



## Understanding our Rivers: Strengthening our Communities Hui

18 September 2025

### Summary notes

The Motueka Catchment Collective held an important hui on 18/09/25. Fifty five people from across the catchment and beyond attended the hui Understanding our Rivers, strengthening our communities at the Riverside Centre. This included a wide cross section of the community, including farmers, horticultural producers, rural residents, council staff, politicians and more. This made for an interesting day with authentic discussions and some curly questions.

Ursula Passl, facilitator, set the tone for the day. She explained that the event came out of the aspirations of MCC's Living River thematic group for the community to engage and work towards a common understanding of Motueka River system. Ursula explained that the event is planned as a stepping stone to help the community understand the flows and processes of the Motueka River and how we might learn to live with its changes and extremes. Ursula acknowledged those impacted by floods, saying that these events have changed how we live and many are still coping with the aftermath. But that floods give us reason to pause and reflect – to look at what's happened in the past and consider how to build together as a community into the future. She indicated that everyone present, although having many different experiences, had been drawn together because of their connection to the river.

The day was broken up into three sections with knowledgeable speakers for each part and panel discussion:

1. Exploring the catchment context
2. Catchment dynamics
3. Flood resilience solutions

**Dayveen Stephens** spoke first about the connection Ngāti Tama whānau had with the Motueka Awa, starting with a video where members of the Ngāti Tama whānau travelled by helicopter to the pristine source of the Motueka, and the beautiful, clean, pristine freshwater they saw and experienced there. She talked about the life force of the awa that had so much emotional and spiritual connection for Ngāti Tama whānau, but that sometimes it is sad to see the condition of the awa.

**John Ellis**, contractor for TDC, spoke next of the history of catchment management in the Motueka which started in the 1850's. John worked on the former Catchment Board over a period of 30 years from 1963. He raised the point that river management has mostly focused on the aim to control the Motueka River's tendency to flood intermittently. He says it has been a serious mistake to channel the river into a single thread. After working for the catchment board for 20 years, John eventually raised questions about the work of the catchment board, then trying to un-do the mistakes made. 1941 Act – whole of catchment approach – working closely with key stakeholders, landowners and those directly affected by rivers. Regional Councils brought into effect in 1989. His key message was that we haven't learnt from our mistakes of the past, and that we need to give more respect to the river. Back in 1963, we drank from the rivers, we swam in the rivers, and we grew to love the rivers of New Zealand and we still do. Rivers have nurtured us for generations. Show we care for our rivers, our awa, our lifeblood. wonderful opportunity to start over. Said budget for river works has essentially stayed the same over 36 years, not accounting for inflation. Water is most important, vital resource we have. Separation point granite country in the catchment is not suitable for commercial forestry, and some of the techniques of forestry removal is not appropriate. Community needs to stand up. Need to start action.

**Neil Deans**, Pou Taiao of Ngati Koata, and someone involved in the Water Conservation Order, gave an overview of the Water Conservation Order on the Motueka River. WCO's have been placed on rivers that are considered Outstanding. If protected and being utilised, which is the case for the Motueka, the specific values needing protection need to be specified. For the Motueka this included trout habitat, whio habitat, the karst system (Mt Owen / Mt Arthur area), and the wild and scenic landscapes including the Motueka Gorge, . Hydrologically, the Wangapeka is actually the mainstem. The Upper Motueka and Motupiko are actually minor contributors to the flows of the lower Motueka. The WCO specified that what is needed to protect these values is:

- No damming – not a big issue
- Retain a high proportion of natural flows
- High water quality maintained (clarity, turbidity, temperature, ph, limiting biological growths, human health, faecal bacterial contamination, dissolved oxygen).
- Maintain river form – loosely worded.
- Limit deposition of fine sediment on the river
- Maintain fish passage.

