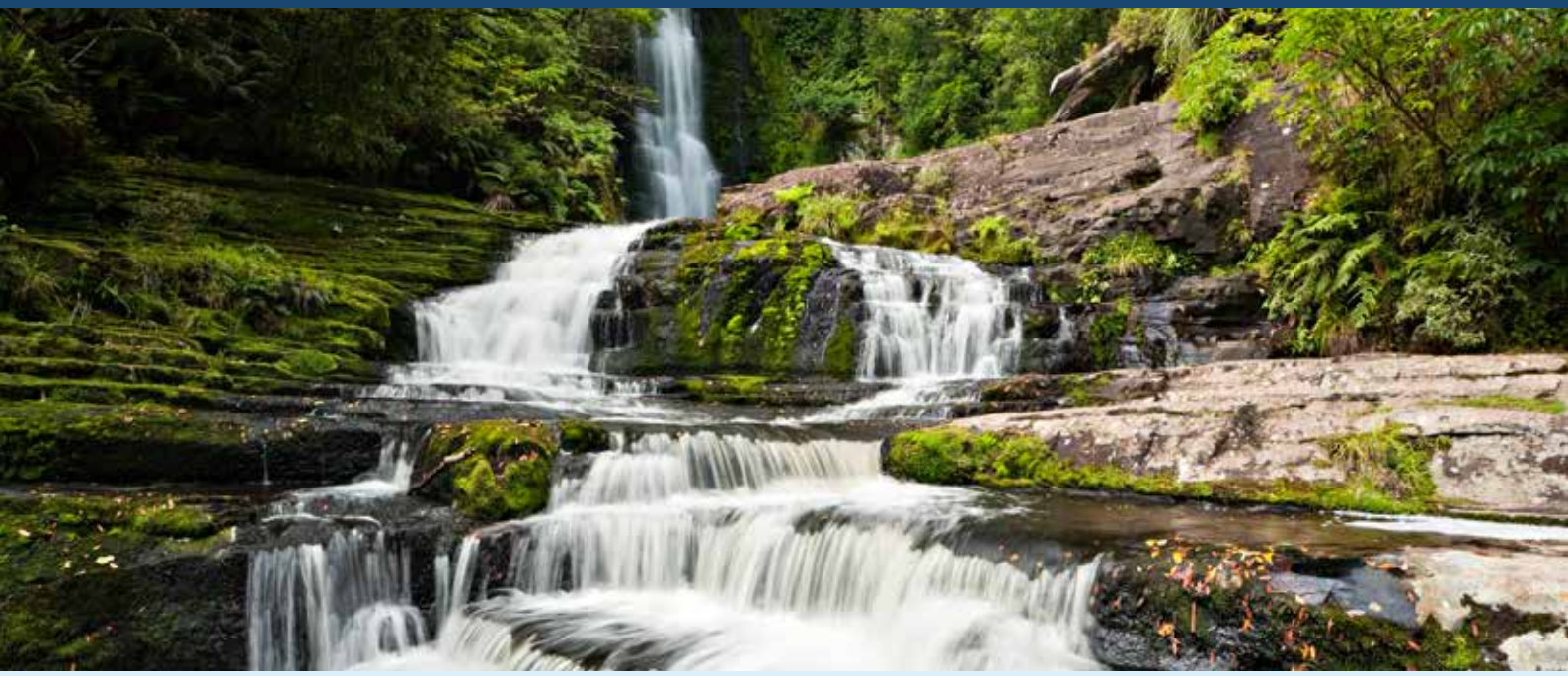
Rural Otago's update

Waterlines

Otago Regional Council

Winter 2020

GOOD WATER IN OTAGO



Action for Healthy Waterways

The government has announced a series of provisions designed to restore and protect the health of New Zealand's waterways. The provisions—including rules, objectives and policies—are collected under the title "Action for Healthy Waterways", part of the Ministry for the Environment's Essential Freshwater work programme.

The provisions include a new National Policy Statement for Freshwater Management (NPSFM), new National Environmental Standards (NES) and section 360 RMA regulations.

The NES contains rules which will form part of ORC's Regional Plan: Water. ORC is required to give effect to the NPSFM through the review of our existing Water Plan and through the development of the upcoming Land and Water Regional Plan, and our Freshwater Management Unit provisions.

The government consulted on these changes last year, receiving over 17,000 submissions which have informed the final provisions.

What's in the provisions?

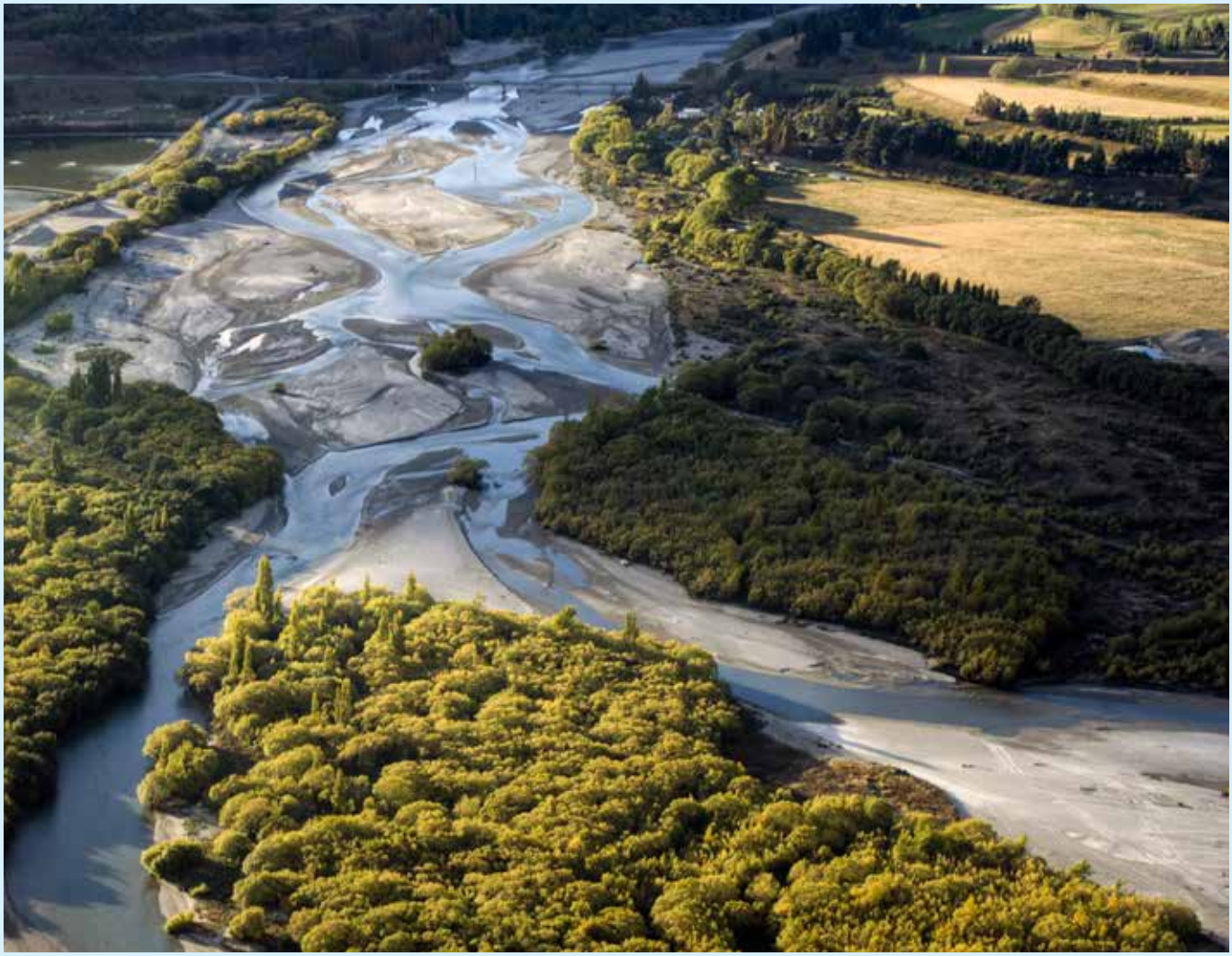
The provisions include a range of new requirements for councils, developers, farmers and communities, targeted at reversing the course of ecosystem degradation and restoring healthy waterways in one generation.

