Rural Otago's update

Waterlines

Otago Regional Council

Spring 2019

GOOD WATER IN OTAGO

Action for healthy waterways

Water remains front of mind for ORC following the release of the Ministry for the Environment's 'Action for healthy waterways' discussion document. There's a lot going on, so let's catch up.

In September, the government released a discussion document detailing a series of proposals aiming to halt the degradation of New Zealand waterways and restore their health within a generation. The proposals include a new National Policy Statement for Freshwater Management (NPS-FM), and new National Environmental Standards (NES) for freshwater, drinking water and wastewater.

ORC is required to give effect to any relevant national policy statements by setting objectives, policies and rules in plans. Our water plan must also contain the regulations outlined in the national environmental standards.

The proposed regulations set a clear policy direction: *Te Mana o te Wai* (the integrated and holistic wellbeing of the water) is paramount in planning decisions moving forward. This means that the wellbeing of water is the top priority, followed by the essential health needs of people, and then the ability of people and communities to provide for their social and economic wellbeing, now and in the future.

The freshwater action plan is hugely ambitious, and it asks a lot of regional councils and rural land owners in a short timeframe. Urban resource users, as well as city and district councils, will also be affected by the proposals, especially the NES for wastewater.

ORC fully supports the intention of the plan, but we have also raised some concerns in our submission on the proposals. These concerns include the timing and turnaround on the proposals, the costs and capacity constraints to respond to regulations and the lack of clarity around some of the proposed provisions.

You can view our submission online by visiting: **www.orc.govt.nz/mfesubmission**.

The consultation period for the proposals has now closed. Next, all submissions on the plan will be provided to an Independent Advisory Panel for review, and they will provide advice to the government by the end of the year. Final decisions are expected early in 2020, with new regulations due to take effect by the middle of the year.

If you want to be kept up to date with what's happening and what it might mean for you, you can subscribe to ORC's monthly e-newsletter, On-Stream, by emailing **water@orc.govt.nz**.

Continued overleaf

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Plan changes to Otago's current water plan

As you've probably heard, ORC has notified a plan change to delay the implementation of certain water quality rules that were due to take effect in April next year. These rules, provisions of the '6A' plan change notified in 2014, were not robust or enforceable, and they were ambiguous to interpret. Ultimately, they would not have had the intended effects of improving water quality.

ORC councillors agreed to a staff recommendation in September to push out the implementation date to April 2026, and to replace these rules with new rules that are robust and enforceable, and that both provide clarity for land-owners and align better with national direction.

This plan change (called '6AA') is the first of two steps to improve water quality. The second step is to notify a more significant plan change with new provisions around stock exclusion, dairy farm effluent, a requirement for farm plans, better direction for managing all discharges and sediment control associated with urban intensification.

These provisions will strengthen ORC's water quality regulation and better align it with central government's expectations and policy.

We'll be undertaking consultation on this second plan change before the end of the year, with an aim to notify it next year. Under the RMA, these new rules will have immediate effect from the moment they are notified.

To keep up with consultation on the plan change coming next year, subscribe to our monthly e-newsletter On-Stream, or visit **www.goodwaterinotago.nz**.

Value and objective setting for the full water plan review

On top of everything else, our work has continued with communities in the Manuherekia, Arrow and Cardrona (MAC) catchments, determining the values and objectives people hold for their rivers. We've recently completed values consultation with the Manuherekia community, and want to thank everyone who contributed to those discussions, both in person and online.

Next in the Manuherekia, our Policy team will provide the information from the values sessions to the Manuherekia Reference Group (MRG), which is made up of representatives from Kai Tahu, the Department of Conservation, Forest and Bird, Central Otago District Council, Fish and Game, the Central Otago Environmental Society and irrigators.

The MRG, led by independent chair Alec Neill, will develop scenarios for how to manage the Manuherekia River catchment, based on the community's values and the scientific data being collected by a separate Technical Advisory Group (TAG).

Anyone farming in the Manuherekia area knows the complexity of the system of races taking and returning water to the river. This complexity is why we're taking a thorough approach (by forming the MRG and TAG) to ultimately determine the values and objectives that will inform the water plan provisions that apply to the Manuherekia Rohe. The rules and limits that result from this process will apply to all water users in the rohe, so it's important that everyone is represented in these discussions.

