz to explore our detailed blueprint, tell us what you think, and get involved in the campaign.

ZERO CARBON ACT
Press Release

Contact: Lisa McLaren
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Thursday 26 October 2017
For immediate release

Generation Zero celebrates new government support for a Zero Carbon Act

Youth climate change campaigners Generation Zero are delighted that the new government has committed to passing a Zero Carbon Act into law.

“Passing the Zero Carbon Act is the single most important thing the new Parliament can do to create a better future for all New Zealanders,” Lisa McLaren, national convenor for Generation Zero’s Zero Carbon Act campaign said.

“It’s great that the new government is taking a lead on this. Now we need the whole of Parliament to come together to pass this act.”

“This election was particularly volatile - and at times divisive - but it’s now time to put party politics aside to pass the most important legislation of this generation.

Our new government needs to bring the rest of Parliament along on this important piece of legislation”.

Miss McLaren urged the opposition parties to engage with the Zero Carbon Act policy framework, and stressed the importance of support across parliament for climate legislation. “Overseas experience shows that cross-party support is vital to the success of a climate law like this.”

“Climate change doesn’t care about political leanings or elections. To create the thriving future we know is possible, we need everyone committed to this journey.”

“The Zero Carbon Act will commit New Zealand to a zero carbon future and ensure we have a plan that lasts beyond election cycles.”

The Zero Carbon Act has been steadily gaining support throughout the election period, with over 12,000 signatures on a petition asking the new parliament to pass the Zero Carbon Act, culminating in the new government pledging to pass it. Most major political parties have also indicated support for some of the key elements of the act.

The Zero Carbon Act also has support from environmental groups such as Forest & Bird and WWF-New Zealand, 14 leading New Zealand aid agencies including Oxfam NZ, businesses such as Z Energy, and youth political parties including the Young Nats, Young Labour, Young Greens and Young Māori Party.

Parliamentary Commissioner for the Environment Jan Wright's final report also recommended the policy framework of the Zero Carbon Act, and has received backing from organisations such as Dairy NZ, Westpac, and BNZ.

On 12 October 2017, attendees at the Australia/NZ Climate Change & Business Conference in Auckland, including representatives from the business sector, NGOs, and central and local government, unanimously passed a resolution in support of the concepts outlined in Generation Zero's Zero Carbon Act proposal.

ENDS

Contact
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About the Zero Carbon Act

What is the Zero Carbon Act?
The Zero Carbon Act is a legal framework based on the UK's Climate Change Act 2008. It requires governments to reduce New Zealand's emissions year-on-year and plan towards a long-term target: zero net emissions of long-lived greenhouse gases by 2050 or sooner.

How does it work?
The Zero Carbon Act will require future governments to set a pathway of five year 'carbon budgets' on track to the zero carbon target, and produce clear plans to meet these. It will establish an independent Climate Commission to provide expert advice on targets and policies and to monitor the Government's progress.

Will it do anything else?
The Act will also require a National Climate Risk Assessment updated every five years, a climate change adaptation programme, and transparent planning and reporting on New Zealand's contributions to climate action in other countries.

How is it different from the UK's Act?
A key difference from the UK model is the introduction of a 'two baskets approach' for the different greenhouse gases. Short-lived gases (such as methane) do not need to go to zero and will have separate targets under the Zero Carbon Act. Another difference is that the targets in the Zero Carbon Act will apply to domestic emissions only (the 'firewall principle').

For more information see the Zero Carbon Act summary: www.zerocarbonact.nz/zca-summary/
For more FAQs see www.zerocarbonact.nz/faq/

About Generation Zero
Generation Zero is a nationwide, volunteer, youth-led organisation formed in 2011 to progress New Zealand toward a zero carbon future. www.generationzero.org

PHORMIDIUM GROWTH RESPONSES ALONG A VELOCITY GRADIENT IN THREE SOUTH CANTERBURY RIVERS

Tara McAllister

Toxic benthic cyanobacterial proliferations, of the genus Phormidium, are an escalating problem in freshwater environments worldwide. In NZ there has been an increase in the distribution, intensity and frequency of Phormidium blooms in recent decades. To date, understanding what conditions favour bloom formation has been dependent on observational studies, which have associated a range of environmental factors, including nutrients and flow, as potentially important in facilitating Phormidium accrual. However, few of these studies are undertaken with sufficient spatial or temporal resolution to provide explicit information on relationships between Phormidium accrual dynamics and environmental conditions.