Some of the new requirements, to be implemented through regional plans and National Environmental Standards, include exclusion of stock from waterways, greater protections for wetlands, controls on intensive winter grazing, interim controls on land-use intensification, and new caps on the use of synthetic nitrogen.

The new policies also include a clearer definition of the concept and framework of Te Mana o te Wai, a new compulsory value for mahinga kai in the NPSFM to provide greater recognition of Māori values, and new monitoring requirements that more than double the number of attributes for freshwater ecosystem health that need to be monitored.

Visit the Ministry for the Environment website if you would like to learn more.

Continued overleaf



Shotover River, Queenstown.

What does it mean for Otago and the ORC?

ORC submitted in support of the overall direction and intent of these plans to improve water quality and halt ecosystem degradation when they were presented for consultation in September last year.

"We know there is a lot of work to be done, both here in Otago and in other parts of New Zealand, to reverse the course of freshwater health."

We also noted in our submission on the proposals that all of this work would come at great cost to the local authorities and communities implementing the necessary changes in very rapid timeframes.

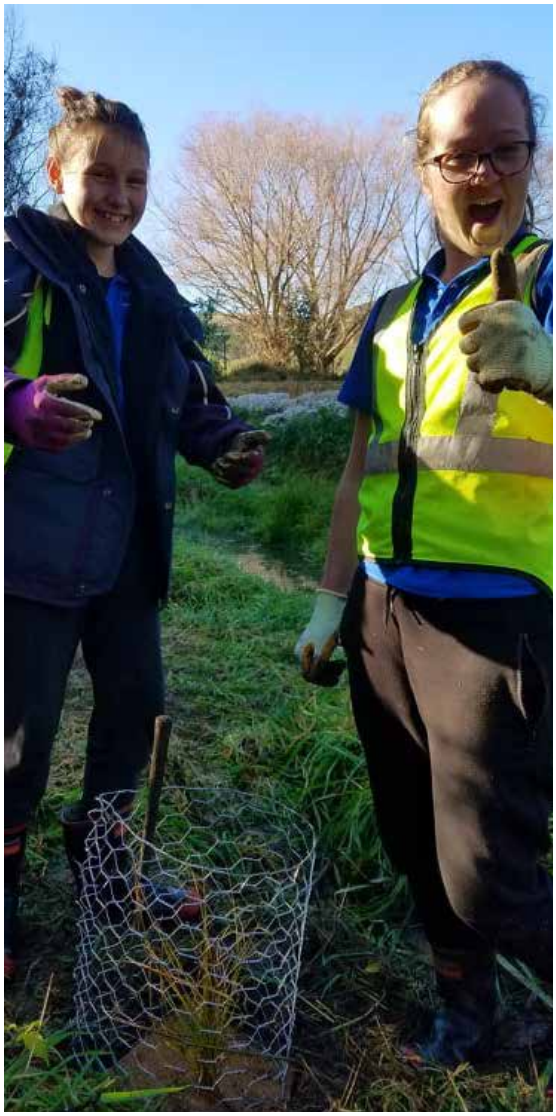
ORC has had an opportunity to get ahead of the curve on some of the new requirements around stock exclusion, fencing, and land use intensification through plan changes in the first half of 2020.

These plan changes have been called in by the Minister for the Environment, and will be notified by the Environmental Protection Authority. When that happens (the plan changes have not yet been notified as Waterlines goes to print), we will have an opportunity to align our proposed rules with the direction of Action for Healthy Waterways.

Signed up for On-Stream yet?

On-Stream is our monthly e-newsletter, delivered to your inbox towards the end of each month. It has the latest news, events, and consultation info to keep you up to date with what's happening around Otago, as well as seasonal advice from our Rural Liaison team.

To sign up to receive On-Stream, simply email us at **water@orc.govt.nz** or visit **www.orc.govt.nz/onstream**



Millers Flat students planted 100 eco-sourced trees by their awa on World Environment Day, 5 June.

Enviroschools teaches Otago students about stream health

Schools around Otago have been learning about their local awa (rivers and streams), and taking action to look after them.

Millers Flat school have adopted their local stream, the Tima Burn. The idea is to restore the waterway to its optimal health by talking with farmers about best environmental practices, engaging in a planting project to stop bank subsidence and offering shade for aquatic species.

Students are using the SHMAK (Stream Health Monitoring and Assessment Kit) to monitor the stream. The SHMAK has a range of tools for measuring water temperature, pH, flow speed, and clarity. It also has nets for collecting what lives in the water.

They are also working closely with the local nursery to select eco-sourced plants that are suitable for bank stabilisation and can survive the occasional flood.

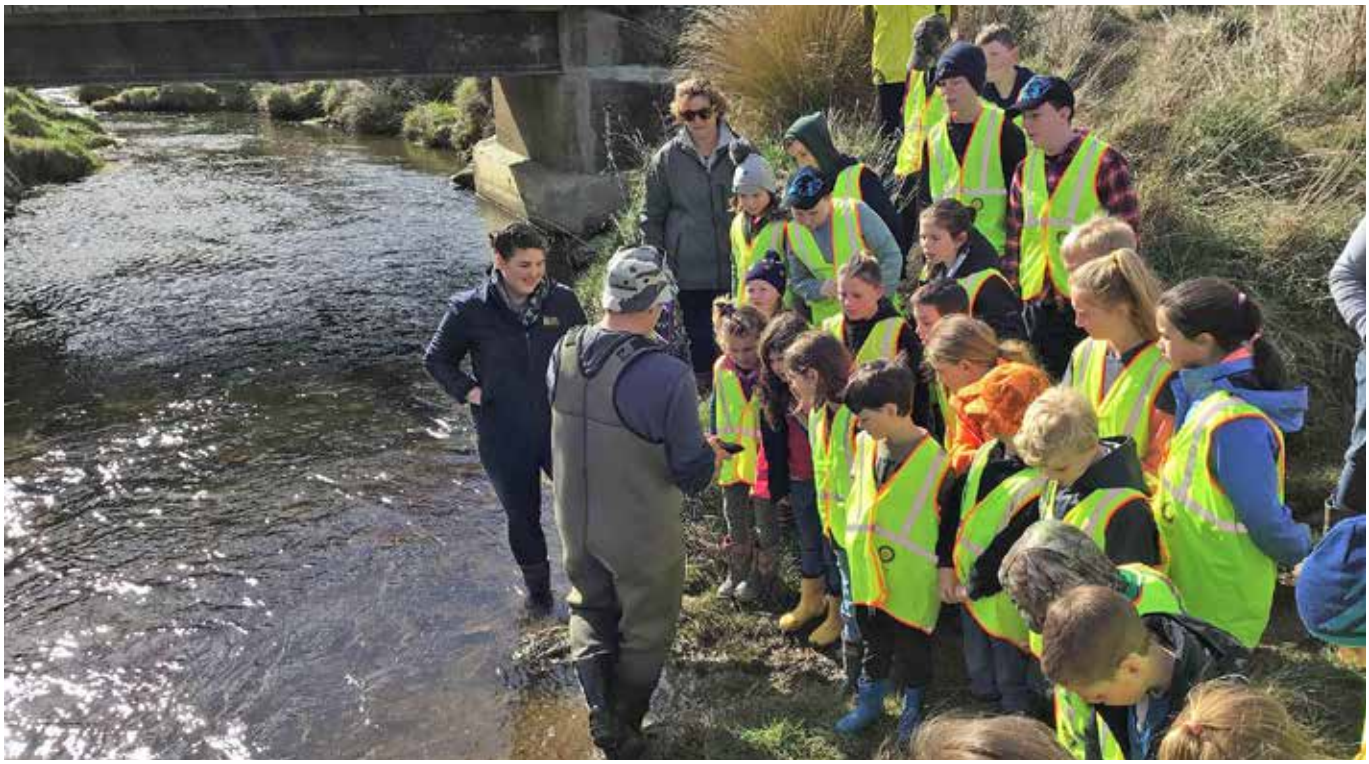
Poolburn School students are also getting to know their local awa with the SHMAK. They've been spending time with a local farmer whose farm takes in some of the creek. Students have been learning about fencing waterways, stock control, eel habitats, and the flow of the creek.