Members of the MRG and ORC staff at the confluence of the Manuherekia and Clutha rivers after a meeting on 11 September.

New Regional Pest Management Plan now in effect


Feral rabbit


Broom


Russell Lupin

ORC's new Regional Pest Management Plan is now in effect after a long process of consultation and engagement, planning, appeals and hearings.

The plan was approved at the final council meeting of the triennium and notified on 1 October. It is accompanied by a Biosecurity Strategy, which sets out ORC's pest approach and prioritises a programme of action for effective biosecurity management across the region.

We received 360 submissions in the six-week period late last year during which the plan and the strategy were open for submissions. A hearing panel heard submitters over four days in June this year, in both Dunedin and Queenstown, and the plan was amended and updated as required.

The Pest Plan increases the number of species declared as pests from 23 to 49, expands gorse and broom-free areas, sets simpler rabbit control rules and adds new collaborative site-led programmes, among many other changes.

It also establishes 'Good Neighbour Rules', which mean land occupiers have to undertake pest control of gorse, broom, Russell lupin, ragwort, nodding thistle, rabbits and wilding conifers to match the efforts of neighbouring properties.

The Biosecurity Strategy sets out four key priorities with a range of actions and projects linked to them. The four priorities are proactive biosecurity management, being responsive and flexible, undertaking integrated and collaborative action, and targeting key areas at landscape scale and site scale.

What does this mean for you? It may mean you need to work more closely with your neighbours to manage pests on your property. Check out our website to find more information.

Stay informed!

Visit our new, dedicated water website and subscribe to our newsletter

GOOD WATER IN OTAGO

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** today.

The new site is mobile friendly, so you can access water info on the run. In time, the website will feature '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.**

You can also sign up to receive On-Stream, ORC's monthly rural newsletter, by following the link at the bottom of the new website, or by emailing **water@orc.govt.nz.**

Preparing for climate change adaptation

ORC is working to understand how climate change will affect Otago in the future. This work is essential to informing how we adapt to climate change in our towns, businesses and on farms.

One of ORC's priorities is to help build safe and resilient communities in the face of our changing climate. That means supporting people to understand what changes to expect and what their impact will be, and sharing the most up-to-date information we have to enable informed, proactive planning.

Early in October, ORC received a report from NIWA (the National Institute of Water and Atmospheric Research) titled 'Climate change projections for the Otago Region'. This report is a key part of our climate change risk assessment programme, which will improve our understanding of risks and provide information to help local authorities and communities prepare for the effects of climate change.

Understanding the impacts

The purpose of the work is to identify, understand and prioritise the hotspots (not just literally) that will be most affected by climate change in the coming decades. This doesn't only mean the most vulnerable geographic areas, but also the most vulnerable business sectors, farm types, and plant and animal species.

The NIWA report addresses expected changes for various climate variables – such as rainfall, temperature, drought and the number of extreme hot days (above 30°C) per year – out to the year 2100, drawing on climate model simulations from the Intergovernmental Panel on Climate Change (IPCC).

Some of the report's key findings have major implications for how we live and work in Otago: the number of extreme hot days in Central Otago is projected to increase by 30-40 days per year by 2090 if emissions continue at current rates; extreme rainfalls are expected to become more severe under all scenarios; annual average temperatures could rise by as much 3.5°C in selected locations; and the diurnal temperature range (the difference between minimum and maximum temperature of a given day) is expected to increase with time and emission scenarios.

These changes could impact flooding, erosion, groundwater levels, drought and weather events. Climate change will affect how we plan and work in our region over the next century, with implications for biodiversity and ecosystems, freshwater and air quality, infrastructure and homes, heritage and health, tourism, business and primary industries.

In other words, it's incredibly important, and it's essential that we plan now for how to adapt to these changes.

What happens next?

The next step in our risk assessment programme is sharing our information with district authorities and industry leaders, which has already begun with the first meeting happening this month. These meetings are about identifying what vulnerabilities we are aware of now, as well as what gaps exist in our knowledge that might be filled by a more localised perspective. These conversations will also begin looking at the next steps towards adaptation.

This program will be producing a risk assessment summary next year, which will be updated over time.

