Waterlines
RURAL OTAGO'S WATER UPDATE
Otago Regional Council
Summer 2014

Cows graze near the Taieri River at Henley. Meeting the permitted activity rule for stock access to waterways in the Otago Water Plan is an important requirement for farmers.

What you should know about our new water quality rules

ORC's new rural water quality rules are designed to ensure that good water quality is maintained and poor water quality is improved, whilst allowing land-based activity to be managed by the landholder and not the council.

The rules combine permitted and prohibited activities and a requirement that the quality of water entering a stream, river, lake, or Regionally Significant Wetland is at or below a maximum permissible threshold of nutrients, *E.coli*, and sediment.

The rules and conditions apply to contaminant discharges to surface water, groundwater, Regionally Significant Wetlands, and coastal water, and also require landholders to address nitrogen leaching through the use of Overseer.

Water quality is strongly linked to management practices that produce the contaminants.

There are a number of activities which are prohibited around effluent, silage, and compost management, and sediment runoff from disturbed land – activities that pose major threats to water quality.

The following pages outline some of the key rules you need to be aware of.

ORC has doubled the number of samples it takes from its State of the Environment (SoE) monitoring sites and added two sites in North Otago.

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These samples, now taken monthly from all sites, will give us up-to-date data on the water quality trends in Otago waterways.

All ORC staff will, in their own programmes, and in collaboration with industry groups, continue to work closely with landholders, advising on water quality monitoring and the requirements of the rules.

To start, landholders should ensure they are meeting the rules that apply now – the prohibited rules, sediment runoff, stock access, and work in waterways, including bridges and culverts.

Over the next four years, we will encourage landholders to actively monitor the water quality discharging from their properties leading up to 2020, to ensure compliance with the plan.

All landholders should embark on observations to identify if and where contaminant discharge may not be complying with the rules.

With poor water quality – if you can see it, then we can too. If in doubt, take a sample and get it tested – the earlier you sample, the better.

ORC rules allow property inspections to determine compliance with all water quality rules, and from 2020 onward to review the results of water quality measurements taken from Overseer data.

If, as a result of testing, the water quality is below the maximum allowable nutrient and *E.coli* thresholds for the discharge, no change to land management will be needed.

If, on the other hand, the maximum allowable nutrient and E.coli thresholds are exceeded, a change in management practice could be required to ensure subsequent water discharge is within the allowable threshold.

Some properties will have water from multiple neighbours entering and mixing with water on the home property.

In terms of water sampling, we are only interested in the impact of an individual landholder's practices on the quality of water discharged, not the neighbour's water that might at some point be flowing through the farm – that is the neighbour's problem.

However, neighbouring landholders not meeting Schedule 16 limits could choose to work together to share ideas to achieve good water quality.

ORC environmental officer Kevin Allan is dwarfed by an irrigator during an inspection of a North Otago dairy farm.

Prohibited activity and conditional permitted activity rules in the revised Otago Water Plan represent an effects-based approach to maintaining good water quality and improving poor water quality in the region. On this page and the following four pages we highlight some of the key rules you need to be aware of.

Causing ponding by discharging effluent to land is prohibited.

Ponding caused by effluent irrigation to land. This is a breach of the prohibited rules.

Prohibited activities

Otago's new water quality rules include prohibitions that all landholders need to consider.

Prohibitions involving gross discharges to water, discharges from effluent sources, and sediment from disturbed land, are mandatory.

Resource consents cannot be obtained for these activities and ORC compliance staff will investigate breaches of these rules. Enforcement action may include prosecution.

The key prohibited activity rules are:

1. You can't discharge any contaminant to water that produces a nasty odour, or an obvious oil or grease film, scum, or foam in a lake, river, or Regionally Significant Wetland, in a drain or water race that goes to a lake, river, a Regionally Significant Wetland, or to coastal water, or into any bore, soakhole, or effluent pond which is not sealed.