Finally, Portobello School has teamed up with their neighbours at Roselle Farm to study stream health. Students have been assessing the stream's health and comparing it to data collected two years ago.

They have identified what can be done on the farm to improve stream health and are ready to help out with riparian planting.

Enviroschools

A day in the life of...
the Rural Liaison and Support team



Rural Liaison Nicole Foote talks to Lee Stream School students about the ecology of the Waitahuna River.

If you're a farmer in Otago, there's a pretty good chance you've already met one or more of our Rural Liaisons.

Between them, the team covers the region, giving out advice, answering queries, coordinating with catchment and industry groups and generally promoting good management practice on Otago farms.

Meet the team

Team Leader Bex Begg has been with ORC for nearly six years. Having grown up on a Central Otago farm "on the banks of the Clutha River", Bex eventually found her way towards Balclutha, to farm and raise a family. Today, she's the ORC rural liaison for South and West Otago.

Bruce Monaghan, who's responsible for Central Otago, describes himself as an "ever present" figure since the Regional Council was formed in 1989. Prior to his rural liaison role, his focus was on land resources and soil conservation. Few in Otago have the experience and knowledge to rival Bruce's decades of work on Central Otago farms.

For East Otago, Dunedin, the Lower Taieri "and all areas in between", Nicole Foote is ORC's rural point of contact. Nicole has had a range of roles at the council since she started in 2014, but she's most at home on the farm—"where the dogs are, and the open space"—and the rural liaison team suits her best.

A day in the life

Bex describes a Rural Liaison's job as "connecting people with each other and information, and translating that information into something practical and relatable in a farm situation."

Nicole calls it "being a conduit between the rural community and the council."

"A lot of our time is spent working with catchment groups and industry for the promotion of good management practice," she adds, "Or 'GMP'."

Good management practice is at the heart of what the rural liaisons do: it means helping people to make on-farm decisions around planting, planning and land-use that result in improved water quality. There's good management practice—the things that are good to do—and then there's policy and regulation—the things you have to do, which sometimes lag behind the GMP curve.

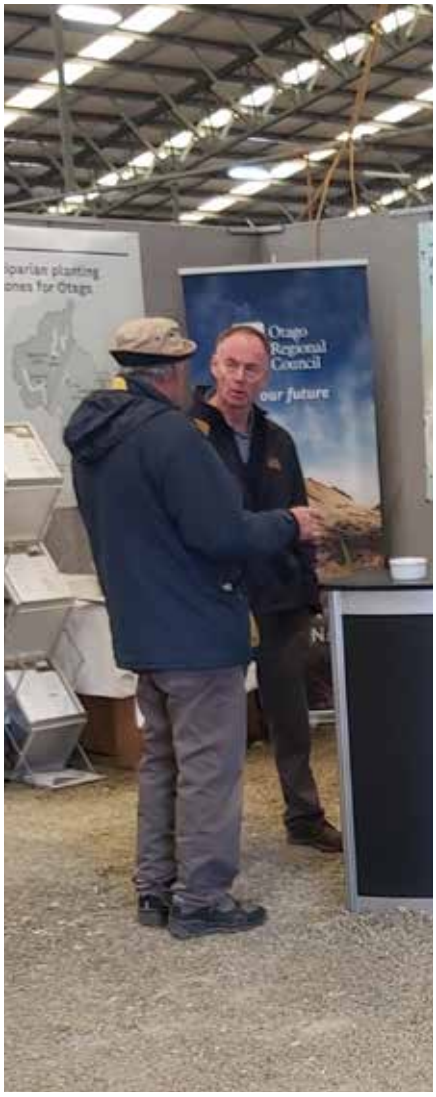
In short, the rural liaisons mostly spend their days promoting good management practice and helping farmers to understand and follow the rules. Given the policy changes happening at both the regional and national level, plus rapidly shifting market pressures—that can be easier said than done for all concerned.

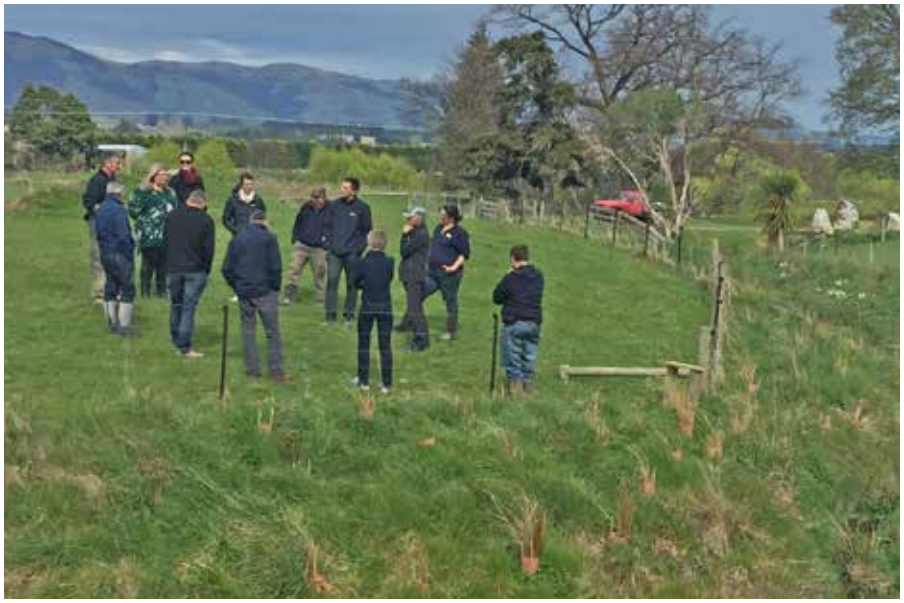
"We work in an ever-changing environment, which means we need to be flexible and adaptable to change," Nicole tells us. "Whatever the focus is today, it might shift to something else tomorrow, and people are looking to their rural liaisons for some guidance."

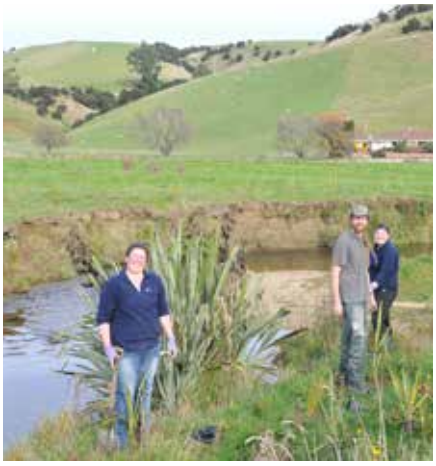
It's about the people

All of the rural liaisons are passionate about the job, and the communities they work with in particular.

"Working with farmers who are passionate about what they do— that's my favourite part of the job ... Not just for themselves, but for future generations."







ORC's Rural Liaisons out and about, helping with riparian planting, teaching school students, visiting farms and talking to expo visitors.

"It's great to help empower them to make positive changes during a time when there is a lot of policy coming their way," Bex says.

"I love just being able to respond to enquiries, to catch up and answer questions," Bruce tells us, "Also presenting to community groups and catchment groups, providing clarity and pointing people in the right direction for more information."

"It's about the people as much as the environment," Nicole agrees, "I often come away from farm visits inspired by what people are doing in the biodiversity and land management space."

So, what is the latest advice from the rural liaison team?