ORC's Executive Leadership Team hit the road with new faces

Gwyneth Elsum

Richard Saunders

From left to right: Nick Donnelly, General Manager Corporate Services and CFO; Gavin Palmer, General Manager Operations; Gwyneth Elsum, General Manager Strategy, Policy and Science; Sally Giddens, General Manager People, Culture and Communications; Sarah Gardner, Chief Executive; and Richard Saunders, General Manager Regulatory.

In September, ORC's Executive Leadership Team (ELT) took a roadshow to catchment groups around the region in Ranfurly, Wānaka, Taieri/Henley, Oamaru, Taihape and Balclutha. ELT is made up of ORC's Chief Executive and General Managers.

ORC Chief Executive Sarah Gardner said the roadshow was a valuable experience.

"We gained a lot of understanding from these sessions and have been grateful for the positive feedback we received. We appreciated that people made themselves available during a very busy time and were willing to share their concerns about farming and the environment.

"What is clear is that water issues are shared by all of us – the Regional Council and all of our urban and rural communities."

The sessions focused in particular on the new regulations proposed by the Ministry for the Environment.

"All of us need to respond to the challenge and work together to meet new expectations that are coming from central government. Water quality challenges will not be solved by any one part of the community in isolation, nor by Otago Regional Council working alone.

"Positive work already happening in Otago's farming communities to improve water quality is ahead of government expectations," Sarah said, "We encourage and support the growth and continuation of that work and hope to see some extension of that into other areas, including urban environments."

Shane Bocock, Deputy Chair of the Pomahaka Watercare Group, said it was valuable for the community to be able to meet face-to-face and have meaningful discussions with the executive team.

"What was important to realise is that potential changes to water quality policies out of Wellington will prove challenging to all regional councils, farmers and other water users alike; there will surely be a settling-in period, which will require firm leadership and clear communication," Shane said.

The tour was of particular interest for two members of ELT: new additions Richard Saunders and Gwyneth Elsum.

Richard comes to ORC from previous local government positions in Auckland and Dunedin. His new role is General Manager Regulatory, in charge of consents, compliance, and the harbourmaster function.

"I'm looking forward to supporting ORC's work around the region. The public's expectations of regional councils are increasing as environmental issues gain more visibility and importance. I see it as a critical part of my role to ensure – alongside my team – that we are best placed to respond to these expectations," he said.

Gwyneth has taken up the role of General Manager Strategy, Policy and Science after years of experience in water and environmental issues for government and utilities. Gwyneth said she was looking forward to getting to know Otago's environment and communities better.

"I'm keen to ensure we service Otago through evidence-based planning, and set the region up for a sustainable future."

A Day in the Life of … Policy & Planning

Policy Team Leader Freshwater and Land Tom de Pelsemaeker discusses Manuherekia values and objectives with Blossom Festival attendees.

In every issue of Waterlines, we profile a team within ORC, highlighting some of the hard work that goes on behind the scenes. For this issue, we sat down with the busy people in the Policy and Planning team.

If you've been paying attention to the news lately, you might have a sense of how much is going on in the environmental policy space right now.

Our Policy and Planning team's recent projects have included submitting on central government proposals for freshwater management, urban development and highly-productive land (with indigenous biodiversity just around the corner), as well as National Environmental Standards, dam safety regulations, and district plans in Dunedin and Queenstown.

The team is also consulting with communities in the Manuherekia, Arrow and Cardrona catchments for the water plan review, as well as with the wider community, iwi, industry and regulatory stakeholders on new water quality rules.

And all of that is on top of business-as-usual work including appeals, hearings and the Regional Policy Statement (RPS).

Most readers will be surprised to learn that the life of a policy analyst is actually quite varied, Anita Dawe – the team's acting manager – tells us.

"You might have a meeting in Oamaru one day on coastal environments, and another in Arrowtown the next about air quality, then appeals, submissions, consultation – we very rarely have the full team sitting behind desks in the office."

The team itself is equally diverse, and they bring a variety of perspectives to policymaking conversations. One team member's background in central government policy was preceded by a music degree; another worked for non-profits in Australia before moving to Dunedin.

Senior Policy Analyst Richard Pettinger – a wispy-bearded font of wisdom – has worked for ORC since 1990, giving him a long historical perspective on environmental regulation in Otago.

Tom de Pelsemaeker and Sylvie Leduc, from Belgium and France respectively, have different experiences and cultural backgrounds, which give them fresh insights into the policy challenges facing Otago.

