Rural Otago's water update

Waterlines

Otago Regional Council

Winter 2017

One of the five ponds at Bellview

Beautiful Bellview – the story of a wetland

Over 20 years ago, Steven Robertson attempted to drain some land in front of his house to turn into pasture, but "it wanted to be wet, so I let it". This area has since developed into six hectares of wetland – the Bellview Wetland Reserve.

As you drive south on SH8 just out of Lawrence, you can catch a glimpse of something unexpected in the paddock on the right beside the Clutha Gold Cycle Trail, but the true treasure is tucked away, just out of sight.

The first pond for the reserve was dug in 1996 and the wetland complex, which runs alongside Tuapeka Creek, now boasts five ponds of varying sizes, with three more planned for this year. "A number of the ponds are trout-free, which means native fresh-water species such as freshwater mussels, yabbies, tree frogs and galaxiids can live there without any threat, and we also have paradise and blue teal ducks," said Steven, who is a self-confessed greenie.

"I've always loved the bush and birdlife from when I was a wee fellow, and the wetlands have meant I can improve the land, preserve native plants and fish, and educate children about how important it is to look after the environment. It's a win-win."

Wetlands help to improve water quality by filtering out sediment and nutrients. They can reduce the amount of nitrogen reaching waterways, improve biodiversity, and also reduce flood peaks and maintain summer water flows.

Steven has been working with local schools in Lawrence (for 15 years) and Waitahuna (three years) running planting programmes that include propagating and potting up seedlings to plant in the future.

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Steven and Kasey in front of an area showing the history of the district, from mining to flour milling

"We planted 250 plants from seedlings last year, and most were eco-sourced through self-propagation," Steven said. "The children come back each year and love seeing how much the plants have grown since the previous year. Before Christmas last year we planted over 1000 natives with the kids, including flax, kowhai, snow tussocks, and toi toi."

Steven's daughter Kasey helps at Bellview, and as a child she found it unusual that other kids weren't putting in ponds.

"Dad's done an amazing job and turned what used to be lost land into something special. He built the access roads and pathways himself, cleared the willow trees, and even built an arched stone bridge."

Kasey and her dad often sit under a tree to plan the next stage for the wetlands. In the pipeline are long lunches for tourists, and developing the historical buildings from the 1800s that Steven has brought on-site to broaden the appeal for visitors. While not open to the public yet, it's only a matter of time. It's a real asset for the growing township of Lawrence, which is itself becoming something of a visitor's destination.

Steven sums it up nicely when he says, "We've been hidden for years, right in front of everyone's eyes."

The numbers:

19,750
natives planted since 1996

14,750
of these were planted by local school children

580
hours of digger time developing the wetlands since 1996

Barry, Ben and Maz Robertson taking a sample for testing

How healthy are our estuaries?

Assessment is underway for three Otago estuaries, looking at general health and finding out what lives in them. The study will also explore possible impacts due to what's happening upstream in the rivers that feed into them.

The Waikouaiti, Shag, and Catlins estuaries have been assessed by coastal ecologist Dr Barry Robertson from Wriggle Coastal Management in Nelson. This baseline information will provide an indication of both water and sediment quality and give comparison points when data is collected in the future, so the Water Quality team can see how the quality of each estuary is changing over time.

Barry helped develop a standardised monitoring and assessment protocol for New Zealand estuaries, so that the measurements can be compared around the country. He and his team (including wife Maz and son Ben, who is completing his PhD on estuarine ecology at the University of Otago) spent time mapping the estuaries using aerial maps, noting significant areas such as seagrass beds and saltmarshes.

They also took samples from the estuary beds in both the upper and mid-estuary; these will be checked for the number and variety of invertebrates, while the sediments will be analysed for grain size and levels of toxicants and nutrients.

Monitoring the amount of sediment and nutrients accumulating in the estuary is an important measure of estuarine health, as too much of either can have a negative impact on valuable seagrasses, shellfish, fish and bird populations and also cause unwanted algal blooms.

Results from this work will be published later in the year and we'll share them with you once they're available.

Expiring Deemed Permits Forum, Alexandra

National interest in expiring permits

Water is possibly our most precious resource, and historic Otago water rights called "deemed permits", based on former gold mining rights, are due to be replaced in the next few years.

When the Resource Management Act (RMA) came into force in 1991 it set a 30-year limit for all deemed permits to be replaced with a water permit, in order to continue to take water.

There's been increasing regional and national interest in expiring deemed permits following the recent forum in Alexandra.

In late March, 140 people packed into Alexandra's Cellar Door Function Centre to learn what's involved to replace their expiring deemed permits with an RMA water permit.

At the forum ORC staff explained the transition, while representatives from iwi, the Department of Conservation (DoC), and Otago Fish and Game explained the values they place on the waterways and the use of water as a resource.