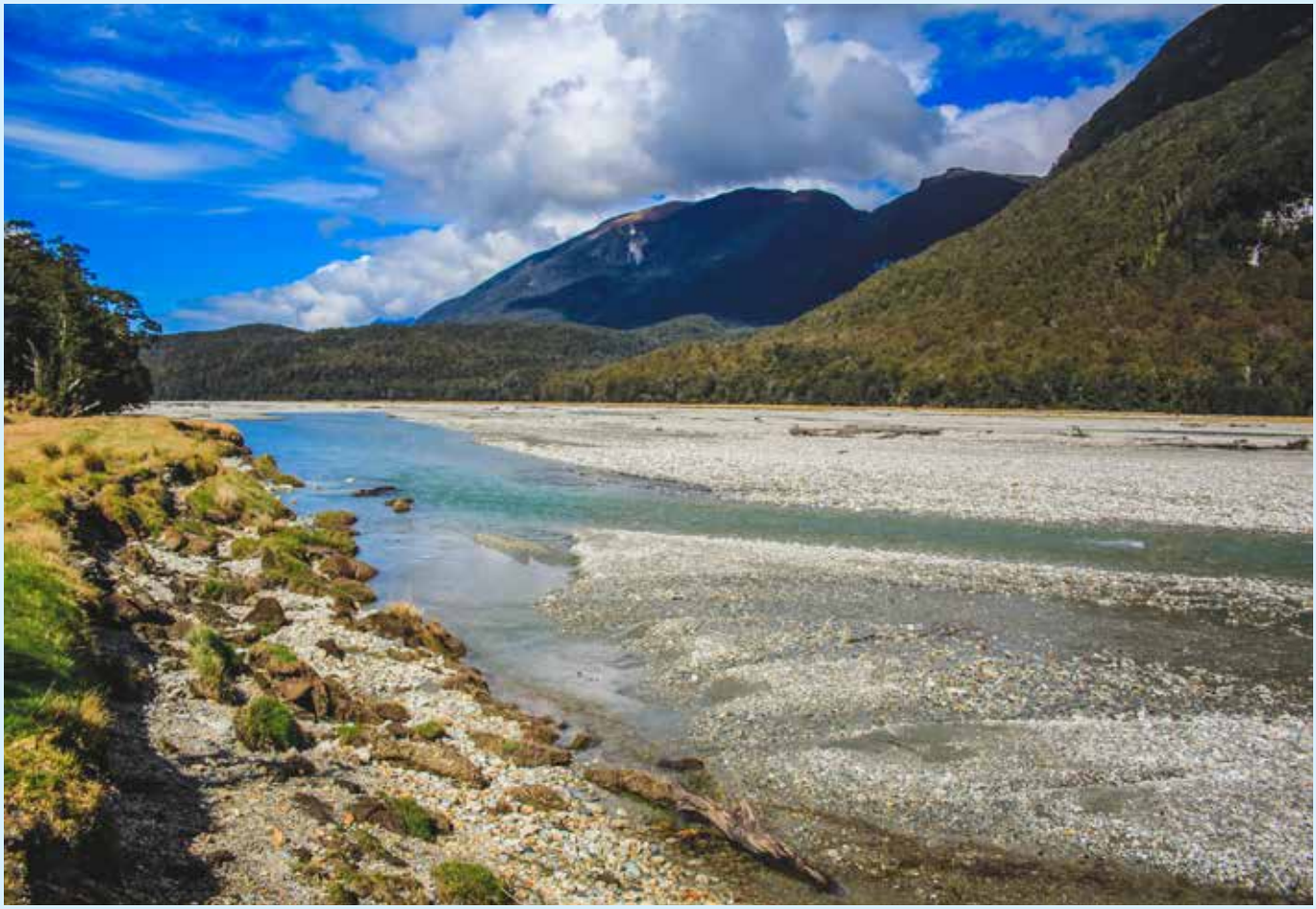
"If you haven't already, it would be a good idea to think about how you will graze next year's crop paddocks and document it in a winter grazing plan ready to implement." – Nicole

"There's lots going on, so keep up to date through your local catchment group and your industry body." – Bruce

"If you haven't got a Farm Environment Plan– it's time to develop one." – Bex

What does a catchment group do?

Visit **www.orc.govt.nz/wcg** to see the great work the Waiwera/Kaihiku Catchment Group are doing to improve water quality with support from ORC's ECO Fund.



Paradise, Queenstown.

Let's catch up on water

ORC is responsible for creating and upholding regional plans that set out how natural and physical resources should be managed in Otago. Our Water Plan promotes the sustainable management of water in the region, using policies and methods (including rules) to address freshwater use, development and protection.

This year is a really busy one for our Policy and Planning team, with quick fix plan changes needed to comply with direction from the government, on top of our long-term work to write a new Land and Water Regional Plan by 2023.

These changes are essential for us to deliver a planning framework that is fair, fit for purpose and delivers the best environmental outcomes for Otago.

Here's a quick breakdown of the changes in the pipeline:

Water Permits Plan Change (WPPC, or Plan Change 7)

Plan Change 7 (WPPC) creates a simplified resource consent process to manage water permits and deemed permits (historic water permits), while a new planning framework is developed for how freshwater is taken and used. This simplified process will allow for short-term water permits to be granted until the Land and Water Regional Plan is operative.

ORC notified the Water Permits Plan Change in March. Because Minister Parker "called in" this plan change (along with the Water Quality Plan Changes) at ORC's request, it will be re-notified by the Environmental Protection Authority. All submissions will then be considered together.

Anyone who submitted to ORC on WPPC does not need to resubmit to the Environmental Protection Authority, but they can choose to do so if there are additional considerations.

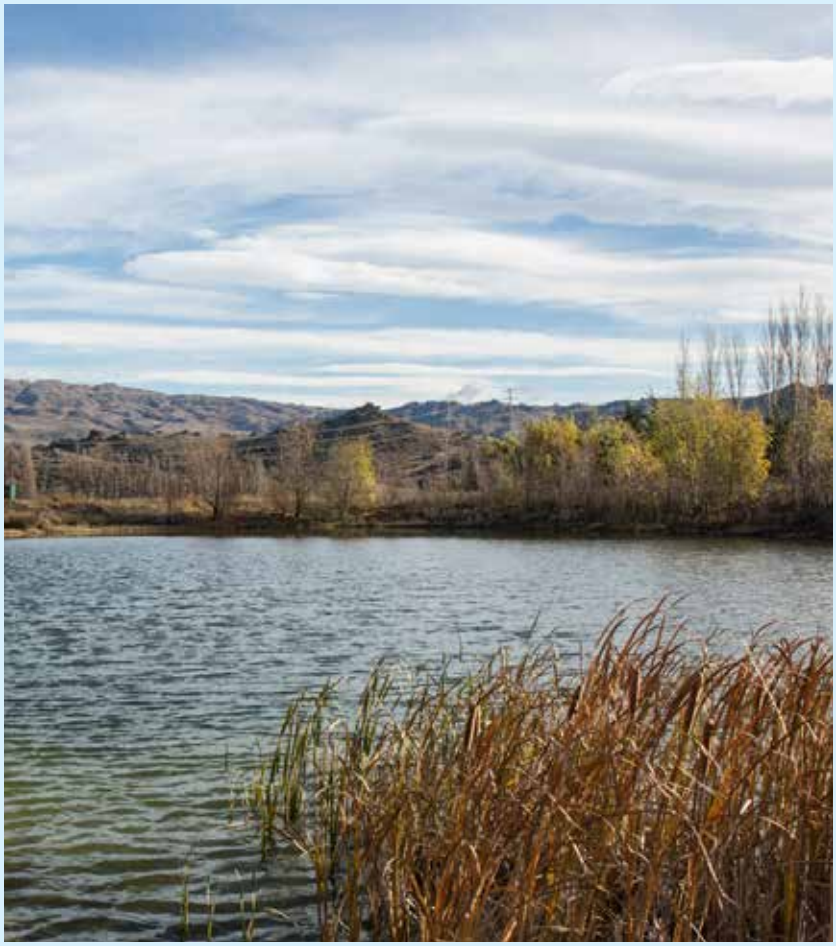
Water Quality Plan Changes (WQPC, or "Omnibus")

Our regional plans managing water and waste need to be strengthened to protect our environment. We're proposing several changes to these plans to provide clear environmental management requirements until the new Land and Water Regional Plan is in place.

The proposed changes to the water and waste plans will strengthen and align water quality management to meet central government expectations and policy, and to safeguard our waterways. Like the Water Permits Plan Change, these plan changes have been called in and will be notified by the Environmental Protection Authority. Anyone can submit to the Environmental Protection Authority on the Omnibus Plan Change.

Regional Policy Statement (RPS)

All regional councils are required to have a Regional Policy Statement, which sets the direction for the future management of natural and physical resources such as



Reservoir in Alexandra.