The WCO covers many of the tributaries at varying levels. The native fish populations were not included in the WCO as they weren't deemed to be outstanding Neil indicated that flood management has carried on within the WCO. He mentioned that floods are

an unavoidable reality of all rivers, and with climate change we can expect bigger floods, more often.

In the panel discussion that followed, a number of questions were explored including: What is the one thing that is needed to learn from the past?

A number of questions were also raised by those listening including whether the panelists knew about how the TDC worked with forestry companies (particularly on separation point granite). Some of the points made included:

- Don't be afraid to have conversations or a cup of tea including with people who you may disagree with. This is how the community can find a way forward
- Educate our rangatahi / young people about natural resources and how they can be looked after. Get NMIT involved in this kōrero.
- In some places, in the upper catchment, we need to stand back from the river & let it move. This will mean having some tough conversations with landowners
- Question – What does resilience mean for you and your family where you're living?
- We need support from central government to fund what's needed.
- John indicated that there were discussions at some point with the government about retiring commercial forestry from separation point granite. Neil indicated that the NES stated that additional controls could be placed on forestry on separation point granite, but not as much as what could be placed under the previous legislation. Challenges about managing forestry sector in the future – need to engage with forestry sector as we want them to do better. Acknowledge iwi owns forests through settlement process and will also need to transition these too.

Two speakers then explored catchment dynamics – Mike Harvey (River Geomorphologist), and Trevor James (Principal Scientist, TDC).

**Mike Harvey** went first and gave a fascinating and very informative talk about the morphology of the Motueka River. He talked through how the Motueka River worked. Some of the key points he made were:

- The ICM research programme was an amazing project that compiled a huge amount of information about the Motueka catchment. Need to build on this work, not start again.
- Inland basin at Tapawera where alluvium is stored (Moutere gravels). Then to separation point granite and the valley closes up and there's not much alluvium (high transport areas) (from here the gravel is coming from the western rivers – Wangapeka etc), further down, alluvium increases. Brooklyn – open up into the delta area. Not a typical profile of a river.
- Typical river – the banks fill up and overtop (flood) every two years.

- How much energy is in the river and how it's distributed. If stopbanks – more river, more energy. If a floodplain, river's energy drops off.
- Every 30, 40, 50 years we get a big flood on the Motueka.
- 1 in a 100 year flood has a 1% chance of happening each year. 50 year flood – 2% chance of happening.
- Climate change – it's real. More high intensity rainfall means more frequent floods, more intense floods. Means that a 50 year flood becomes maybe a 20 year flood. Increases odds of happening.
- Modelling tools – need to embrace these as they tell us where the risk is. If living near river, look at these. TDC do this modelling.
- Sediment – rivers balance the amount of water, amount of sediment, within a given geometry. Alter one, river changes. Sediment has changed considerably over time. In upper catchment – Moutere gravels, sediment load has gone up. Lower down, not so much evidence that sediment load has changed.
- Bedrock controls – Mouteka runs on bedrock – vertical bedrock controls. By definition this means that the river doesn't have an excess of sediment. Sherry, Blue Gum, Dove – a lot of bedrock.
- Size of Motueka River delta is pretty small given the catchment area. Historically not a large amount of sediment in the river.
- Channels have been modified – stopbanks in lower river (took away space).
- Model for 1 in 100 year flood shows the river contained within the stopbanks. Illusion of the stopbanks. Designed for 1 in 50 year but add 50 mm. last flood got into risk and uncertainty area. Will get an event that will go overtop. But because we think we're safe, we build close to the river.
- Sand and gravel extraction – for years after floods, we've dug the river out. What happens if you do this? Increase capacity of the river – need to put in bank protection. End up with rock lined ditch.
- Referred to a river in Czech republic – record of 700 years. 7 big events. People forget about floods and go back to doing what we've done before.
- Mike asked the audience to consider what can we learn from what's happened recently and in the past bearing in mind that climate change will mean floods will increase.