Also at the forum the new Fish and Flow web portal was discussed. It is a great tool to use to search for the available fish and water flow information held throughout Otago.

Find the portal at: **www.orc.govt.nz/fishandflowportal**

A video of the Sowburn Water Company Ltd, who have recently replaced their deemed permits with new RMA water permits, was premiered. It highlighted their experience in the transition, and included suggestions to help make the process easier.

You can watch this online at: **www.orc.govt.nz/sowburn**

At the same time as the forum in Alexandra, Radio New Zealand was working on an Insight documentary on the issue, which was broadcast in late April. The programme takes an in-depth look at the issue from a range of perspectives. It includes interviews with permit holders, affected parties, and the ORC. It is interesting listening, and it's good to see the challenges we're facing in this area brought to national attention.

To listen, go to: **www.rnz.co.nz** then type "Insight" in the search box.

The ORC recommends water users form water management groups and water allocation committees to help those taking water from the same source to manage this scarce resource effectively.

If you have any questions or want some help to get the ball rolling, give Bruce Monaghan a call on 0800 474 082.

Bruce Monaghan facilitates a meeting in Central Otago

Need advice about deemed permits? Call Bruce

People and businesses who still hold a deemed permit – once called a 'mining privilege' – have only a few years left to transition to a Resource Management Act (RMA) water permit.

With the expiry of all deemed permits in 2021, we are supporting permit holders to help them understand what they need to have ready to apply to replace their expiring permit.

Helping lead the way is ORC liaison specialist Bruce Monaghan, who hosts meetings with deemed permit holders across the region. Bruce has worked for ORC and its predecessor the Otago Catchment Board since 1978, and he has a wealth of knowledge about all the aspects involved in replacing deemed permits.

Bruce helps those exploring working together as groups and one-on-one enquiries to manage their future water needs. The package of support Bruce offers includes a series of meetings tailored around what water users need to know about the process.

If you are looking to replace your deemed permit, Bruce can provide support to you through these meetings:

- The first meeting outlines what you can expect, and what you need to do to transition your permit
- The second meeting invites affected parties (usually iwi, Fish and Game, and the Department of Conservation), to outline their values that need to be considered in your water permit application
- The third meeting is designed to provide clarification of any issues still outstanding.

"At this stage we have never needed to have a third meeting, but they are always available," Bruce said.

By attending one of these meetings, you'll find out what your responsibilities are and what you need to do to prepare your consent application.

"Anyone in the relevant catchment moving from deemed permits should come along, as this is a great opportunity to get the 'good oil' on what's needed to lodge a thorough resource consent application," Bruce said.

Those taking part can bring all their questions, and feel free to ask anything that springs to mind on the day, Bruce said.

Since last year, Bruce has had 34 meetings with groups across Otago.

Bruce's top tips include:

- *If you are unsure about completing the application yourself, you can meet with a consultant. There's generally no charge for the initial meeting, and it gives the water taker a chance to know how a consultant could support and enhance your application*
- *Liaise with statutory bodies as early as possible, so that you know exactly what they are looking for in your completed resource consent application*
- *Keep collecting water data from your take(s), and;*
- *Talk to neighbours in your catchment and explore whether you can work together at an early stage to ensure that you are thinking along the same lines on water management.*

Fish&FlowInfo

For more information see our Fish and Flow web portal and our Water users Handbook:

www.orc.govt.nz/fishandflowportal

www.orc.govt.nz/water-users-handbook

Farmer pod groups are discussed by North Otago farmers, ORC's James White (second from left) and staff from Dairy NZ

North Otago farmers working together for better water quality

A lot of discussions happen around the kitchen table in a farmhouse. It's where coffee and ideas are shared, plans are formed, and a 'let's get started' attitude gets projects off the ground.

For North Otago Sustainable Land Management Group (NOSLaM), this approach is no exception. NOSLaM knows that farmers learn best from other farmers, which is why they have set up a new project in the area.

The project involves seven small groups (pods) of farmers, set up so the pod members work together to set achievable goals for better water quality, then take action to reach them. The pods include farmers from similar geographic areas in North Otago that cover dairy, sheep and beef, and wintering stock, to acknowledge that water quality is an issue for all farmers no matter what their land use is.

NOSLaM will oversee the project with help from a part-time co-ordinator, whose position has been jointly funded by ORC, Waitaki District Council and North Otago Irrigation Company (NOIC).

While the project is still in its infancy, the goal is for farmers to benefit from belonging to a supportive group where open discussion and learning about water quality can take place. The pods will be results-driven, with an emphasis on 'doing'.

Water quality will be tested monthly by NOIC and ORC at 15 key points in the catchment (with samples being taken at the same time and sent to the same lab for consistency). Results will allow farmers to compare the water quality in those locations with the land use activity at the time, which will help them understand the impact of their land use on water quality.

