



## Quarterly Update December 2022

### Highlighting the many benefits of flood protection

We are pleased to reflect on the progress made at the mid-way point of the Climate Resilience programme. This co-investment programme has either accelerated or allowed 55 flood protection projects throughout Aotearoa to go ahead. These projects are helping to build resilience for our many river communities.

Below is a summary of the programme achievements to date:

Catchments with protected fish-safe pathways created

**5,297 ha\***



Wetlands created or enhanced

**835 ha\***

Community resilience across

**8,642 ha\***

the equivalent land area  
of more than 10 Kaikōuras



**653\***

Local  
jobs  
created



**\$50.0m**

Estimated savings  
from flood damages  
in Kaitiāia alone

\* BASED ON PROJECTIONS ACROSS ALL PROJECTS TO COMPLETION



## Edgecumbe township flood defences to be replaced

*Bay of Plenty Regional Council*

**The floodwall adjacent to College Road, Edgecumbe, in the Bay of Plenty is getting replaced. This is the final stage of the Rangitāiki River Floodwalls project to replace three floodwalls downstream of the 2017 Edgecumbe flood breach site (which was near Edgecumbe College). Construction started on December 6, 2022.**

This project was prompted by the discovery of seepage (the slow escape of water through spongy earth) at three floodwall sites along the Rangitāiki River (Greig Road, Thornton School and College Road) and is part of the BOP Regional Council's ongoing work to upgrade flood defences around the rohe.

With the Grieg Road and Thornton School floodwall upgrades complete, work is now underway on the College Road floodwalls. Construction is scheduled to be completed by mid-2023.

BOP Regional Council Project Manager Mark Werpachowski says upgrading the floodwalls is an important part of the overall defences on the Rangitāiki River, which will help minimise and manage the risk to the community.

“With the increased likelihood of more frequent, heavy rain events, BOP Regional Council is continually investing in and innovating our flood defences across the rohe.

“These new floodwalls will form part of a wider network of recently upgraded flood protection defences along the Rangitāiki River, including the Rangitāiki Floodway and Spillway development and future work in the lower catchment.”

The new College Road flood defences are built by driving sheet piles (large sheets of steel with interlocking edges) into the ground and encasing them with concrete capping. This design will provide more effective seepage control below ground.

While construction is underway, the existing floodwall will remain and continue to provide the current level of flood protection. This will be deconstructed in stages as the new wall is installed.

*The Rangitāiki River Floodwalls project is one of six 'shovel ready' projects BOP Regional Council received co-funding for as part of Central Government's Crown Infrastructure Funding. The funding covers 75% of the initial project cost.*





## Fish Friendly Pump Stations

### *Stead Street and Mangawhero Projects*

**Several of the current Resilient River Communities' flood resilience projects include fish-friendly pumps and fish protection solutions. Two such pumps have been included in the new Stead Street Pump Station project next to the New River Estuary/Kōreti (4,100 ha) in Invercargill and at the Mangawhero Pump Station near Waiuku in the Waikato region.**

These fish-friendly Archimedes screw pumps, which have come from the Netherlands, offer many benefits over conventional axial flow pumps that are widely used throughout New Zealand. They're made up of a screw fixed inside a cylinder. As the cylinder turns, the screw lifts water from the drain and discharges the water over the stopbank through the outlet pipe. Water, fish and vegetation spiral through the pump unimpeded. The pumps are very light, so don't require a lot of power to operate, and they're very simple, requiring less maintenance.

These pumps now provide safe passage for a range of freshwater species including the New Zealand longfin eel/tuna.

The pumps are made by Fishflow Innovations. Fishflow Innovations CEO and founder Gerard Manshanden worked as a commercial fisherman in the Netherlands prior to establishing the company and had spent a lot of time observing fish behaviour.

"I fished eels and bream for most of my career, so I know a lot about these fish and their behaviour."

Manshanden recently visited the Stead Street and Mangawhero sites. During his visit to the Waikato, he was able to see the first of his fish-friendly pumps supplied to New Zealand in action.

"The eels like it! We started it up, and the water below the pump was going down a bit, and perhaps the eels panicked ... they were sitting in the long grass...and then in the middle of the day, they swam to the pump, and you saw them swimming out the top, and they would go back around and into it again which was good to see."

While in the south, Manshanden caught up with some local fishers, including those that know a lot about our tuna, or eels, and who are passionate about restoring fish passage.



## Rivers to Schools Initiative

### Marlborough

**The Marlborough region often experiences flooding, and thanks to one very dedicated River Engineer the children at Rapaura School have a much better understanding of the cause of floods and the projects that are helping to protect the region.**

Council Rivers Project Engineer Andy White developed the 'Rivers to Schools' initiative which is a key part of Marlborough District Council's community programme under the three-year \$5M Government and Council co-funded Resilient River Communities Wairau River Flood Protection Scheme.

"I wouldn't say we're normalising floods, but a key part of this initiative is telling the broader story of our rivers – not just the science, but the cultural, mythological, and sociological aspects that are essential for incorporating Te Mana o te Wai into the way we perceive, manage, and live with our awa".

White who was a science and engineering ambassador in the UK, was happy to facilitate the session. He'd seen the impact of experiential learning in the UK so spent a weekend building a 'stream table'.

"The table is something Universities use all the time to show the flow of rivers. Normally we'd do a Powerpoint, but kids enjoy hands on learning. I drew it up on auto CAD, went home and bought all the materials and basically over the weekend built the table. On Monday we filled it up with sand, got the pump going and away we went".

White says that the table helps students understand

the more complex aspects of flooding.

"The first experiment shows how rivers form, we get them to put some dye in and watch the different parts of the river to see where all the different braids are. Then we 'develop' the land, placing houses and schools onto the land. And then we put a flood on, and the kids get excited because they get to watch the houses wash away. Once the storm subsides, we talk about what we're going to do next time it floods – it brings home the reality".

The table helps students learn about how rivers form their pathways, and how the Wairau Bar in particular was created. White also takes the children through how braided rivers are formed, how stopbanks are breached, the speed rivers flow, where stopbanks are needed and the importance of flood prevention and protection, among other topics.

He says that the response from pupils, teachers, and parents has been extremely positive with the children producing a book of thank you letters, and a film of their experiences.

*Marlborough District Council is a unitary authority, which means it also has the functions and powers of a regional council.*







**Resilient River  
Communities**

*Built By*



**Te Uru  
Kahika**

Regional and  
Unitary Councils  
Aotearoa



**Kānoa**  
Regional Economic Development  
& Investment Unit

## Restoring the Waimakariri

*Kaimahi discuss birds, berms,  
and old man's beard*

Halfway through an Environment Canterbury-led, three-year weed control and planting project, the team from contractor, CityCare Property, share their mahi challenges, motivations and hopes for the future of the Waimakariri River berm.

[Restoring the Waimakariri](#) →



## Hawkes Bay

*Explainer Video*

This short video outlines the flood protection initiatives happening across the Hawke's Bay region as part of the Resilient River Communities project.

[View the video](#)