There was a sense in the room that Mike's presentation caused some, or possibly many, in the audience to pause and consider what they knew, or thought they knew, about the river and what causes it to flood.

**Trevor James** acknowledged all of those affected by the floods and the ongoing trauma to those people. He raised the point that he feels people think that the ecology of the river is a lower priority now that the floods have happened. He talked about the need for win-wins – protect people and habitat. He talked about all the values of the river – wild

and scenic, recreation, mahinga kai. He said he was addressing how we can build back better with our rivers. He talked about all of the unique and precious species in our rivers and the importance of looking after them – fish (18 species, some of which are nationally threatened and if we don't look after them will be lost, such as the northern flathead galaxis found in the Upper Motueka who like to live in lower velocity, shallow rivers, lamprey/kanakana nests under large rocks – in the Sherry/Tadmor and Upper Motueka, giant kokopu in Waiwhero, whitebait – spawning sites, bullies, torrentfish), birds (5 species nest in river beds – black fronted tern, banded dotterels), koura, spiders, insects. He then went on to talk about what is needed for a stream or river to act naturally and function in a healthy way. If one or more is taken away, the ecology is affected:

- Variety of bank shape, including undercut banks
- to meander, rather than be a straight channel,
- to be shaded by trees
- to include deep pools and eddies, shallow riffles
- cover for fish
- natural substrate – range of size of gravel and wood
- floodplain connection
- different depths of water.
- Need fish passage downstream though too (expressed gratitude to landowners to support TDC project around fish passage). Still need to do more work on this.

He indicated that the way we're treating our rivers doesn't show that we respect or understand what is needed for healthy functioning. Or that the trade-off is considered too much of a risk to meander a stream for example. Or maybe we don't know how to implement these needs.

Important for engineers and ecologists to work together.

Small streams are very important. 77 – 78% of all waterways in catchments. Need to look at them as important systems – more life, more density of species than larger ones.

The end of his talk included talking about some options to create this healthy stream functioning including to re-meander small streams that have been previously straightened, put wood back in the system, re-planting. These systems have since stood up very well to floods. Moutere – left wood deposited after the floods. Left in to armour banks. Instead of straightening add capacity through removing. Post flood works – some of the works are creating more habitat uniformity which is not good for ecosystems and will impact species. Wetland drainage not good to ecosystems.

Some of most amazing stream ecosystems in Aotearoa. Can build back better with very little extra cost. Cautions against fast action and straightening channels.

The second panel discussion. First question posed by Ursula: What is the key adaptation we could make a better response to these flood events?

Mike answered by saying we need a realistic evaluation of risk. If we don't do this, we just go back to what we have always been doing. One bookend – get out of the floodplain, but that's not realistic, but needs to be somewhere in between. For those living on the floodplain – need to realise what the risk is that it's a recurring risk. Another point raised is that because of the variability of the river, different solutions needed in different places. Need a process to identify options in different places – i.e.

Sherry/Motupiko. Mike said yes although do need to be careful about focusing in on a small area of the catchment. Need to keep broader catchment in mind as it's one system as impacts felt across system. Example of an action that would benefit both people and nature – Trevor – we are limited by what we can harvest. If provide additional fish passage, we can provide for both food sources and fish habitat.

Trevor talks about the importance of a site assessment to understand what is the best solution. For example, can't put wood in certain places, as too much flow rate etc. Very site specific in terms of bio engineering solutions. Spent time with Shane Jellyman at TDC on proposals for river works. Usually a compromise. Thrash it all out on a site-by-site basis. After floods – Alastair / Trevor left out of discussions. Want to be able to come back into discussion. Need site field trips to talk through.

A person asked about bedrock and refers to there being islands with exotic trees on these, and whether these should be cleared of vegetation. Mike refers to those places being places of accumulation and will always get deposition in those places. He says that under certain flows, the material will mobilise. But if you lock it up, it starves the river downstream. Just ripping vegetation out, and TDC has done some of this work to mobilise sediment – not very effective. Need to think about why sediment is there. It's a short term fix to a long term problem. TDC with their new river management system is looking at change over time.