While the pods will function independently (with support from the NOSLaM co-ordinator, ORC, and NOIC) a representative from each pod will meet with the wider community and affected parties such as iwi, Fish and Game, Forest and Bird, Kakanui Residents Association, and Gemmells Crossing Community. This will help local residents and interested groups to understand what the farmers are doing to look after the environment and improve water quality in the area, and gives the farmers the opportunity to share their successes.

The first pod meetings have already taken place and NOSLaM is pleased with how the project is shaping up, with good buy-in from farmers who are keen to work together and share ideas.

NOSLaM outlined the project to ORC councillors in early April when the council meeting was held in Oamaru, and councillors were impressed with the co-ordinated approach to the project. We'll give you regular project updates in Waterlines.

Swimming at Moke Lake near Queenstown

Can you swim safely in Otago?

In light of the Government's recent announcement about changes to the swimmability standards throughout NZ, we thought we'd recap the state of Otago's waterways.

The Government has announced a target for 90 percent of New Zealand's lakes and rivers to meet swimmable water quality standards by 2040. Otago's Water Plan includes swimmability as a target for our region, and in many cases our regulations are set at a higher level than the Government's proposal.

Swimmability maps released by the Ministry for the Environment (MfE) showed the majority of Otago's waterways are suitable for swimming, however we want to point out that the maps are based on modelled data and only show water quality at a moment in time. They also report on algae measurements in our lakes, whereas our data is based on *E. coli* levels.

The MfE's map suggests the water quality in Lake Wanaka is lower than in lakes Hawea and Wakatipu. This doesn't align with our monitoring data, which is based on actual tests and not modelling, and shows that Lake Wanaka is similar to lakes Wakatipu and Hawea in having exceptional water quality when tested for *E. coli.*

The Government's announcement also included proposed national regulations about stock exclusion from waterways. Otago's Water Plan doesn't currently require waterways to be fenced. Rest assured we will be looking at the implications of any changes for Otago, and have put in a submission to ensure any regulations are workable for our region. We'll keep you updated.

LAWA
LAND AIR WATER AOTEAROA

For up-to-date and accurate information about water quality and suitability for swimming, we recommend you go to the Land, Air, Water Aotearoa website (www.lawa.org.nz).

Water Quantity
BY 2021

Water taken from Otago rivers, streams, and aquifers will balance environmental, social and economic needs.

To get there, together we need to:

- Set minimum flows for all major catchments:
  - Manuherikia
  - Arrow
  - Cardrona
  - Lindis
  - Benger Burn
  - Upper Clutha
- Agree a clear process for when to use residual flows and how to calculate them (Plan Change 1D)
- Transition all deemed permits to RMA consents (Plan Change 1C)
- Establish water user groups to ensure water is managed locally during low flows.

SUPPORT AGRICULTURE

POWER OUR REGION

HEALTHY ECOSYSTEMS

Water Quality BY 2025

We want Otago waterways to be clean so fish can thrive in them and people can swim in them.