To overcome this we have developed a method that allows us to accurately assess Phormidium accrual rates by seeding cobbles with a known quantity of Phormidium. In this study, 135 cobbles seeded with Phormidium were placed in pools, runs and riffles in three different rivers with varying nitrate concentrations. Biomass and growth rates were measured over four weeks. Water nutrient chemistry and macroinvertebrate communities in each habitat type were also determined.

Initial analysis of results show that patches in pools were removed quickly due to high grazing pressure, and that patches expanded most rapidly at intermediate velocities. However, growth rates also varied among rivers, with highest growth rates measured in the Ōpihi River, which had intermediate nutrient concentrations. The study highlights that velocity, site-specific factors and grazers interact in complex ways in influencing Phormidium accrual dynamics.

BRAIDED RIVERS METHODS REVIEW

Katie Coluccio, Masters Student, Waterways Centre for Freshwater Management Katie.coluccio@pg.canterbury.ac.nz

Poster title:

Braided rivers: Which methods have been used for investigating groundwater-surface water interactions in these complex river environments?

Abstract:

This research involved a review of the literature on investigations of groundwater-surface water exchange in braided rivers. The various methods used to characterise these processes were reviewed, with particular emphasis on effectiveness in achieving the studies' objectives and their applicability in braided river environments.

Braided rivers are highly valued water resources for various economic, cultural, recreational and ecological purposes. However, they are complex and dynamic systems, which can make it difficult to manage them effectively. One aspect that complicates the understanding of braided rivers relates to groundwater and surface water interactions. Braided rivers are characterised by multiple meandering channels that deposit gravel bars and islands, which generally create a highly porous and interconnected environment for groundwater and surface water to mix. Many of these rivers have reaches that gain flow from groundwater or lose surface water to sub-surface aquifers.

There is an increasing recognition of the importance of understanding how groundwater and surface water interact for applications such as determining the rate and direction of contaminant flow, and identifying sustainable volumes of water that can be abstracted from aquifers and surface water bodies. Until recently, groundwater and surface water systems were often considered separately both in research and in their management as freshwater resources. However, in the past few decades there has been a considerable increase in research focusing on groundwater and surface water interactions.

THE EVOLUTION OF RIVER WIDTH DESIGN FOR GRAVEL BED RIVERS IN NEW ZEALAND

Kyle Christensen

Oral Presentation title:

The evolution of river width design for gravel bed rivers in New Zealand.

Abstract:

Determining the design width for a river channel has been one of the fundamental questions that has challenged river engineers in New Zealand throughout the past century. One of the most prevalent theories was based on the work of Gerald Lacey and a regime width that could be calculated through Lacey's (1929) equation:

$B = 4.84Qd0.5$

Where

B = channel width; and

Qd = dominant discharge

This equation was specifically recommended for use in New Zealand in the influential work of Grant (1948) and Nevins (1969). The major limitation of the use of this equation was the fact that it was an empirically based equation which was derived from low gradient, silt phase, irrigation canals constructed in cohesive sediment. It is difficult to imagine any river system that could be more different from the steep, braided, gravel bed rivers that the New Zealand engineers of the time were trying to "train" into this regime width.

Notwithstanding the above there was wide application of this equation with varying degrees of success in rivers across the country. In the 1980's there was further consideration of regime equations developed from gravel bed rivers in Canada, USA, UK and Russia which produced widths with a factor of four between the minimum and maximum widths calculated. The concept of a stability index, specific for a particular river was also introduced by Griffiths in 1982 but never gained widespread acceptance or use.

The widths that we currently manage our rivers to is partly a legacy of the application of empirical equations over the past 75 years as well as the current expectations and affordability of different river bank maintenance options. Understanding the legacy of this historical development is important for informing the current debate on the width we should design and manage our rivers to.

Full Paper:

To view the full paper, click here

IPENZ RIVERS GROUP ANNUAL CONFERENCE
19 - 23 NOVEMBER 2017

2017 Conference Report
Kyle Christensen

Our 2017 conference, held in association with the International Society of River Science and the NZ Freshwater Science Society and hosted by the Waikato River Authority was a great success with a total of over 500 delegates including over 150 from around the world. There was a wide variety of papers and keynote speeches that provided plenty of scope for expanding the attendees understanding of the natural systems that we are part of and work with. There was a special session hosted by the Rivers Group titled "Making Room for Rivers" which included a broad range of papers discussing issues and solutions to the question of how wide our rivers should be. A copy of all the presentations from this session will be added to the Rivers Group webpage.