2. You can't discharge any contaminant from an effluent pond or any other animal waste collection or storage system, silage pit or composting to:

- any lake, river, or Regionally Significant Wetland including their bed, or a drain or water race that goes to them or coastal water;
- any bore, soakhole, or effluent pond which is not sealed; land within 50 metres of any lake, river, or Regionally Significant Wetland, bore or soakhole, saturated land, or other land if it results in ponding;
- land, if it results in an overland flow to a lake, river, Regionally Significant Wetland or coastal water, or to a drain or water race that goes to them.

3. You can't discharge sediment from disturbed land to water in any lake, river, or Regionally Significant Wetland, or to any drain or water race that flows to them or the coast, if nothing has been done to lessen sediment runoff.

Good practice:

A buffer of long grass protects streams from runoff and meets the sediment mitigation rule.

Sediment

Sediment is a major problem in many Otago lowland streams and rivers that continues to concern ORC. Sedimentation of a waterway can smother and wreck its ecology.

The phosphorus that binds to sediment is leached out slowly, causing increased weed and algal growth that clogs things up.

The Otago Water Plan rules for sediment are stringent. There are two that you must become familiar with.

The first land disturbance rule (Rule 12.C.0.3) says:

Any discharge of sediment from disturbed land to water in any:

- lake, river, or Regionally Significant Wetland; or
- drain or water race that flows to a lake, river, Regionally Significant Wetland, or coastal marine area, where no measure to mitigate sediment runoff is taken;

is a prohibited activity.

Ploughing a paddock, strip grazing, harvesting trees, or undertaking earthworks, are all examples of land disturbance which can produce sediment.

Before you undertake any activity that disturbs land, assess whether runoff could enter water. If there is any chance of sediment runoff getting in waterways, you must put measures in place to control this.

Good examples of possible measures include putting in buffers of rank grass or other low vegetation, and sediment traps (such as a pit in the ground or cutoffs into paddocks).

These and other measures may not prevent all sediment runoff from entering waterways, but the key is to have an effective option available to minimise its impact on water quality.

Without measures in place, any land disturbance resulting in sediment entering water is prohibited and you will face enforcement action.

The second sediment rule (12.C.1.1) allows sediment to enter a waterway as a permitted activity, provided the sediment in runoff from land or any drain does not result in a conspicuous change in colour or visual clarity, or a plume; and/or a noticeable increase in local sedimentation.

This rule also applies to sediment entering and leaving irrigation races and entering waterways (rivers, streams, creeks, lakes, wetlands, and coastal marine areas).

You will have to apply for a resource consent if you cannot meet these permitted activity conditions.

Control measures you put in place to meet the land disturbance rules may not be enough to comply with the sediment rule.

Grazing stock on bare soil causing pugging and sedimentation without any sediment control in place breaches the land disturbance rule.

Here is an example of a fenced grassy buffer which would ensure that any sediment runoff from the grazed crop is filtered before entering the river.

Both these photos show unacceptable sediment levels in the river. In the photo on the left sediment is contaminating clear water. On the right, poor water is being further contaminated. Both show a conspicuous change in water colour, therefore, they fail the sediment runoff rule.

Works in rivers or streams are likely to require a resource consent, unless the permitted activity conditions around bed disturbance can be met.

Cleaning out streams and drains

If you are using machinery to clean out or do any other work in what you may think is a drain, and whether you're going to do it yourself or employ a contractor, you first need to consider whether you're dealing with a drain or a river. If it is a river, you may need to seek resource consent.

Under the Resource Management Act, the term 'river' encompasses creeks, tributaries and streams – large and small.

Rivers that have been modified or straightened, appear like, and can be mistaken for 'drains,' but they remain rivers under the RMA.

If you are carrying out work on a drain, you need to be aware of potential sedimentation where the drain connects to the river.

At the connection your work must not cause any visible change in colour to the water, or sediment buildup on the riverbed.

Work in rivers and streams usually needs consent.

There are some activities which can be done without consent.