PROTECT MAHIKA KAI

ENABLE RECREATION

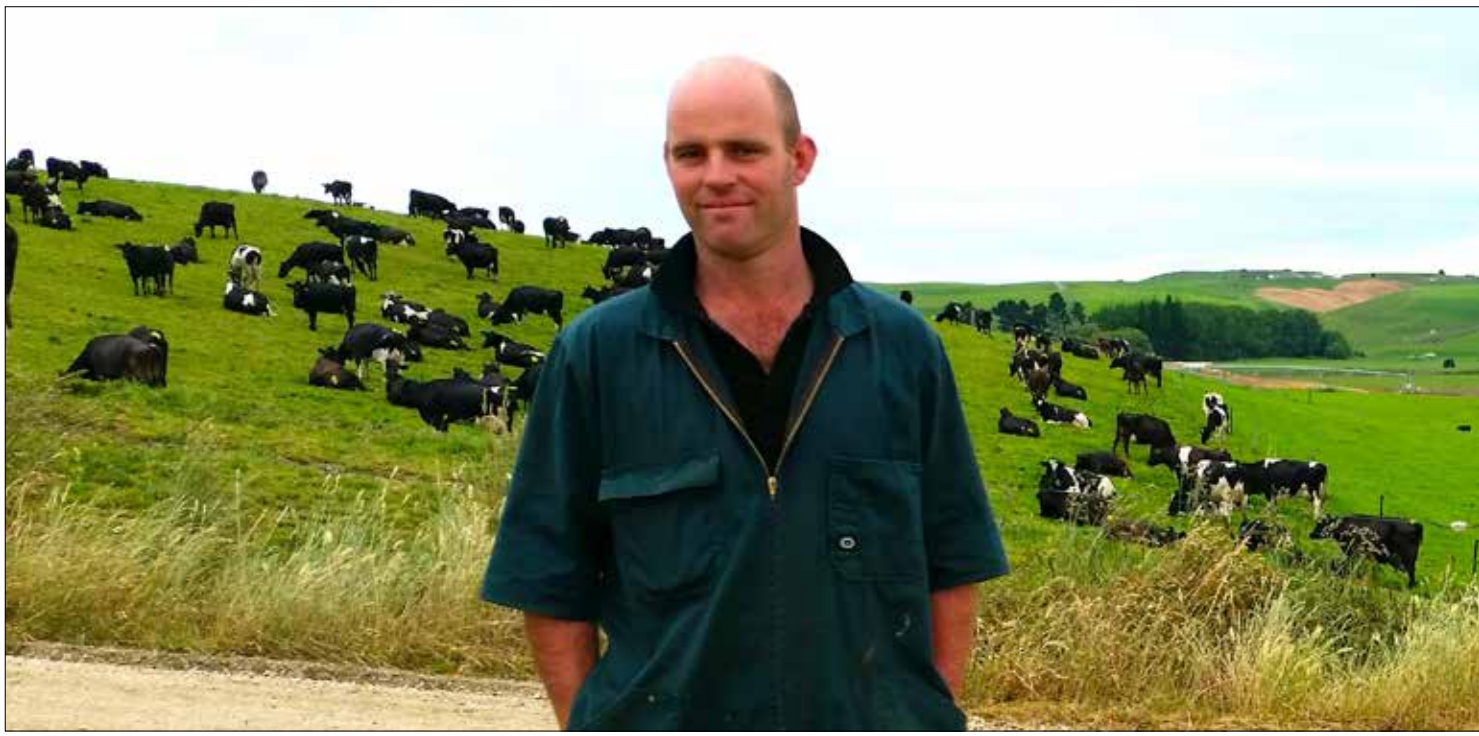
SWIMABLE WATERWAYS

To get there, landholders need to:

- Continue to operate within permitted activity rules
- Meet on-farm limits for water discharges by 2020 for:
  - *E. coli*
  - Nitrogen
  - Phosphorus
- Meet nitrogen limits that apply to their land

Otago Regional Council will:

- Support through education, communication and monitoring
- Carry out catchment specific science programmes
- Implement the Urban Water Quality Strategy.



Francois Tillard on his North Otago farm

Technology adds value to on-farm management

Waiareka Creek creates some interesting environmental challenges for Francois Tillard. He manages two dairy farms in North Otago, and in some places the level of the creek is higher than the paddocks.

This makes it challenging to ensure no runoff enters the creek and degrades water quality from irrigation, spreading effluent, or grazing.

When Francois came onto the farm at the start of 2014, one of his first steps was re-fencing the low-lying water-logged areas to keep the cattle out. While the animals had no access to the creek, he wanted to prevent the potential environmental impact from pugging and runoff getting into the water.

His environmental approach doesn't stop at fencing. Francois embraces technology and believes that the information it provides, combined with farming knowledge and experience, results in better decision making.

"Using the information I get from the technology is better than just saying 'I know the land; I've been farming this way for years,'" he said. "It gives me confidence that the decisions I make will benefit the farm operation as well as the environment."

The irrigation system on both farms is computerised. Four permanent probes are set at strategic places on the property to measure soil moisture and provide information about how much effluent can be applied through the variable rate irrigation (VRI) system.

"Using the information I get from the technology is better than just saying 'I know the land; I've been farming this way for years,'"

VRI works well on the property, which can have up to 65% variability of water retention capability under the pivots. Not only is irrigation targeted to where it's needed, but VRI also makes the system more cost-effective.

On the flat there are some areas that don't need irrigation at all, which is surprising for an area of North Otago that is known for dry summers.

"Not irrigating in some areas means the grass grows better because the soil isn't waterlogged. It also means the cattle aren't compacting the ground because wet areas have been eliminated. I know many people who think compaction is a normal part of dairy farming but it isn't, and it has an economic effect as well as environmental."

A number of farms use VRI and soil moisture testing, but what sets Francois apart is how well he understands and uses the technology to add value to farming decisions.

"In the past I couldn't see the use of the information, but now I can see the benefits, especially as the technology has developed and

the information you get is more reliable, for soil moisture probes in particular.

“I will always keep my own eye on the irrigation system though,” he said. “I want to make sure there are no problems, and that I have time to stop irrigating if I see something go wrong.”

Francois has customised several irrigation programmes based on the constantly-changing moisture levels, so he can select the right one for the conditions. He can easily manage this from his smartphone.

“I have seven programmes set up at the moment, and it’s important to know how to use the technology well so it can be effective. If I kept on doing the same thing that was always done, the chances are that we’d have a swamp.