The presentation that made the biggest impact on me was "Relating with rivers as part of best river management practice" presented by Simon Mould from Macquarie University in Australia. My interpretation of Simon's presentation was that we need to focus on enhancing our relationships with rivers so that the river becomes the common focus point that provides the opportunity to enhance relationships with the community who values the river. With improved relationships with our rivers and with each other we can really make positive progress in restoring and enhancing our river systems. This theme is going to flow through into our 2018 conference which is in the early stages of planning at the moment and will be 2-3 days duration during the week commencing 19 November. The other real highlight of the conference was the Kaituna River field trip, with close to 50 attendees and a majority (75% +) from overseas this was a really special experience. It started with an exhilarating trip down the upper Kaituna in rafts including a hair raising section down the highest commercially rafted waterfall in the world (Tutea Falls – 7m). The falls is also a culturally significant site which historically served as a place where people would be "returned to the river" following their death. Also included in the field trip was a visit to the Lower Kaituna River where the river is being reconnected to it's estutary to provide wide ranging water quality and cultural benefits https://www.boprc.govt.nz/our-region-and-environment/coast/kaituna-maketu-and-pongakawa-waitahanui-catchments/kaituna-river-re-diversion-and-ongatoroma-ketu-estuary-enhancement-project/. Pim De Monchy from the Bay of Plenty Regional Council provided a great summary of the project including educating all attendees (including the French delegation!) on what a "chenier" is. It is basically a relatively flat (> 15:1 H:V) sloped, low stopbank in an estuary environment……clearly "chenier" serves as a much more attractive name for it!

Canterbury Waterways Symposium Report
Jo Hoyle

Sjaan Bowie and Jo Hoyle represented the NZ Rivers Group at the Canterbury Waterways Symposium at Lincoln University. There was a very high standard of oral presentations and posters and it was great to hear about the research that is being undertaken by postgrad students at Lincoln and Canterbury Universities.

The Rivers Group awarded the following with certificates and prizes:

- Best oral presentation to Tara McAllister, for her talk on "Phormidium growth responses along a velocity gradient in three south Canterbury rivers", and
- Best poster presentation to Katie Coluccio, for her poster on "Braided rivers: Which methods have been used for investigating groundwater-surface water interactions in these complex river environments?".

The students were given a certificate and a copy of the Rivers book backed with a $150 prize for the best oral and $100 for the best poster. Both students agreed to email their abstracts to be included in the Rivers Group newsletter.

2017 ANNUAL GENERAL MEETING

The 2017 AGM was held during our conference with a good turn out of members. I would like to thank on behalf of the membership the committee members who are standing down this year – Jon Tunnicliffe for his fantastic contribution to the setting up and judging of our contestable funds and to Simon Newton for organising our first lunch time event in Wellington and engaging with the young members. I would also like to offer a warm welcome to new members of the committee – Catherine Knight, Heide Friedrich and Selene Conn (co-opted post AGM) and of course thank the re-standing committee members for their ongoing commitment and contribution.

A copy of the AGM presentation can be found on the following link: http://associationservices.co.nz/Rivers_Group_AGM_2017.pdf

manatiaki kōawa rivers GROUP
A joint technical interest group of Engineering New Zealand & Water NZ

Institute of Engineering Professionals engineering new zealand

water NEW ZEALAND
The New Zealand Water & Wastes Association Waiora Aotearoa

WHAT'S ON

NATIONAL FRESHWATER CONFERENCE
14 - 15 FEBRUARY 2018

Highlighting the National Freshwater Conference - 14 - 15 February 2018 | Wellington

This event will focus on the national dialogue of one of the hottest election topics – the management of New Zealand's most precious resource, freshwater.
Key presentations include sessions on:

- An examination of New Zealand's freshwater management reform and strategic future direction
- The effects of intensive farming and urbanisation on freshwater
- Understanding a Māori approach to freshwater management
- The Hinds/Hekeao managed aquifer recharge pilot project
- The Havelock North water contamination inquiry
- The importance of fish passage management in New Zealand

Expert insights from:
Horizons Regional Council | Environment Canterbury | NIWA | Greater Wellington Regional Council | Wallbridge Gilbert Aztec | Waikato Regional Council | Buddle Findlay | Massey University | University of Otago | NERA

PLUS:
Separately bookable workshop on 16 February: Frameworks for local council managing Iwi engagement in freshwater management. Facilitator: Hayden Turoa, Executive Advisor to Iwi, Government and Business.