Section 13.5 of the Otago Water Plan sets out where consent isn't required, provided the work meets various permitted activity conditions.

The key bed disturbance permitted activity rules are:

- 13.5.1.1 Clearance of debris around structures (to protect the structure's functionality or integrity)
- 13.5.1.2 Clearance of material that has accumulated as the result of a storm (excluding alluvium) to maintain the riverbed's flood-carrying capacity
- 13.5.1.3 Installation and maintenance of structures
- 13.5.1.4 Reinstatement of a river bank eroded by floodwaters
- 13.5.1.6 Extraction of alluvium.

The installers of the bridges pictured have made use of the new water quality rules. The bridge on the right, which is used by stock, has a bund to stop animal waste entering the creek. The bridge on the left is not used by stock so does not require a bund.

Building a single span bridge or stock crossing

The new water quality rules were designed to make it as easy as possible for landholders to reduce the effects of their activities on water quality.

Vehicles and stock traversing streams and rivers can have a big impact on water quality. To help you deal with this, you can now build bridges and culverts without needing a resource consent.

You can build a single span bridge or a stock crossing on your property as long as:

- the structures don't cause flooding or impede flood flows; are stable under flood conditions; they do not impede the movement of bed material; and they are secure against bed erosion, floodwaters, and debris, and
- they do not cause erosion in the bed or banks of a lake, river, or Regionally Significant Wetland, or property damage;
- they include measures to avoid animal waste from the structure entering water;
- any public access is maintained and it complies with the rules below.

Rules for building bridges

There can be no more than 20 metres of bridge over any 250 metre stretch of any lake or river, and the bridge soffit cannot be lower than the top of the higher river bank.

Rules for building a crossing

- You can install a culvert in any sized catchment without needing a consent if the top of the crossing is no higher than 2m above the lowest part of the bed where it is located.
- Crossings higher than 2m can be constructed in small catchments (less than 50ha), provided the top of the crossing is no higher than 3.5 metres and there is a minimum culvert diameter of 1.2 metres (or equivalent cross-section area).
- There must be no more than 24 metres of crossing over any 250 metre stretch of lake or river, there must be a minimum of 12 metres between each crossing and for all crossings, fish passage must be provided for if passage was possible before the crossing was built.

You must also meet the bed disturbance rules.

ORC environmental officer Kevin Allan checks his notes during an inspection of an effluent pond on a North Otago dairy farm.

New inspections regime incentivises dairy farm compliance

A new risk-based system of dairy farm inspections is under way as part of the ORC's implementation of new water quality rules.

ORC director of environmental monitoring and operations Jeff Donaldson said the annual dairy inspection for every farm had moved to a risk management approach.

"Every farm will be assessed on their environmental risk and decisions made about how often they need to be inspected based on that risk," Mr Donaldson said.

The key criteria for such decisions include:

- whether the dairy farm is in a degraded river catchment;
- whether the dairy farm has adopted best infrastructure management for their area, and;
- whether there are drainage risks (eg tiles, mole drains that lead to waterways) on the property.

Mr Donaldson said that if dairy farmers reduce their environmental risks through improvements in infrastructure, the frequency of inspections by ORC staff will decrease.

"When water quality also improves in degraded catchments, inspection frequency will also reduce further," he said.

"Our objective is to have every farm compliant with the new water quality rules; to incentivise farmers to adopt best practice in their land management, and to ensure water quality improves."

Between September 2013 and April this year a total of 435 dairy sheds were operating in the region. Of these, 407 (representing 93.5%) of the farms were compliant with the permitted activity rules.

A total of 28 dairy farms (6.5%) were found to have one or more breaches of permitted activity rules, where their activities had the potential to adversely affect the environment.

Of these 28, 10 dairy farms' non-compliance was regarded as serious, and resulted in the council initiating eight prosecutions, and issuing four infringement notices.

Mr Donaldson said the results were an improvement on 2012-13 when 378 of the 413 dairy farms (or 91.5 percent) then operating complied with the permitted activity rules, leaving 35 (8.5 percent) with one or more breaches.