“The soil moisture probes tell the VRI how much effluent to put on, and in time the technology will evolve to the point that the soil moisture readers will be on the pivot, making it even more efficient,” he said.

“We are doing everything we can to protect water quality. With the Waiareka Creek running through our farms, we have a responsibility to look after it.”

Farm numbers

325
Hectares
(both farms)

310
Shares
in NOIC

1
K-line

1150
Cows
(both farms)

6
Pivots

4
Soil
moisture
probes

110-120
Irrigation
days

100%
Wetlands
fenced

Profile on Otago Fish and Game Council

Otago Fish and Game Council (OFGC) is potentially affected by the replacement of water permits. In this Waterlines issue we take a closer look at how and when you're likely to interact with them.

OFGC was one of 12 regional fish and game councils formed in New Zealand in July 1990, following reforms set out under the Conservation Act 1987. Fish and game councils are regionally independent bodies (similar to district or regional councils) based on user-pays, user-says management, and they are purely focused on advocating for the interests of anglers and hunters in the statutory planning process.

Niall Watson

"If you want fisheries that flourish and provide good fishing, you need both good water quality and quantity, along with natural river channels and lake margins"

Niall Watson has been the head of the local office since it was established 27 years ago. Before that, he worked as manager of its predecessor, the Otago Acclimatisation Society. His office is largely focussed on RMA matters, dealing with resource consents, minimum flows, and other policy issues.

In order for the OFGC to be involved in a consent application, they must be recognised as an affected party. However, Niall says, given the wide distribution of trout in our waterways, OFGC are often called in to evaluate adverse effects of water takes, discharges, diversions and dams.

"We engage with applicants to try and work out acceptable solutions when local wildlife is affected if they haven't been considered already.

"Trout and salmon fisheries throughout Otago are mostly wild and self-sustaining through natural spawning and rearing. The idea that trout fisheries rely on hatchery release is entirely wrong, they rely on healthy freshwater ecosystems to provide for all the stages in their life cycles," he said. "If you want fisheries that flourish and provide good fishing, you need both good water quality and quantity, along with natural river channels and lake margins," Niall said.

When recognised as an affected party, OFGC works with applicants to try to achieve mutually acceptable solutions that streamline the application process. However, one of the most common problems they find is that applications don't include the fundamental environmental information needed to support informed decision-making.

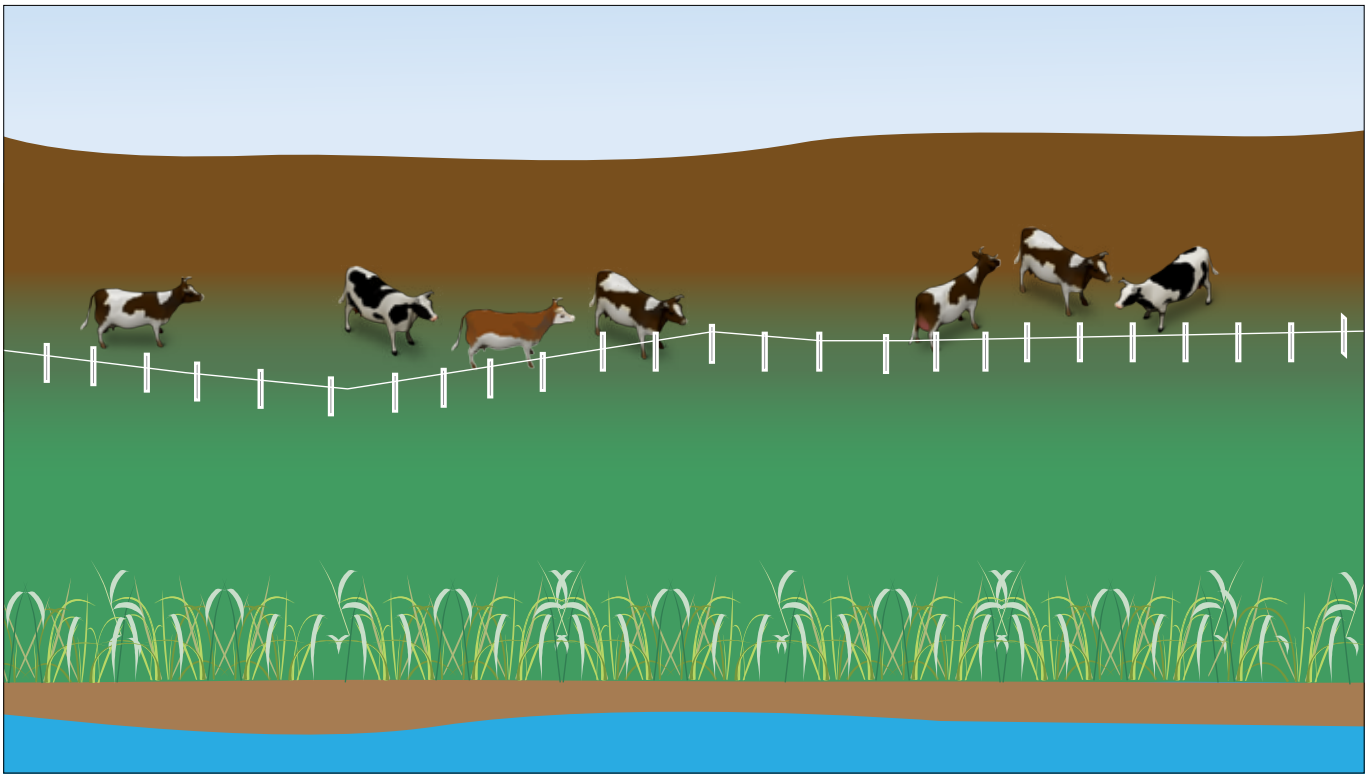
"This is often happening at the moment with those transitioning from deemed permits. Applicants provide very sketchy hydrology, not much information on fresh water biology, and include assumptions about how rivers work. A common assumption is that a river goes dry naturally, which is often not the case," he said.