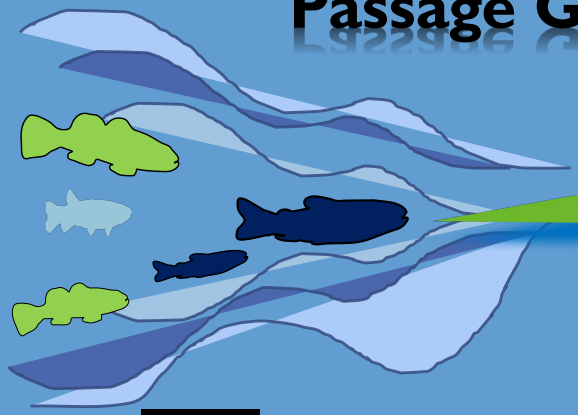
NZFSS Members are entitled to a 15% discount. To qualify, enter the promotional code MV981J while booking online at www.conferenz.co.nz/freshwater

For more information please go to:
https://www.conferenz.co.nz/events/national-freshwater-conference-2018

LAUNCH AND WORKSHOP
NZ FISH PASSAGE GUIDELINES 18 APRIL 2018

The New Zealand Fish Passage Advisory Group invites you to the:

LAUNCH of the 'New Zealand Fish Passage Guidelines'

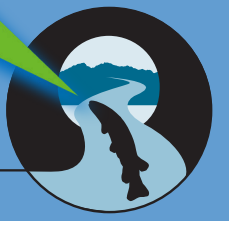


"LET'S GIVE OUR MIGRATING FISH A VOICE"

LAUNCH IT WITH US!
Join us for this multi-disciplinary **WORKSHOP** if you are involved in designing, planning and monitoring of instream structures and fish passage management.

YOU WILL FIND OUT ABOUT
Best practice for fish passage management, how the guidelines work and how to improve fish passage at new and existing structures

SAVE THE DATE:
18th APRIL 2018
9:30-17:30
MfE, Wellington



WORLD FISH MIGRATION DAY

manatiaki kōawa rivers GROUP
A joint technical interest group of Engineering New Zealand & Water NZ

New Zealand **Fish Passage** Advisory Group

advisorygroup@fishpassagenz.org • doc.govt.nz/fishpassage

RIVERS GROUP ANNUAL CONFERENCE
19 - 24 NOVEMBER 2018

Rivers Group Annual Conference, Whanganui, 19-24 November 2018
More details to come...

2017 ARCH CAMPBELL AWARD

Arch Campbell 2017 Recipient - Sharyn Westlake

"The IPENZ River Group congratulates Sharyn Westlake on receiving the Arch Campbell Award announced at the River's Group Annual Conference in Hamilton this year. Sharyn's achievements during her River Engineering career are summarised below:"

The 2017 Arch Campbell Award for a notable contribution over the past 20 years to the advancement of knowledge and practice in the fields of floodplain management and river engineering is awarded to Sharyn Westlake. It was a great honour to present Sharyn's extremely impressive citation (abridged version below) to the 350 guests at our conference dinner in Hamilton at the end of November. Sharyn was not able to attend the conference but we will be holding a special afterwork event in Wellington in March to formally present the award to Sharyn and to give her an opportunity to share some words of wisdom from the tremendous amount she has learnt and contributed over her career to date. I would also like to particularly highlight that Sharyn set-up and was inaugural deputy chair of the Rivers Group, so without her contribution we would not be here today! Congratulations Sharyn as a thoroughly deserving recipient that I'm sure Arch Campbell would fully endorse and we all look forward to celebrating with you in March.

Sharyn Westlake Citation for Arch Campbell Award 2017

Bachelor of Engineering (Civil) Hons. University of Auckland, 1989
December 1989 - July 1990 Site Engineer Fletcher Civil Engineering, Arapuni Dam Headrace Refurbishment, Arapuni, New Zealand. Tasks carried out comprised earthworks' supervision, client liaison, quality control, pre-pour concrete work inspection, site set-out and preparation of as-built drawings.
June 1992 - October 1993 Assistant Flood Defence Engineer National Rivers Authority, Wessex Region, Bridgwater, Somerset, England. Established and set criteria for the flood response telemetry alarm system for flood gates and sluices in Somerset.