Of these 35, 16 were adjudged to be seriously non-compliant, with five prosecutions initiated and 12 infringement notices issued.

Mr Donaldson said the improvement in compliance in 2013-14 compared to 2012-13 reflected a number of farmers having significantly upgraded their effluent management infrastructure.

This included installing effluent storage systems, installing failsafe systems (electronic sensor systems in the event of irrigator failure e.g. hose disconnecting from the travelling irrigator) on the irrigator systems, and use of low rate systems.

"While this improvement in compliance is pleasing, we would like to see the percentage of compliant farms increase even further as the new water quality rules come into effect," Mr Donaldson said.

Farming pragmatism pays off for award winners

This farm pond on the Bearmans' property is a good example of a well-fenced, wide buffer of vegetation and long grass. This protection reduces runoff from paddocks and protects fish and invertebrates living in the pond. It also creates important habitat and biodiversity.

South Otago farmers Brendon and Suzie Bearman are on solid ground when they talk about the need for people in the Tokomairiro catchment to collectively address water quality issues.

Why? Because of their strong track record of pragmatic and sustainable land management.

This was recognised at the 2014 Ballance Otago Farm Environment Awards when the Bearmans won the ORC Water Quality Award, the LIC Dairy Farm award, and the PGG Wrightson Land and Life award.

They have spent 15 years transforming their 245ha property Kilkenny Farm in the Crichton district near Milton from what the awards judges described as a "difficult property", into a profitable and sustainable business.

The Bearmans had been sharemilking for nine years when they bought the farm in 1999.

Looking back, they realise now that it was only "partly converted" to dairying. However, at the time, it suited their budget to buy it in that state and they could also see the potential for expansion.

The couple have gradually developed Kilkenny Farm's infrastructure to include an enlarged herringbone cowshed (from 20-a-side to 40-a-side), doubling the number of cows they milk to 400; and installing a new effluent system.

In 2010 they took up the lease for a neighbouring 100ha property for young stock, wintering half the herd and making feed supplements.

Kilkenny Farm is rolling country, connected by steep gullies. The effective area of the farm (excluding the lease block) is 190ha and the milking platform 160ha.

Suzie says farming in these parts requires experience, particularly in winter when cows are break feeding on crops.

She adds that correctly placing break fences according to contour and the prevailing weather, is a skill, which, if done properly, will minimise nutrient loss and sediment runoff.

Their innovative thinking impressed the judges: "they (Bearmans) are aware of potential problems and are developing the farm and systems to minimise environmental risks."

The Bearmans' new effluent system has been designed to deal with local conditions.

'Smart farm' technology monitors the pumps and pods and can be set to intermittent application. With more than 90 days storage they can get through the wet periods when effluent cannot be applied to their paddocks.

Brendon says even before they bought the farm, they recognised the contours of the land could potentially offer stock grazing flexibility.

"We can be summer dry here, so we have a few paddocks that are steeper that we can add into the grazing rotation if we need to in January or February."

"These are not paddocks we would normally use (for milking cows) any other time, but they have been a big bonus for us some years," Brendon said.

For the past few years the Bearmans have been part of a group working with ORC on water quallity issues.

Suzie is also involved in the establishment of a Tokomairiro catchment group which will promote farm practices that will enhance the local water quality.

"This catchment has a water quality problem. It has been identified and we all need to do something about it," she says.

Brendon agrees, adding that if many farmers make lots of incremental change in land management practices, overall everyone will benefit.

Pathway for the Pomahaka co-ordinator Janet Gregory (centre, green shirt) speaks to farmers at a field day in February this year.

Pomahaka farmers working hard on water quality improvement

Work being facilitated by the NZ Landcare Trust to improve poor water quality in the Pomahaka catchment will continue for at least another year because of financial support from ORC.

Janet Gregory from the trust will work part-time in the catchment during 2014-15 to build on the work she has overseen during the past year on the Pathway for the Pomahaka project.