Early contact is very useful, where they have time and resources they will carry out a field assessment themselves. The important thing from a water taker's point of view is that water is critical for their operation, and they should seek information from suitably qualified consultants early on in the process – and that will often include OFGC.

"We are starting to see quite an increase in deemed permit applications, but our biggest worry is the number that are yet to come. We are genuinely concerned that we are going to be swamped with applications as 2021 looms closer and closer," Niall said.

OFGC reports to the Minister of Conservation and to Parliament annually. It produces a 10-year sports fish and game plan for Otago, which is approved by the minister. "Minimum flows are particularly important to us and we make great efforts to contribute to those statutory processes, ensuring that plan provisions protect local rivers, maintaining their biodiversity," Niall said.

If you would like to contact Niall or any of his team then you can email them on otago@fish-game.org.nz or phone 03 477 9076 and they'll respond as soon as they can - particularly if the issues involved are regarding local fishery or other wildlife values.



Grazing stock from top to bottom on sloping land prevents sediment runoff.

Time to think about winter grazing

Winter feed crops such as fodder beet will be growing well by now, so it's time to start thinking about the best way for animals to graze them over the coming months without your precious soils being washed away.

There are several steps you can take to lessen the likelihood of your soil being washed into a waterway during rain events:

- Maintain a buffer strip of long grass or low vegetation (i.e. riparian planting) between grazing paddocks and waterways, and also in gullies/swales where water might naturally collect to flow into a waterway.
- Create and maintain a sediment trap, such as a pit or perpendicular channel at the bottom of the paddock, to slow water movement and trap sediment.
- Graze stock in the lower, damper areas of paddocks last, to reduce sediment runoff from these areas.
- Graze animals from top to bottom on sloping land so any sediment is trapped by lower-lying crops. It will also keep the soil on your land and out of the waterways.
- Think about access (gateways, lanes, culverts and crossings). These often get more traffic than usual and it's important that there are adequate measures in place to prevent any runoff to water with the associated high use and wetter winter weather.

ORC did an aerial survey of South Otago late last year and we were pleased to see the high number of farms using the winter feeding good practices listed above, and the number that had improved their sediment management practices compared with previous years.

There's always room for further improvement, so share your ideas with your neighbours and friends and see what you can learn from each other.

2016/17 Dairy inspection results

ORC has visited all operative dairy farms during the 2016/17 dairy inspection season, and we are happy to report the majority were compliant.

431
Compliant

16
Non-compliant (Minor)

14
Non-compliant (Major)

Our inspections focus on effluent management, and our environmental monitoring staff also look at overall farm infrastructure and potential risks to water quality.

We work alongside the North Otago and South Otago Dairy Working Groups, and those who are found to be non-compliant are offered a referral to the working groups. The groups help farmers identify and resolve issues so they are compliant in the future, particularly around effluent-related issues.

Areas of risk include insufficient effluent storage, applying effluent to wet soils, not having adequate infrastructure, and applying effluent within 50m of a waterbody/bore, or over tile drains.

A day in the life of...

Nathan Manning is based at ORC's Cromwell depot, although he spends most of his time out and about. Lisa Gloag tagged along to find out what he gets up to.

I had my fingers crossed for a calm morning. Spending a couple of hours bobbing around on a lake doesn't agree with me, but we struck it lucky at Lake Hawea and I was relieved to see the water was still.

I was there with environmental officer Nathan Manning to carry out trophic lake testing, a monthly monitoring program that measures the health of Lakes Hawea, Wanaka, Wakatipu, and Hayes.