"They also bought a fairly contentious atmosphere to the office during the Football World Cup last year, when France kicked Belgium out in the semi-finals," Anita adds.

A big part of working in policy is talking to communities and gathering their input into conversations around rules and limits. The goal is to use those conversations to set policies that work for the community and achieve the best environmental outcomes.

"We're really aware that these plans and policies don't exist in a vacuum," Anita explains. "They have a tangible impact on how people go about their day-to-day

activities – how they heat their homes in winter, or plan for vegetation burn-offs, or whether the air in their towns is clean on still nights.

"Policymaking is a continual balancing act; we're juggling the community, the science, the local and national pressures, cultural and economic factors – that's why there's such an extensive statutory framework around planning. It's purposefully not fast and manoeuvrable; it forces everyone into these conversations, so that everybody can have their say."

The best recent example of these conversations has been the consultation with communities around the Arrow, Cardrona and Manuherekia rivers.

As part of the water plan review, this involves identifying what communities value about their rivers and developing objectives and limits – it's a requirement of the National Policy Statement for Freshwater Management, so that solutions for managing water are driven locally.

These sessions were well-attended and well received, including at Alexandra's famous Blossom Festival and at St Gerard's school in Alexandra, where senior policy analyst Rachael Brown canvassed the students, who have undertaken water quality monitoring in the Manuherekia.

A big step forward for the team has been in improving collaboration with iwi. Kai Tahu are working closely with policy staff on the upcoming water quality rules, so that they best reflect Māori values and give effect to *Te Mana o te Wai* through an iwi lens; the plan change mentioned in the water update article, due in 2020, will be co-drafted in partnership with Kai Tahu planners.

Another step forward has been the development of team leader roles for Water, RPS and Air, and Urban Development.

"These roles reflect the diversity of the policy and planning workload right now," Anita says.

"There's a lot happening in the water space, but we're also responding to companion policy statements on highly productive land and urban development, and working through the implications of applying National Planning Standards to our Regional Policy Statement."

Keeping Old Man's Beard in check

It may look beautiful while flowering, but Old Man's Beard *(Clematis vitalba)* is one of the most dangerous climbing plants introduced to New Zealand. It smothers the plants and trees it grows on, making it a huge threat to Otago's natural biodiversity.

Under the Regional Pest Management Plan, land occupiers in Otago are required to destroy Old Man's Beard on their property.

It is easiest to spot the plant during the summer months when it flowers. As the plant matures, the flowers themselves have a distinctive woolly look to them, which is how the vine got its unusual name.

The best time to control Old Man's Beard is between November and April, when it's actively growing.

Here's how to destroy Old Man's Beard on your property:

- Trace the vine back to its roots.
- Either dig out the roots, or cut the vine close to the roots and treat them with herbicide. Make sure to follow the manufacturer's instructions when using these products.
- We recommend you leave the cut vine in the tree to break down naturally.
- Don't leave vines on the ground because they can take root and grow new plants.

You can leave vines above the cut to break down naturally. This will also prevent damage to the host plant. The vegetation will start to wilt within a few days. If there's no wilting, start at the live foliage and work back to check for vines you may have missed.

There are *Clematis* species in Otago that are not pest plants, so it's important to accurately identify Old Man's Beard. Check out our website for more information, at: **www.orc.govt.nz/oldmansbeard**

Swim safe in Otago this summer

ORC tests water quality at popular swimming spots throughout Otago from 1 December to 31 March each year. Our summer recreation monitoring programme is a collaborative effort with city and district councils and the Southern District Health Board.

We monitor six lakes, five rivers and six beaches/estuaries, testing for *E. coli* (in freshwater) and *Enterococci* (in saltwater) bacteria. The DCC monitors a further seven beaches around Dunedin.

In high enough concentrations, these bacteria may indicate the presence of faecal material and disease-causing organisms in the water, which can lead to irritated skin and eyes and upset stomachs.

We are also on the lookout for cyanobacteria in both lakes and rivers.

Lake or "planktonic" cyanobacteria is algae that is suspended in the water column of slow-moving waters, such as lakes. These types of bacteria usually form a thick, bright green colouration to water and can produce scum on the water surface.