The project aims to improve water quality in the Pomahaka.

The programme to achieve this includes:

- Building on existing relationships within and between the catchment's communities, as well as with agency and industry stakeholders to raise awareness of the problem.
- Drawing together existing knowledge of current land use practices and their contribution to water quality issues within the catchment.
- Identifying effective options for those land managers who need to change current land use practices to meet water quality responsibilities, while also optimising farm profitability.

A trust report summarising work on the project to date identifies water quality issues highlighted by the farming community, and suggests effective land management options that can be implemented to help make improvements.

Key issues and topics include:

- River bank erosion
- Riparian margins
- Wetland protection and development
- Biodiversity
- Effluent management systems
- Nutrient monitoring and budgeting
- Hill country development
- Winter grazing techniques
- Forestry and water quality
- Iwi values.

The project was funded from the Ministry for Primary Industries' Sustainable Farming Fund, with additional support from Beef and Lamb NZ and DairyNZ.

A stakeholder group has been formed made up of farming representatives from throughout the catchment and from different land uses, along with representatives from agencies and organisations with an interest in the catchment.

Pomahaka Stakeholder Group members discuss effluent management and pond requirements at a April 2014 field day.

A related group – the Pomahaka Farmers Water Care Group – has been formed to monitor water quality in key tributaries; share the monitoring results with the wider catchment community; and promote sustainable farming solutions to improve water quality.

Farming in the catchment relies on artificial drainage (mostly tile and mole drains). These drains are a major source of contaminants which enter waterways.

Stock access to waterways is also an issue, as is winter feed crop grazing on saturated soils.

These practices, combined with relatively high rainfall, have contributed to the water quality issues in the catchment.

However, as the project has progressed, relationships and understanding of the issues and the farming systems have improved, creating a solid foundation for collaborative work to improve water quality during the next few years.

The trust report can be downloaded at www.landcare.org.nz

Group members discuss river management issues at a November 2013 field day.

News in brief

Water data gathered from Lindis

ORC has completed a study in the Lindis catchment to improve understanding of how water in the catchment is distributed. Flows at six sites in tributaries of the Lindis were monitored. The data collected will help progress the minimum flow setting process for the catchment and the transition from deemed permits for water allocation to resource consents before 2021. Other uses for the data include setting residual flows for tributary takes, improving understanding of the effects of a future minimum flow, and helping assess the feasibility of on-farm water storage.

River form and function process under way

ORC has begun consulting landowners and other interested parties in the Kakanui and Kauru catchments in North Otago so they can outline their preferred values for Otago rivers and their management. The two rivers have been chosen as pilots for the consultative process. The key objective is to reach a whole-of-community view about what river management interventions ORC and landholders might take (if any) to help protect land bounding a river, while ensuring community values are adhered to.

ORC chief executive Peter Bodeker said he was seeking a range of viewpoints on river management, not just of those who want the council to engineer the river to protect land from erosion, or to provide a cheap source of gravel.

Implementation of new water quality rules under way

Agencies such as Dairy NZ, Beef and Lamb NZ, and Federated Farmers are key stakeholders (among others) in the implementation of ORC's new water quality rules and will play a key role in the process. Our community liaison and education staff are working closely with these agencies to ensure that our efforts to ensure landowner compliance with the rules are complementary and that they are clear about what's required of them.

Minimum flow process gaining momentum throughout Otago

Minimum flow and allocation regimes are being developed for a number of catchments and aquifers, with community consultations at various stages of development.

The affected areas are: Waikouaiti River; Waiwera River; Benger Burn and Ettrick basin aquifer; Lindis River and connected aquifers; Cardrona River and Wanaka basin; Manuherikia River and connected aquifers; Earnscleugh aquifer; Hawea Basin aquifer; Maniototo aquifer, Pisa aquifer, and Roxburgh aquifer. A programme of community consultation forms an important part of the minimum flow setting process – check our website for updates on those in your area.

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