Stay informed!

Visit our dedicated water website.

We know that you want to find information about water quickly and easily, so we've created a water-specific site to help you find what you need to know faster. Check it out at www.goodwaterinotago.nz.

The website is mobile-friendly, so you can access water info on the run. The website showcases 'Everyday Water Heroes', so if you know of someone in Otago who is doing great things to protect and enhance our waterways, please let us know by emailing water@orc.govt.nz.

freshwater, land, air and our coastline. Our RPS provides the foundation for the development of all regional plans (which ORC develops) and district and city plans (which district and city councils develop). A new RPS is required to meet National Planning Standards and to support our plan development.

We ran a questionnaire to collect input on the Regional Policy Statement in February, and staff and planned to travel around the region in March. Due to the disruption of Covid-19, we have instead formed reference groups of community experts to give input to staff on all topics that will be covered in the new RPS.

The new Regional Policy Statement will be notified and open for submissions in November this year, with the aim to be operative by April 2022.

Land and Water Regional Plan (LWRP)

The Land and Water Regional Plan will promote the sustainable management of Otago's water and land resources. It will include objectives, policies and methods (including rules) to address issues of use, development and protection of freshwater and land resources, including the beds and margins of water bodies.

The new Land and Water Regional Plan will be the result of the current review of the Regional Plan: Water, the Regional Plan: Waste and ORC's work with communities in each Freshwater Management Unit (FMU) area. You can find out more about FMUs at: **www.orc.govt.nz/FMUs**

Ministerial call-in

ORC councillors voted in February to ask the Minister for the Environment to consider a ministerial "call-in" of the Water Permits and Water Quality/ Omnibus plan changes. The Minister has since agreed to refer the proposed plan changes directly to the Environment Court, which will shorten the lengthy process of finalising plan changes, and deliver certainty for Otago communities much sooner.

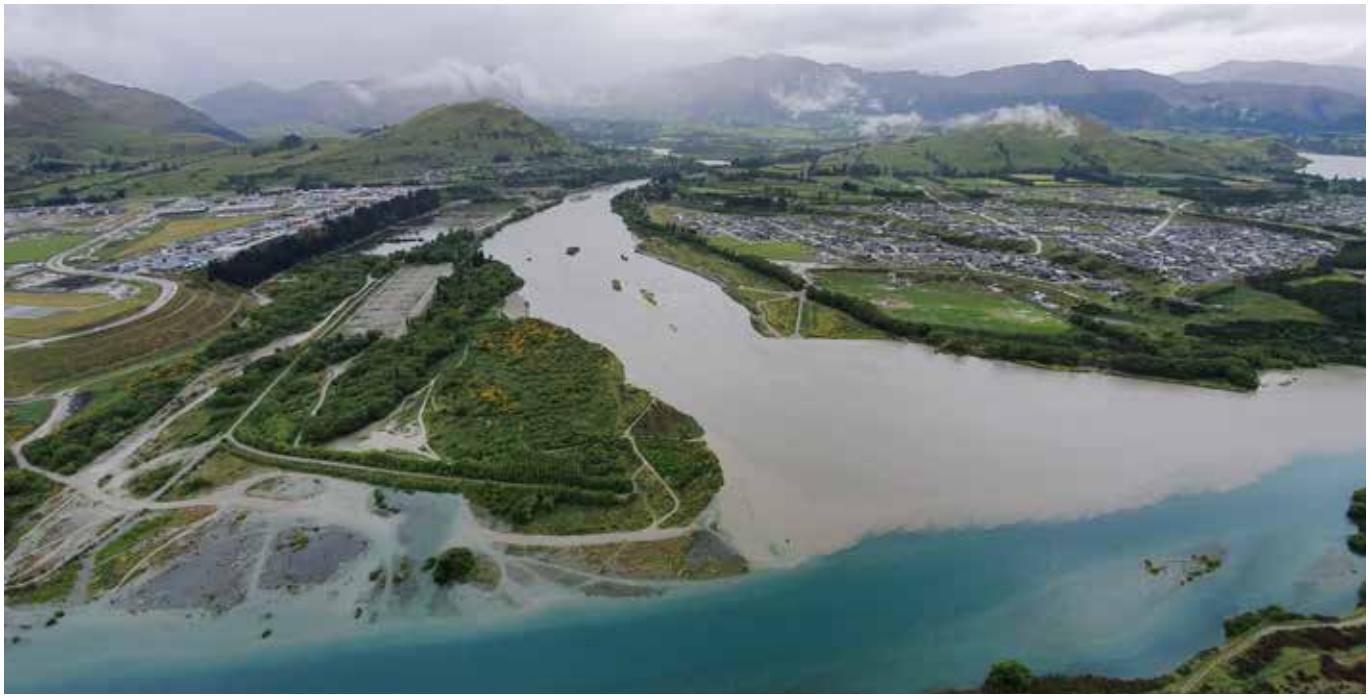
Minister Parker considered the plan changes to be of national significance with regard to a range of factors. His decision assists ORC by allowing staff to focus on the bigger picture of long-term freshwater planning in Otago, through the new Land and Water Regional Plan.

The EPA will now take over notification of these plan changes for submissions ahead of hearings in the Environment Court. The EPA may have notified the Water Permits Plan Change and the Water Quality Plan Changes by the time you're reading this. Check online at: **www.epa.govt.nz**

Friend of the submitter

ORC has engaged a "Friend of the Submitter" to help the community with the process of lodging submissions to the EPA. Emma Spalding can be contacted, free of charge, at **friend@orc.govt.nz** to help guide you through the process, give advice on how to capture your views and explain what happens after your submission is lodged.

Watching the water in and after floods



High river flows where the Shotover meets the Kawarau River, on 3 December.

Otago has been hit by significant flood events twice since late last year. In December, heavy rainfall over the headwaters of the Southern Lakes pushed Lakes Wakatipu and Wānaka right up to the edges of Queenstown and the Wānaka township.

Then, in February, widespread rainfall saw rivers, particularly in the south, reaching flood-level flows: the Clutha River at Balclutha peaked at around 3,175 cumecs (cubic metres per second), the highest level recorded since 1999. While, in most respects, Otago didn't fare as badly during this event as our Southland neighbours, many rural properties were badly affected by flooding, leading to long hours and anxious waits for South and West Otago farmers.

ORC's flood management and drainage scheme functioned well in the high flow conditions. Our engineering team was on-site monitoring the scheme, focusing their efforts in particular on a weakened flood bank near Balclutha's Hospital Road, and at Waitepeka, west of the Owaka highway.

Staff mitigated flood issues at those sites with spillway modification, and the operation of ORC's pumping stations and outflow gates to manage water.

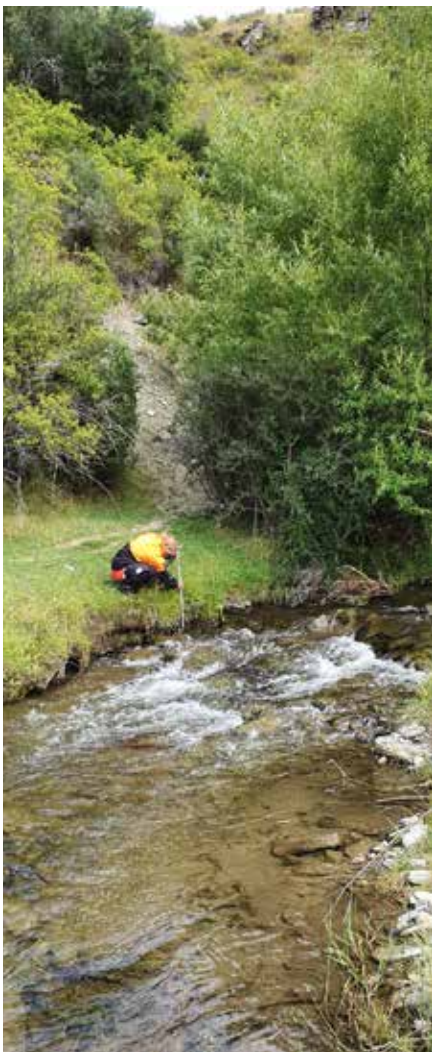
When flood events occur, ORC's Engineering Team is on the ground, often for long stretches through the night, to keep an eye on flood protection and drainage infrastructure and to monitor pump stations. During the February event, their flood response also included supporting the Clutha District Council.