September 1994 - September 1996
National Institute for Coastal and Marine Management (Rikz), The Hague, The Netherlands.
Researcher
MSc research at the National Institute for Coastal and Marine Management (RIKZ), The Hague, The Netherlands, with the thesis topic of 'Behaviour of a Shoreface Nourishment, Terschelling, The Netherlands'. The project was part of the NOURTEC (Innovative Nourishment Techniques Evaluation), which was formulated to give a comparative study of beach and shoreface nourishments.
Diploma in Hydraulic Engineering, International Institute for Infrastructural, Hydraulic and Environmental Engineering, Delft, The Netherlands, 1994.
Master of Science in Hydraulic Engineering, International Institute for Infrastructural, Hydraulic and Environmental Engineering, Delft, The Netherlands, 1995.

September 1996 –June 2003. Senior Hydraulics Engineer. Special Projects Office. Opus International Consultants Ltd, Wellington Provided engineering consultancy services resource consent process included public consultation and giving expert evidence at resource consent hearings, design process and also with construction of river and coastal engineer works.

Greater Wellington Regional Council – 2003 – 2017 Engineer – Senior Engineer – Acting Manager – Team Leader, Strategy & Technical Support - Senior Engineer, Strategy and Advisory Specialist - Team Leader, Investigations, Strategy and Planning

- Floodplain Management Plans implementation on three major western rivers – Hutt, Otaki and Waikanae. Other projects carried out within the department included the completion of the Mangaroa River flood hazard assessment, work on the Lower Waiwhetu Stream and the Strand Park re-alignment of the Hutt River, and design of the Ava Railway Bridge improvements.

- Managing the Departments contribution to the Proposed Regional Policy Statement to ensure that the Wellington region has sustainable river and catchment management that achieves the particular level of flood hazard protection desired by each distinct community of interest.

- Input into the Ministry for the Environment (MfE) led Government review of current approaches to flood risk management in New Zealand.

- Participating in the Environment Court Mediation Process to resolve the objections to Plan Change 50 of the Kapiti Coast District Plan.
- Provided expert evidence for Greater Wellington Regional Council at the Board of Enquiry hearings for the MacKays to Peka Peka Expressway and Peka Peka to Otaki Expressway.

Current member of the Open Polytech Engineering Advisory Group (appointed 2017).
Member of the Chartered Professional Engineers Council (CPEC) from August 2006-December 2014. Member of the Institution of Professional Engineers New Zealand (IPENZ) governing Board from 2000-March 2006, and in 2003 served on the Competence Assessment Board (CAB) as the IPENZ Board representative.
Served for several years on the Committee of the New Zealand Coastal Society.
Set up and was inaugural deputy chair of the Rivers Group.
Elected as a Fellow to Engineering NZ in 2004
Recipient IPENZ President's Award 2005
Three times New Zealand National Champion in women's sabre fencing.
Represented New Zealand in Women's sabre fencing at the Commonwealth Championships in Shah Alam, Malaysia, 1998. Placed 10th in the Individual Competition, and 5th in the Teams Competition.

INTERNATIONAL FLOOD RISK MANAGEMENT COMMITTEE

The IPENZ Rivers Group congratulates Alistair Barnett on his recent election to the IAHR Flood Risk Management Technical Committee

New Zealand civil engineer, Alastair Barnett has recently been elected to full membership of the Flood Risk Management Technical Committee of the International Association for Hydro- Environment Engineering and Research (IAHR).

He joins other members on the committee from the USA, China, Germany, Italy and Belgium. The Flood Risk Management Technical Committee was formed in 2015 at the IAHR World Congress in The Hague.

Its key focus is practical solutions in Flood Risk Management problem solving - a key concern for the water community worldwide, driven largely by transformation of rural landscapes, unsustainable urban population growth and climate change.

Dr Barnett adds that he would be happy to facilitate contributions to the world debate on flood management objectives and techniques by other specialist flood engineers in New Zealand, as well as in the other 35 countries where our New Zealand software is used for flood management.

Email: barncon@xtra.co.nz

International Flood Risk Management Committee

The election for Flood Risk Management Committee closed at the end of October, here is the result:

The rank of the election for LT Members:

Jennifer Guohong Duan, USA

Stefan Haun, Germany

Daniela Molinari, Italy

Benjamin Dewals, Belgium

Alastair Barnett, New Zealand

Aminuddin Ab Ghani, Malaysia

Mark Kenneth Babister, Australia

Francesco Ballio, Italy

Mustafa Altinakar, USA

Marian Muste has been elected as the Chair and Xiaotao Cheng has been elected as the Vice Chair, 100% pass.