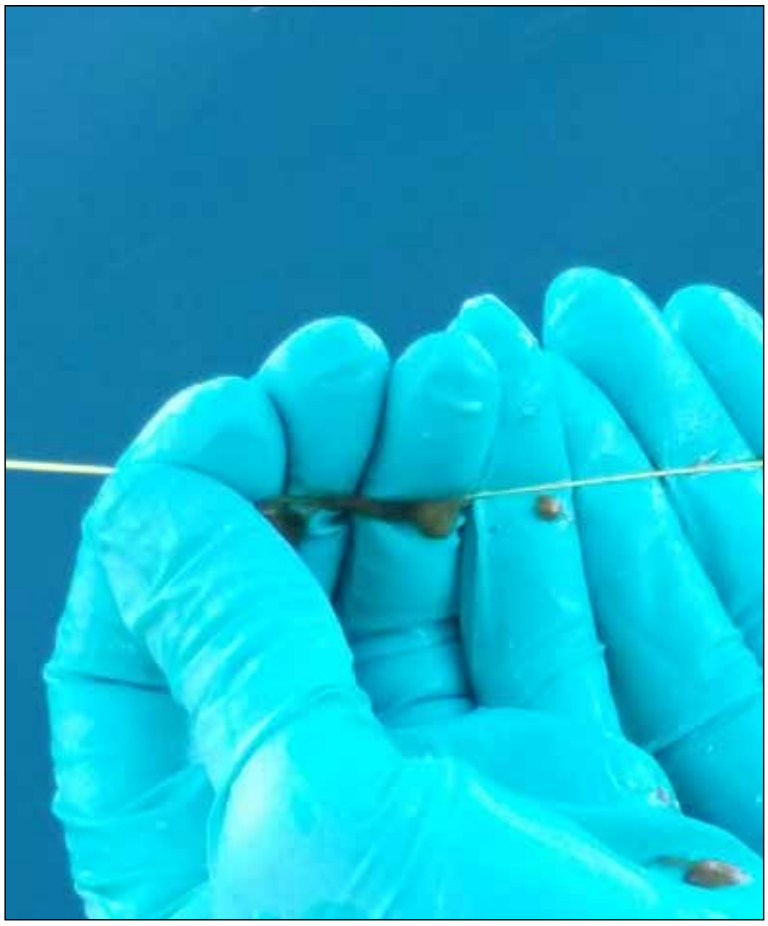
We cruised to a spot in the middle of the lake where the testing is done, just as the sun was rising over the stunning mountain range. I had to remind myself this was work!

Trophic lake analysis involves a number of tests:

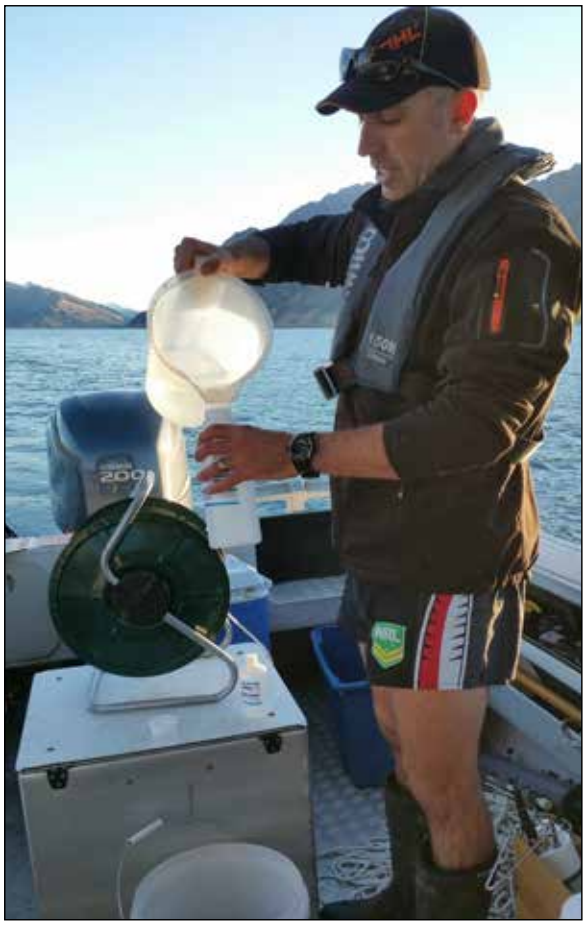
1. Sending a water quality profiling probe down 200m into the water, which takes measurements every five seconds of depth, pH, dissolved oxygen, chlorophyll, conductivity, temperature, and turbidity. It was my job to wind the probe down and up again, freeing Nathan up to get on with the water sampling while giving my arm a good workout.
2. Water samples are taken at 0.5, 15, 30, and 45m depth, combined together and sent to the laboratory for analysis on nutrients, chlorophyll a, dissolved carbon and phytoplankton. Another sample is taken at 10m deep to analyse for nutrients and chlorophyll a, and a further sample is taken at 150m deep for nutrients only. The deep sample gives us an idea of what happens in the deep, dark depths of the lakes.
3. Capturing zooplankton by lowering a net to 150m depth and hauling it vertically back to the surface. Volumetric calculations are done on the sample to see how much aquatic life is in the water column down to 150m. This is another indicator of lake health.
4. Clarity is recorded by lowering a Secchi disk down into the water until it disappears. A Secchi disk is a novel piece of lake monitoring equipment that was invented in 1865. It's a 30cm diameter disk divided into quarters and painted black and white alternately. Lake Hawea was clear to 14.4m, which is a great result, although no fish were spotted in the process of data collection!