River or "benthic" cyanobacteria attaches to substrates such as gravels, cobbles and boulders on a river bed. Its appearance depends on the species. Phormidium is a fairly common benthic cyanobacteria that occurs naturally throughout Otago and can form thick, dark brown/black mats in flowing water. When Phormidium mats die and dry out, they become light brown or white in colour, but may still be toxic.

To swim safely in Otago during this summer, check the LAWA 'Can I swim here?' website for up-to-date information on water health. All regional councils feed their water testing data into LAWA, so it's a one-stop shop if you want to find out if your favourite spot is safe for swimming, anywhere in New Zealand.

Weekly monitoring gives us a recent snapshot of water quality at the time of sampling, but it's important to remember that water quality can change over time, especially after rain. We recommend that even for sites with generally good water quality, you avoid swimming for 2-3 days after heavy rainfall, as urban or agricultural run-off can affect swimming water quality.

LAWA
LAND AIR WATER AOTEAROA

Visit "Can I swim here?" at:
www.lawa.org.nz/swim

There's heaps more information about water monitoring to be found in the factsheets on LAWA's website.

Growing our cities and protecting productive land

Water isn't the only area under the policy microscope this year. In August, the government opened consultation on National Policy Statements for Highly Productive Land and Urban Development. These 'companion' policy statements are designed to enable appropriate urban development and to protect our food growing capacity into the future.

According to the Ministry for the Environment's *Environment Aotearoa 2019* report, modified land cover – such as urban areas and exotic vegetation – now covers over half of the total land in New Zealand. 90 percent of the country's original wetlands have been drained, and native vegetation and wetlands are continuing to shrink. The loss of native ecosystems has had knock-on effects, accelerating erosion and the loss of soil into waterways, and degrading biodiversity.

Environment Aotearoa also tells us that many of New Zealand's urban areas have developed on our most valuable land – often fertile floodplains near the coast – and these areas are spreading. New Zealand's most "high class" soils make up just over five percent of the land mass, and they are gradually being lost to urban growth.

New National Policy Statements for Highly Productive Land (NPS-HPL) and Urban Development (NPS-UD) aim in part to address these issues.

Highly Productive Land

Defining the value of land for productive uses is a responsibility of regional councils. The proposed NPS-HPL would require councils to map highly productive land using defined criteria (such as soil capability, climate, water availability, size, etc.), so that it may be maintained for primary production into the future. When highly productive land is converted to urban land uses, it generally results in an irreversible loss of that land for primary production.

New Zealand's most "high class" soils make up just over five percent of the land mass, and they are gradually being lost to urban growth.

Primary production in Otago is a cornerstone of the region's economy, alongside tourism. In our submission on the NPS-HPL, ORC welcomed national direction to assist with protecting and appropriately managing Otago's highly productive land, and supported greater weighting in the planning framework for effects on highly productive land. However, we also noted concerns about the cost and practicality of mapping the land-use capability of the whole region by 2022.

Urban Development

The NPS-UD is part of the government's "urban growth agenda" to allow for growth in urban areas with good access to existing services and infrastructure. This will require changes to how land use is regulated in our towns and cities.

The NPS-UD has both nationwide and targeted policies for specific urban centres with growing populations. In Otago, only Queenstown is included in this latter group of "major urban centres". ORC raised in our submission on the NPS that there are unique topographical constraints on Queenstown's growth and planning solutions, as well as hazard challenges and a significant tourist population.

The NPS-UD also calls for more coordinated approaches between regional and district councils to plan for how and where cities will grow in the future, and to protect areas that are not suitable for development.

Consultation on both of these policy statements has now closed. Check the MfE website for updates on their next stages.

Lake Hayes consultation

In August and September, we spoke to the community around Lake Hayes about how to improve the lake's water quality.

Over the last 70 years, Lake Hayes has suffered a build-up of nutrients from human activity, including historical fertiliser application, industry, septic tank effluent and the removal of wetlands and riparian planting. As a result, the lake – a beloved swimming spot and recreational area – suffers from periodic algal blooms caused by the build-up of phosphorus in lakebed sediments.

ORC wants to restore the quality of the lake so that it can be made swimmable at all times.