Ursula pointed out that this question indicates that people want to understand the river and see what impacts floods.

Question about gravel extraction – should more be taken. Mike answers that in the Tapawera area, there may be some capacity to remove some gravel but its not wholesale removal. TDC have taken a river envelope system to gravel extraction. But the concept of being able to mine your way out of flood damage is fundamentally flawed. 50 /100 year flood – size of channel is about a 2 year flood. 900cumecs. Lower – the event has been 2700. Would need a channel size 2 ½ times as big. How do you achieve that? Mining out doesn't get you that. Mining rivers out in long run ends up with more damage. Worldwide literature about this. First 30 years of career – try and fix rivers and stop them

from flooding. Next 30 years – how do we fix the damage we’ve caused. What we’ve done, hasn’t worked.

**Alastair Clement** is the Team Leader of natural hazards and geomorphology at TDC. Focus on understanding. Agrees with Mike that the frequency and severity of floods are increasing. Says there’s a memory of around 4 – 7 years. Their team tries to be the districts memory. Took 5000 photos of the recent floods. Provide advice to stakeholders on flood impacts. Ideal is to avoid natural hazards, such as not allowing new buildings to go in a high flood risk area. Climate change needs to be factored in.

Alastair defines flood resilience as “our ability to avoid the effects of flooding, and where we can’t avoid it, being well prepared, responding well, and recovering quickly from damaging flood events.”

Alastair raised the topic of nature-based solutions which he says are an approach to dealing with smaller floods and that they’re not a panacea for bigger floods. More like a 20 year flood. These are about slowing the flow of water through the catchment – distributing water through time and space. Ideas include:

- Upper – leaky barriers, headwater drainage management, cross slope woodlands, runoff pathway management
- Mid catchment – riparian woodlands, offline storage areas, river restoration, floodplain woodlands, soil and land management, floodplain and wetland restoration
- Lower catchment – salt marsh and mudflats, sand dune management and restoration, beach management.

The good thing about nature-based solutions is that they also align with other values including protecting ecosystem services. TDC did a feasibility study on nature-based solutions looking at the middle and upper reaches of the Motueka. They looked at revegetation of the catchment – riparian, floodplain planting etc. They also looked at leaky barriers or dams. Says NZ doesn’t have much experience with dams – put wood in a stream in a controlled way and water can pile up behind wood in a flood and get slowly released. Also creates habitat. Also looked at floodplain reconnection – store water on the floodplain then allow it to drain back into the channel. The team built a model representing the hydrology/land cover etc to the Motueka catchment and calibrated it to past flood events.

Evaluated the flood hydrographs – could we make the curves not so peaky. There’s a 70 page document on this. Results show that NBS do slow water down a reasonable amount:

- Increased veg decreased flows by 5 – 27% across catchment.

- Increased connection between river and floodplain more localised in sub-catchments. Didn't flow through to main river
- Leaky barriers – localised barriers.
- Combo of approaches – 3 – 36% decreased flows (36% in some of sub-catchments – i.e. Stanley Brook). 9% decrease at Woodstock.

Could integrate the findings of this into work of MCC and employ nature based solutions to increase flood resilience. Links into living rivers paradigm.

Understanding big floods – the floodplain is nature's solution to big floods. Like June/July floods. Accommodate floodwater during these big events. Allow river to breathe. Provide valuable services. Disconnecting river from floodplain such as stop-banks increases pressure on infrastructure, which is reduced due to climate change.

Dwellings should be a safe place of refuge – away from floodplain. If in floodplain – need to be raised above floodplain. Consider full life of dwelling – 75 – 80 years.