Staff monitored sea levels and high tides at the mouths of the Clutha River (Matau and Koau branches), but thankfully these were not an issue in February. Overall, the schemes performed to expected levels of service, but some assets were damaged and have been assessed and prioritised for repairs.

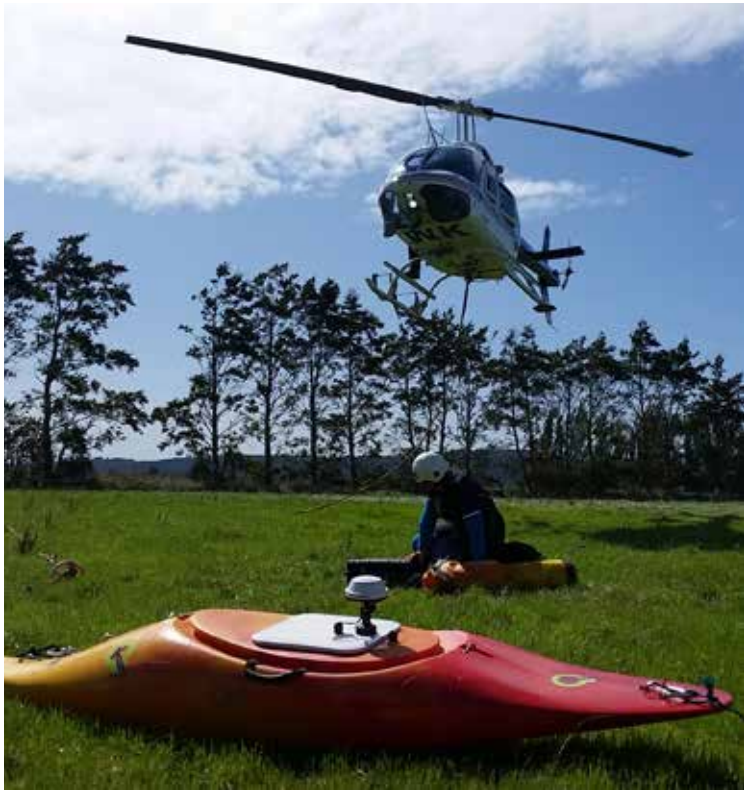
Modelling catchment flows

A key part of ORC's role in responding to flood effects is to monitor river flows and model the impacts of additional rainfall, so that communities know what to prepare for.

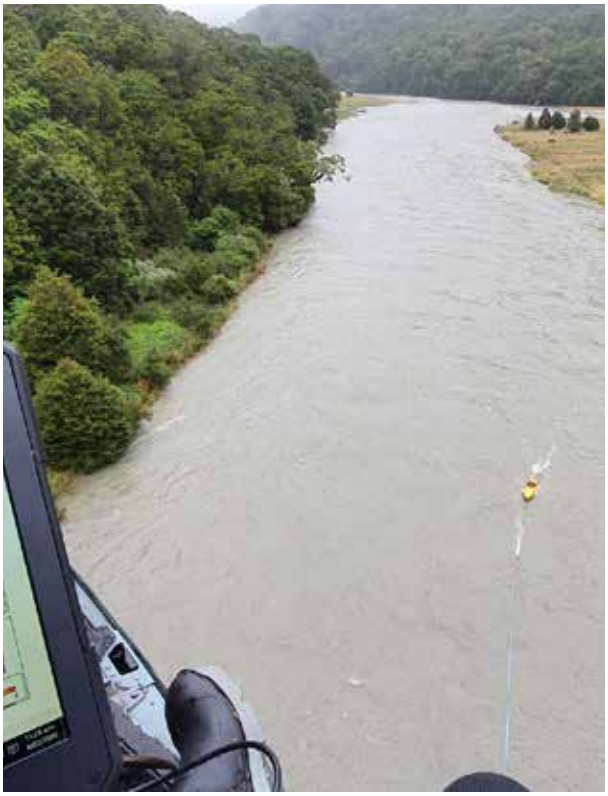
Flood events like the one in February are an opportunity for us to collect data on how Otago rivers respond to high flows. We might have a pretty good idea of what the Clutha looks like at 3,000 cumecs when we model it in the office, but it's not often that we can observe it in reality.



Staff inspect a flow monitoring site at Cluden Stream after the December event.



Environmental monitoring staff prepare a kayak for lift-off near the Clutha River.



Helicopter-gauging in the Young River, north of Wānaka, in February.

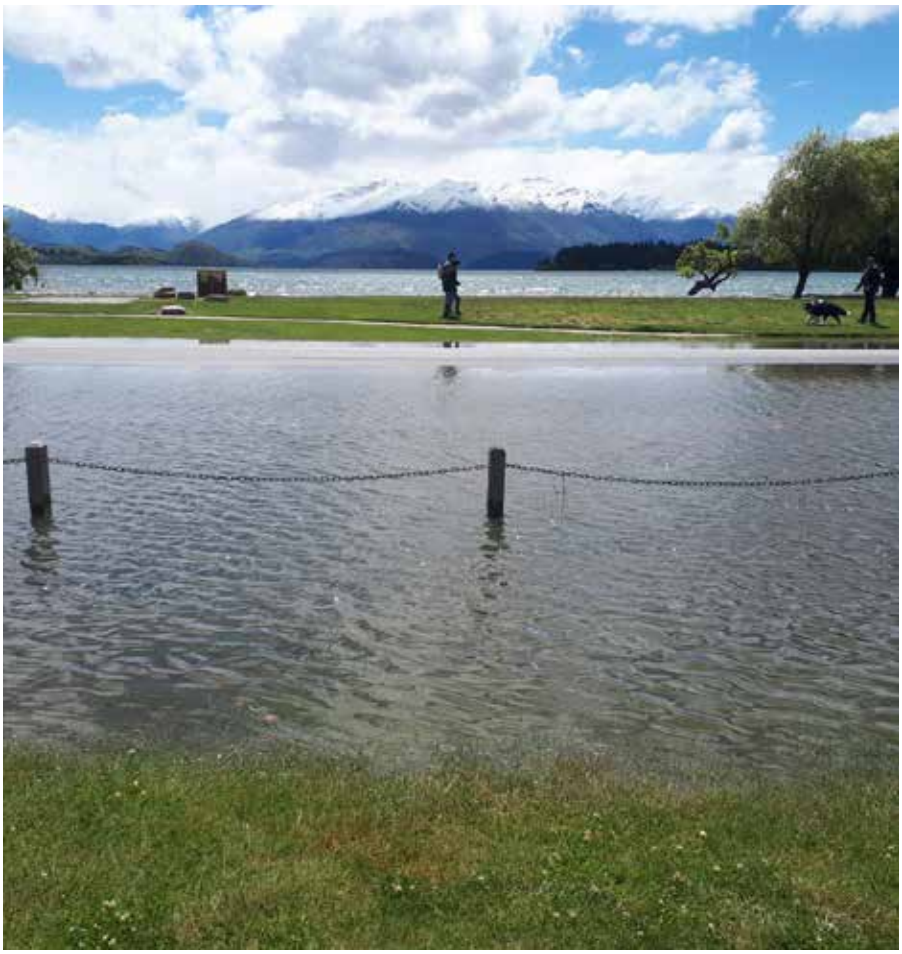
Environmental Monitoring staff were out during the floods, gathering data with an innovative helicopter-gauging technique pioneered right here at ORC. This method involves the helicopter towing a kayak from one side of the river to the other. The kayak contains electronic instruments measuring water depth and velocity.

By measuring the depth and velocity of water flowing in Otago rivers, we can verify and adjust our hydrological models for the way rainwater moves through the region.

The work doesn't stop when the rain is finished, either. Staff make their way out to dozens of monitoring sites in the wake of a high-flow event to check on monitoring instruments, recalibrate them for any changes in the hydrology of the site, and in some cases relocate them to a more suitable location.