Lake scientists advised a range of methods to improve water quality, and GHC Consulting assessed the feasibility and costs of implementing them. The potential methods include flushing the lake with low-nutrient water from the Arrow River, destratifying the lake water with compressed air, applying the chemical alum to bind with phosphorus on the lakebed and removing nutrient-rich water.

Each of these technical methods would be undertaken in tandem with ongoing monitoring – using our new, state-of-the-art monitoring buoy installed earlier this year – and some of them could be applied in combination.

Each method carries risks and benefits, as well as different one-off and ongoing costs. For example, the application of alum would likely have an immediate positive effect on lake water quality, but it could also discolour the lake, depending on how it is applied.

In August and September, we opened the intervention options up for consultation through our online platform YourSay, delivered letters to 200 households around the lake, and hosted community drop-in sessions.

The drop-in sessions were well-attended. People enjoyed the opportunity to talk about the intervention options with representatives from ORC and GHC Consulting, and independent scientists from the University of Otago and NIWA.

A key concern that the public raised during consultation was the need to reduce nutrients continuing to enter the lake, as well as the historic accumulation.

A key concern that the public raised during consultation was the need to reduce nutrients continuing to enter the lake, as well as the historic accumulation.

As part of work to address water quality entering the lake, ORC and the Queenstown Lakes District Council (QLDC) are co-funding a feasibility study of wetlands on the tributaries to the lake, with the project being led by the Friends of Lake Hayes. Re-establishing wetlands on Lake Hayes' tributaries may help to address the influx of nutrients, and that would improve the long-term effectiveness of remediation efforts.

Next, the community's feedback and preferences will go to ORC councillors for their consideration and to inform the next steps in restoring the health of Lake Hayes.

Enviroschools update

Clockwise from top-left: Two Clyde Primary School students planting trees; Anna, CODC Enviroschools facilitator, explaining how to plant trees; Clinton Primary Students mapping all of the forms of energy they used that day, from waking up to getting to the hui; students learning about kinetic and potential energy by making smoothies on the smoothie bike.

Enviroschools runs regular hui for Otago schools, where attendants meet like-minded students from other schools, take an in-depth look at a topic and identify actions they can take on issues.

Clutha primary students and teachers from eight schools joined us for a day exploring energy at Clutha Valley School in early September. We identified the ways students use energy, how energy transforms and the effects this has and how students can use energy wisely. The students were most surprised to learn about the forms of energy used in the production, use and disposal of an everyday object like an aluminium can.

Learning how to reduce emissions

Students and teachers from Central Otago and Queenstown Lakes districts found out a lot more about climate change at their one-day hui recently. We did some experiments explaining the impact greenhouse gases are having on our atmosphere and looked at some of the changes we can all make to reduce our greenhouse gas emissions. Former ORC councillor Ella Lawton explained carbon footprints and the students calculated their footprint for an average week of travel.

They learned how many trees they need to plant to off-set their carbon emissions and spent the afternoon planting trees at Matakauri Wetlands.

Introducing your Otago Regional Council 2019-22

Top row: Cr Gary Kelliher, Dunstan ward; Cr Bryan Scott, Dunedin ward; Cr Michael Deaker, Dunedin ward; Cr Andrew Noone, Dunedin ward; Cr Kevin Malcolm, Moeraki ward.

Front row: Cr Carmen Hope, Molyneux ward; Cr Gretchen Robertson, Dunedin ward; Cr Michael Laws, Dunstan ward (Deputy Chairperson); Cr Marian Hobbs, Dunedin ward (Chairperson); Cr Hilary Calvert, Dunedin ward; Cr Alexa Forbes, Dunstan ward.

Absent: Cr Kate Wilson, Molyneux ward.

Have you signed up for On-Stream yet?

We have a monthly e-newsletter that keeps you up to date with what's happening around Otago. Email us to sign up: **water@orc.govt.nz**

Now's the time to get your firewood

Buy and stack your firewood before Christmas for next winter, so that it has time to dry. Dry wood means more heat from your fire, and less smoke in the air.

Like Otago Regional Council on Facebook for regular updates.

Get the latest on water

For the latest water quality information for recreation sites around New Zealand, visit **www.lawa.org.nz/swim**

To find out more information about water in Otago, check out our dedicated water website at **www.goodwaterinotago.nz**

Cover photo: Confluence of Manuherikia and Clutha Rivers, Alexandra ©davidwallphoto.com

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