**Seb Den Donker**, River and Wetland Engineer, then spoke about solutions for more resilience. Seb indicated that every 5 years there is a flood on the floodplain. Ideas:

- For small floods, you can have a secondary channel – lower than the floodplain, could be a grassy area such as a paddock, but we do need to manage the roading infrastructure around it. This being implemented in Europe.
- Space to the river – we've been narrowing the riverbed meaning more floods. If get a 50 year flood, it floods most of the floodplain. If you then build a stopbank with houses and roads behind it – the flood accelerates and there's more damage downstream.
- Some people try to protect themselves and build their own stopbanks. With this, you can trap the water. If you live in the floodplain, prepare to be flooded. Financial incentive??
- Someone who is flooded every 5 years, pay less tax/rates? Store water in some places and avoid flooding a town for small – medium flood.
- Stopping water upstream in the catchment. Keep moisture in the soil, reduce peak flow. Example in the Moutere.
- Golden Bay project – stop water. Create wetland, but do need to shade wetland. It's not a pond. Often wetlands are just ponds, and have too much evaporation which destroys the water cycle.
- Intensive forestry – damage created . more run off, less infiltration, higher peak flow, more sediment. What can you do? Courage to say stop planting into high gradient area and create more buffer zones and restore plants to waterways. Create barrier. Increase infiltration.

- Constrained channel which Seb thinks is obvious. If straighten channel, have rock wall, less space. River goes somewhere. Digs into itself – incision, goes down. Very costly to fix it. Problem in NZ. Rock walls generally not working.
- Might need to think out of the box – move road? Not “fix” the river. Motueka township – basically next to sea level rise and Motueka River. Might need to move some assets.
- NBS – using trees. Effective and not so costly and good for environment.
- Do we want a drain or a live river with functioning – good water quality, fish etc? Need to keep meandering pattern and braided river channel characteristic.
- Gravel – 270m 1m/sec. 2700m<sup>3</sup> – flood in June. Water goes 10 metres high. 800m<sup>3</sup> gravel for every xx of metres. Level of river only drops 3 cm. question – should be extract more gravel? On specific area could be effective but most of time its completely ineffective for big floods, and creates incision and destroys ecosystem.
- Gravel and drought – transition zone in the river between surface and groundwater. Has a cooling effect. Summer – brings back some cool water to river. When goes slowly, more groundwater into river. If don’t do that we increase water temp – dying fish, pollution. Happening in many rivers in France.
- Seb has observed damage in tributaries of Motueka – happening here too.
- Knowledge is key – workshop like today but also specific training for contractors. All work after two floods, they’re completely damaging the ecosystem. Fine sediment being put into the riverbed. Destroys ecosystem. This happens when ecologist/ environ engineers not involved.

The third panel session asked questions of Alastair and Seb: What’s one most important thing to do now to build flood resilience?

Seb stressed the importance of not forgetting now that this flood has happened. Use the knowledge about this event to change the choices made for the future. Preserve the understanding of what has happened to shape what we do now and in the future.

Charlotte from Hort NZ asked about nature-based solutions and which ones to prioritise. Alastair indicated that the combination was the most important. These solutions extend life of infrastructure by reducing pressure on it. If you have a small stream – you can improve things to reduce flood impact. Don’t consider “drains” as “drains”. They’re actually rivers/streams. Bring it back to a more natural state. Asked about slowing water down and re-meander and whether this would go across people’s land. Does government pay for this? How does this work? Alastair indicated that the river was here well before us. At the same time, we need to come up with an answer to this question – need to come together as a society to answer this. Seb – complex issue. What is important is for smaller creek, don’t need a lot of space. With big rivers, more difficult to achieve this but still need to explore the possibilities. Another audience

member said he'd challenged the modelling and its accuracy and said Alastair had said to take it with a grain of salt. He asks whether practical experience and living alongside the river their whole lives means anything to TDC. Alastair said yes there are assumptions that go into models and that they're not perfect. But the key thing for using models is that need to understand limitations and assumptions so not take outcomes as absolute truth.