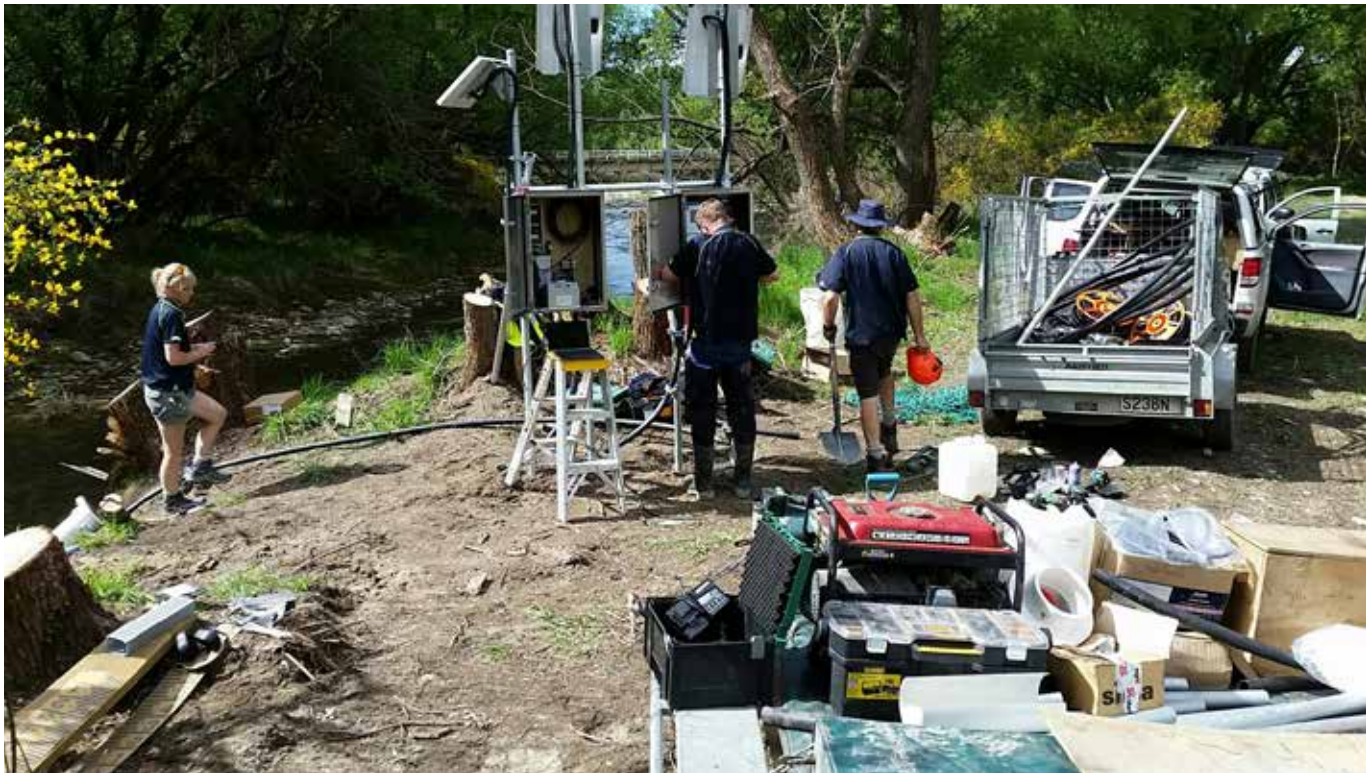
During the February floods, we set up a webpage with advice for anyone in the rural community affected by flooding.

While that event has passed now, the links and advice at this page will still be useful to keep on hand:
www.orc.govt.nz/floodresponsefeb2020



Flooding of Ardmore Street in Wānaka, December 2019.

Taking the pulse of freshwater ecosystems



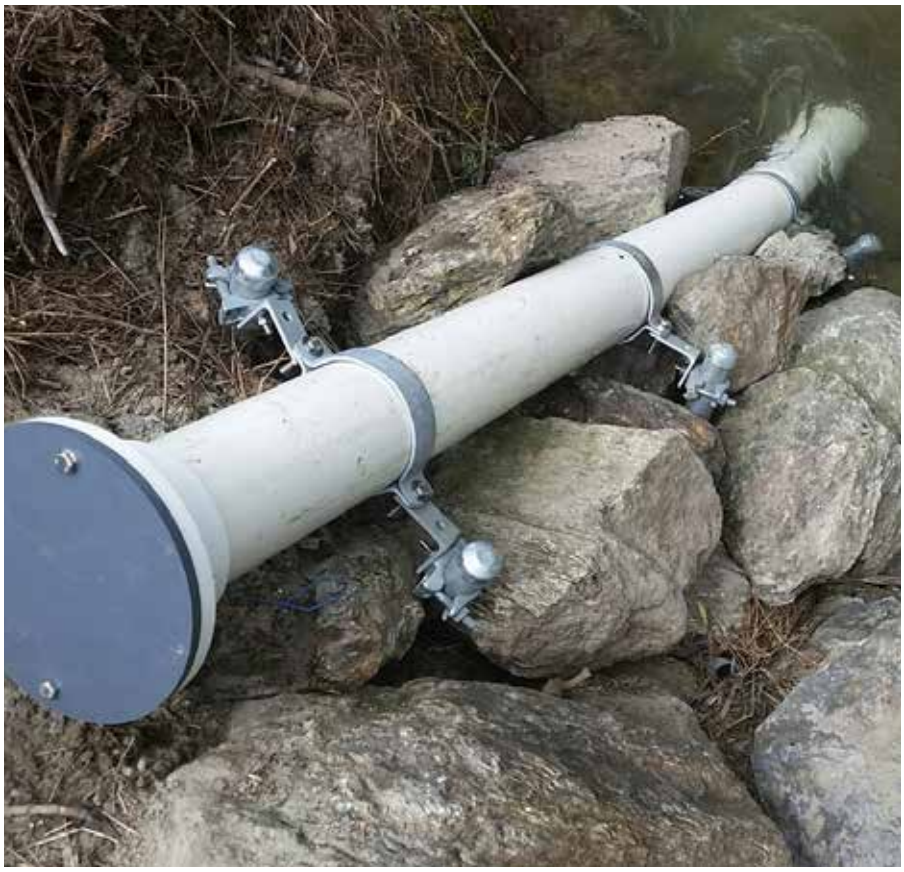
ORC is using dissolved oxygen sensors to take the pulse of Otago streams. Measuring dissolved oxygen in freshwater gives an indication of the daily and seasonal cycles of stream ecosystems—and the science behind the process is fascinating.

By monitoring the ebb and flow of dissolved oxygen in streams, ORC can gather data on what the "normal" seasonal patterns are, and identify when the energy in a stream ecosystem has changed. That makes it a valuable metric for measuring the health of our waterways.