The four lakes get these tests done every month, and lakes Wanaka and Wakatipu also have full water quality profiles and water samples taken at 10m depth in two bays each: Glendhu and Roy's bays in Lake Wanaka; Frankton Arm and Queenstown bays in Lake Wakatipu. These sites can then be compared to the 10m depth open water samples as well as the 10m depth samples across all four lakes.

Every three months another sampling site is tested further up each lake (except for Lake Hayes due to it being smaller). The additional



Collecting lake snow



Nathan Manning collecting water for testing

'northern' site is used to see if lake water quality is similar across a greater spatial area. This site has the full suite of tests.

The final test involved Dave, a harbourmaster from Queenstown who provides the boating skills and often an extra set of hands, putting out a braided downrigger line to a depth of 30m and dragging it for 1000m. Dave and Nathan have nicknamed this a 'snow tow'. Nathan put on some gloves to collect any lake snow from the line as it was being wound in.

Because so little is understood about lake snow we're keen to learn as much as we can and, as well as our own testing on it, some samples will be sent to NIWA on behalf of the Ministry for Primary Industries (MPI), who are keen to see if the Clean, Check, Dry methods used for Didymo have an effect on it.

Nathan has worked at ORC for five years and loves his job because it's different every day. Trophic lake sampling takes up roughly a quarter of his job, and the rest involves biosecurity (pest animal and pest plant management), pollution responses, public enquiries, and dairy inspections.

He works long hours but loves that he can ride his bike to work (even in the depths of winter when it can be minus five degrees) and be home in ten minutes to get cuddles from his two young daughters.

The only part of his job he isn't so keen on is time in the office doing paperwork. But on days like today, the paperwork can wait (at least until later in the day, when he has a lot of paperwork to fill out before sending the water samples off to the labs).

Nathan went to Lake Wanaka after we finished at Lake Hawea, and he took great delight in sending me photos from the middle of the lake. The wind had come up and the water was choppy. I could almost hear the smile as he said "your stomach wouldn't handle this".

In Brief

Waitahuna Planting day

Liaison specialists Rebecca Begg and Nicole Foote got their hands and gumboots dirty helping at a planting day in Waitahuna recently. Landcare Trust and Department of Conservation organised the event, which gave people the chance to learn about the ORC Water Plan rules, in particular around riparian planting.

Local school children also helped with the planting, and learned about restoration work that DoC and Contact Energy are doing in the catchment.

Ballance Farm Environment Awards

We're happy to announce Ben and Tanya Davie from Hejlea Dairies in Clydevale as winners of the Otago Regional Council Quality Water Management Award. Congratulations also to Simon and Kirstin Engelbrecht from Stoneburn, near Palmerston, who won the 2017 Supreme Award.

Events calendar

You'll find ORC staff at the following events...

June	
26	Minimum flow consultations. Arrow catchment and Wakatipu Basin aquifer 1–3pm and 6–8pm Arrowtown Bowling Club
27	12.30–2.30pm Queenstown Events Centre
28	Beef and Lamb winter event 1–5pm Heriot Community Centre

Wallaby workshops

We held two meetings in Ranfurly and Tarras recently to talk with farmers about wallabies. We discussed how to identify signs of wallaby, and what to do if they are spotted. Our 'Identify, report and destroy' approach will help us stop breeding populations of this pest from establishing in Otago. Another meeting will be held in Duntroon on 12 July, in conjunction with Environment Canterbury.

The Southern Wood Council Forestry Awards

Congratulations go to Heavy Weight Hire, who won the Otago Regional Council award for Forestry Environmental Management Excellence.

Have you signed up for On-Stream yet?

We have a monthly e-newsletter that keeps you up to date with water quality and quantity information around Otago.

Email us to sign up: **water@orc.govt.nz**

Want another way to keep up to date with Water Quality in our region?

You can "Like" 'Good Water in Otago – ORC' on Facebook for regular articles and titbits.

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