The end of the day included breaking into groups to explore two key questions:

1. What are some of the possible solutions to build more resilience to floods
2. How can we work together collaboratively to come up with solutions to floods?

There was lively discussion and lots of thoughts and opinions shared about these two topics, and a person from each group reported back at the end.

- Get help to know what to do – from experts
- Civil defence
- Spread flow out – open swales
- Scope out info – what options are available
- Drink tea with neighbours
- Work with insurance companies to rebuild more resilience
- Interact with council, share experiences
- Education
- What get stored in the floodplain – chemicals/baleage etc that got swept away.  
Put in safe places
- Slow streams and gullies down on own properties
- Plant trees – act as sieve to clean rubbish
- Woody debris in river if can
- Fencing parallel to river, flood resilient fencing techniques
- Buffer zones to intercept slash/debris
- Leaving new course of river when can
- Encroachment onto public land – private
- Working collectively together – joining MCC / setting up sub-catchment groups to support each other
- Initiatives – water testing in catchment
- Flood recovery volunteers and neighbours helping each other
- Newsletters and info sharing
- Bring others affected in -everyone affected join in to be
- Better access to info including in timely fashion
- Sharing understanding and reaching people – comms. Get knowledge out to community, including speakers today. Wide variety of people.
- Better emergency prep

- Better warning before the event
- Comms – summarise situation as it was and outline some of the options
- Empowering community agents – diff parts of community to come together, including those you don't agree with. Resolve and work out a way forward. With council and experts. Require proper resourcing.
- Bring a friend if you go to something
- Making meetings a safe place – people say what they think and not be judged by it.
- Solutions oriented meetings. Not someone being the problem.
- Don't build something from scratch. Draw on previous research – ICM etc. adapt what we have.
- Plant trees – riparian/slopes. But take note that NBS take time to establish and grown.
- Sediment flows – where flow is being deposited. Telling us something.
- Use willows but use wisely where should be. Need to managed. Can't just walk away.
- River Z work – what to do here. Figure this out
- Sub-catchment group collaboration.
- Future planning – where to put sediment etc. set up areas.
- Public enforcement / information – flood recovery works. Understanding the RM plan.
- Practical advice that suits the local situation – silt, what people should do and how
- Single entity as opposed to different groups. But perhaps quite difficult
- Support for landowners to look after their stretch – planting etc.
- Sub catchment strategy
- Stop people building their own stopbanks
- Extra fishing levy – to fund some of initiatives
- Collaboration – lots of things piecemeal isn't so good. Need a catchment plan.
- Engage people of Motueka in understanding what happens up the valley will influence whether Motueka will flood. More hands on deck.
- Listen to all voices.
- Create more connection between TDC and landowners – forums, key contact people
- Ways to attract funding to support all of this collaboration. Who's role – central/LG?
- Passive landuse – areas adjacent to rivers to allow to flood.

Notes people wrote on sticky notes through the day about what is needed for future flood resilience included:

- Why do we allow forestry on separation point granite?
- The river needs to be allowed to meander and slow down
- We need to have forestry in these conversations
- The river has been strangled into one channel – what were we expecting?
- Understand your rivers
- Increase riparian vegetation width
- Maintain and manage willows appropriately
- Change present logging practices
- Retire separation point granite forestry
- Where possible more live growth protection rather than more rock
- Funding must be increased
- Funding should be local:central 50:50
- Rivers are a lifetime commitment
- What do we do with catchment land that's now uninsurable?
- Trout are devastating native species yet they are protected pests. Why?

To wrap up the day, MCC indicated that this was just the first step. That further hui were planned to explore flood resilience planning and actions with communities in the catchment.

An enlightening, successful day which included some challenging questions and differences of opinion, but all shared in a safe, inclusive space.

Powerpoints, presentation videos, and panel discussions are saved here -

<https://motuekacatchment.org.nz/resources-2/#Understanding>