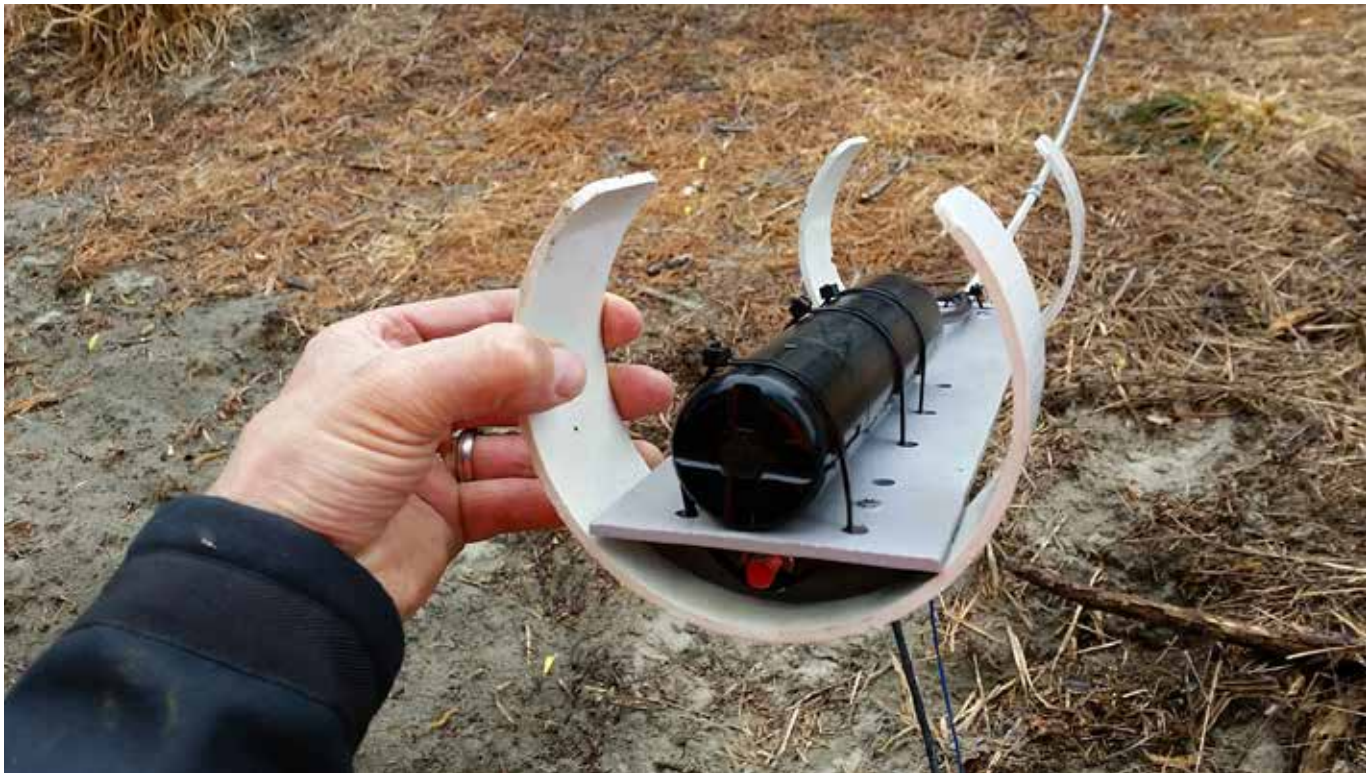
"Anytime energy is used in an ecosystem, carbon dioxide or oxygen are involved—either produced or consumed. As a result, those concentrations are constantly being altered," explains Jason Augspurger, a freshwater scientist at ORC.

Typically, dissolved oxygen in the water will reflect a day-night pattern, as algae photosynthesise during the day—releasing oxygen—and respire at night, which consumes oxygen. The more algae present in the water, the bigger the range between levels of oxygen during the day and at night.

"When you start to build long-term datasets with this information, you can look at the seasonal and annual



An installed dissolved oxygen sensor in the Cardrona River.



A dissolved oxygen sensor in its purpose-built cradle.

variation in these patterns. Given you're measuring the energy use of the stream, a lot of people have likened it to taking the pulse of the stream," Jason said.

Each stream has a different oxygen "pulse", depending on a range of environmental factors. Jason gives the example of a stream with tree coverage.

"... a lot of people have likened it to taking the pulse of the stream."

"It might not see as much sun during the summer due to the canopy of leaves, which will mean oxygen levels stay relatively stable. In autumn though, when those leaves drop into the water and are broken down by bacteria and invertebrates, you'll see quite a lot of oxygen being consumed and potentially very little being produced."

In comparison, a stream without canopy coverage will create a wider daily range of dissolved oxygen, as algae grows in warm summer conditions. Flood events also have an impact on dissolved oxygen.

"The first high flow event after summer will scour algae off the streambed, leading to smaller daily oxygen ranges, but then as the ecosystem recovers, we'll see that range increase again," Jason said.

Design and installation

The dissolved oxygen sensors sit in a pipe casing designed in-house by ORC staff to survive high-flow conditions. Paul Hannah and Eve Bruhns, two Senior Environmental Officers with ORC's environmental monitoring team, worked on the design and installation of the sensors.

"We knew the sensors had to survive serious flooding, so a fair bit of effort was made to armour them with heavy-walled PVC pressure pipe and sturdy fasteners. We also used long steel poles at each monitoring site to secure the pipes in place, even when bank erosion occurs during flooding," Paul explains.

The sensors require fairly regular maintenance and calibration, so they are fixed to a cradle that can be easily removed. They are also wired into data loggers that send information back to ORC via cell or satellite telemetry.

Paul notes that each site has posed its own challenges for the sensor design.

"We've found some of the sensors need to be cleaned more often due to algae growth. There are some sites where fine sediment is finding its way into the pipe housing, which needs to be cleared manually, and one site at Mount Barker with a very mobile riverbed, where the sensor gets buried from time to time during high flows."

"But they have all survived some pretty serious flooding in the last few months, which is a great sign, and the data they are delivering is invaluable."

Do you drink water from a private bore supply?

Many people in Otago draw their water from private bores. It's important to test the groundwater regularly for possible contamination from microbes, chemicals and naturally occurring elements such as arsenic. Private water suppliers are responsible for the safety of drinking water from the point of abstraction.

The best way to check for potential water quality issues is to collect a water sample and have it analysed by an independently accredited IANZ laboratory. To find out about water testing, visit: **www.drinkingwater.esr.cri.nz**

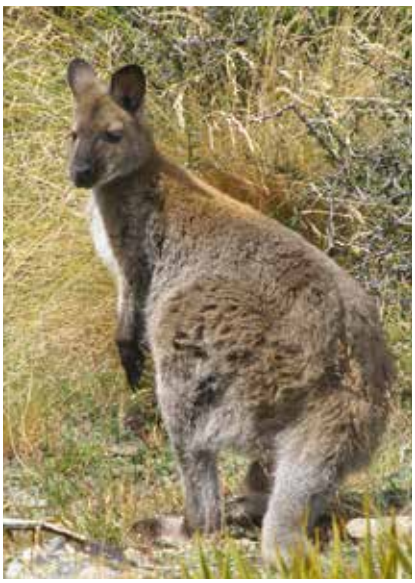
It's also important to ensure that the borehead is secure, which will reduce the risk of contaminants entering the groundwater.

Good borehead security measures include elevated casing above ground level, a sealed pad around the borehead, a backflow preventer installed, and ensuring that the area around the borehead is clear from stock, waste, and other potential contaminants.

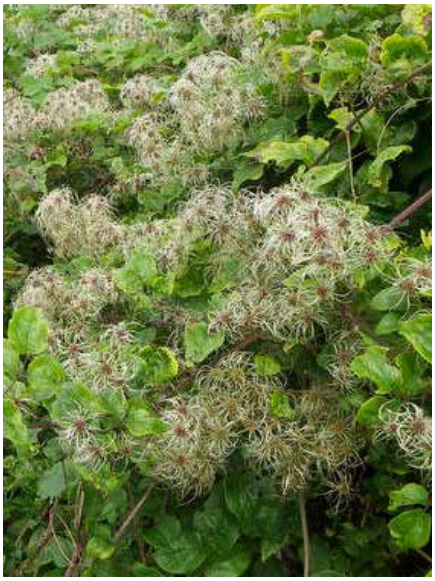
Water metering records due soon

Do you have a water consent? Your water metering records are due on 31 July. If you're not sure how to get the right information, or want to know more about water metering, visit: **www.orc.govt.nz/consents/water-metering-and-measuring**

Pest Hub



Bennett's Wallaby.



Old Man's Beard.

Visit the ORC Pest Hub

Our online Pest Hub is where you can find information on the pests in our pest plan, as well as other pests that are a problem in Otago. The Pest Hub has a page for each animal, plant and aquatic pest in the Pest Management Plan, with information on why they are considered a pest, what they look like, what are the rules for controlling them and advice for landowners.

Check it out at: **www.orc.govt.nz/pesthub**

Golden rules when burning on your rural property

- Check the rules specific to your ORC Air Zone
- Pick a day when the smoke from your burn off will have the least impact on neighbouring communities; inversion layers trap smoke particles at ground level
- Dry out your green waste so it burns hot, creating less smoke
- Build your burn off heap with plenty of ventilation so it can breathe
- Burning rubbish, treated wood or offal pits is not permitted
- Any burning must be 100m from your property boundaries
- You may also need a permit from DoC and Fire and Emergency NZ

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Otago Regional Council

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