GOOD WATER IN OTAGO

Otago Regional Council

Sampling water quality on your farm

PLAN CHANGE 6A - OTAGO WATER PLAN

The information in this pamphlet is intended to provide guidance only and is not a substitute for obtaining professional advice. Refer to the Otago Regional Plan: Water for Otago for full details of the water quality rules.

For more information contact the ORC Community Liaison and Education team or the consents team on 03 474 0827 or 0800 474 082 or **visit: www.orc.govt.nz**

UPDATED JANUARY 2015

Sampling water quality on your farm

Follow these guidelines when sampling water to see if the contaminants meet Schedule 16 discharge thresholds.

Refer to the sampling point diagrams (pages 5-9) for guidance on the places to sample from.

Sample water quality from areas with higher risk land use activities, and at different times of the year. The sites which are most vulnerable to poor water quality will provide you with the best information on how your farming practices are affecting waterways.

Take samples when your Schedule 16 reference flow area (see page 4) is below its median flow. Have samples tested for *E.coli,* NNN, DRP, and Ammoniacal Nitrogen. See point 5, on page 2 for how to sample.

Compare your results with the threshold numbers in the Schedule 16 table (pages 10-11).

Your results are fine on the day taken if they are within the thresholds. Be sure to file a copy of your sample results. The more evidence you have that your discharge levels are ok, the better.

Regular testing of samples from the same sites under different conditions will help you see what effect your remedial practices are having.

Local flow conditions are available from **www.orc.govt.nz/WaterInfo**

1. What do I test for?

Testing for all contaminants below will give you good baseline information.

Ammoniacal nitrogen (NH4)	- nutrient
Dissolved reactive phosphorus (DRP)	- nutrient
Nitrite-nitrate nitrogen (NNN)	- nutrient
Escherichia coli *(E. coli)*	- bacteria

Clarity / Turbidity
Make your own visual assessment of sediment. Dirty plumes may breach permitted activity rules and need immediate mitigation.

2. What should I ask the lab for?

When you request the tests from a laboratory (see list below) discuss the following:

Obtain a quote based on the number of sites and contaminants you would like to test for.

Check that the lab will send you sample bottles, a chilly bin, ice packs, and field sheets.

Check courier delivery times, as *E.coli* samples must be kept cool and be at the laboratory within 24 hours of sampling.

Ask whether the quoted price includes the cost of the courier.

Make sure the laboratory will be open when your samples arrive.

3. Who does the sample analysis?

You can courier your samples to these laboratories. Check the Yellow Pages or the internet for more providers.

Eurofins Christchurch 03 343 5227 Unit 1/8 Dakota Crescent, Wigram Christchurch 8042 New Zealand www.eurofins.co.nz	**Hills Laboratories** 03 377 7176 PO Box 16607 Christchurch 8441 101c Waterloo Rd, Hornby, Christchurch 8441 www.hill-labs.co.nz	**McMillan Laboratory** 03 324 2571 120 High St, Southbridge Canterbury www.mcmillanlab.co.nz
Watercare Laboratory Services 03 409 0559 74 Glenda Drive, Frankton Queenstown 9300 www.watercarelabs.co.nz	**Citilab** 03 455 7938 PO Box 781 Dunedin 9054 10 Tahuna Rd, Dunedin 9013 www.citilab.co.nz	

Analysis fees may vary between companies and depend upon how many contaminants you test, and courier costs. A water quality suite that includes NH4, NNN, DRP, *E. coli* may cost around $80-$130 a site.

If you don't want to do the sampling yourself, your fertiliser supplier, vet, or farm consultant may be willing to do it for you.

4. Steps to get your sample tested

Call the lab and get them to send you a sampling kit. Freeze ice packs at least four hours before collecting the samples. Ask the courier for exact delivery details/times to your laboratory (*E. coli* must be there within 24 hours), and then collect samples just prior to departure.

5. How to sample

Fill the bottle to within 1cm of the top from the middle of the waterway and from beneath the surface, with the neck facing upstream. Avoid touching the inside surface of the bottle.

If you wade into the water to collect the sample, always collect the sample 'upstream' of where you're standing to avoid contamination by disturbed sediment.

Tightly cap the bottle.

6. Identify and label sample bottles

Ensure each container is clearly labelled in waterproof pen with site name, date and time taken, and any other details needed to uniquely identify the sample.

7. Note site conditions

It's helpful when you're sampling to be be aware of the prevailing conditions. This might include for example: what the weather is like, catchment appearance and general temperature of the waterbody, flow conditions, bank slumping, and dead animals etc. You can also take a photo and physically mark your test site, so you always test in the same location.

8. Sample submission form

Fill out the laboratory form (which they will send you). The lab will need your details, the sample details (including date and time sampled), the tests required, and the site conditions.

9. Pack and send samples

Keep samples as cool as possible, without freezing. Pack them in the chilly bin with the ice packs and packaging. Be sure to include the sample submission form and your details so the results can be returned to you. Results can be expected within 10 working days.

10. Test strips for NNN

HACH™ Water Quality Test Strips for Nitrite-nitrate nitrogen (NNN) are a less expensive alternative to lab testing. Use these if you're concerned about NNN and want to do more regular testing. The strips are fast-acting and give an accurate analysis of NNN at a level that identifies breaches of the discharge thresholds or limits.

A bottle of 25 strips can be bought for approximately $50.
For more information visit www.hach.com

We haven't yet found a strip accurate enough to test phosphorus (DRP).

11. Record farming practice

Take note of land management practices occurring upstream and around each sample site in the days or even weeks leading up to your sampling.

Also note weather conditions leading up to testing. This will help you understand your water quality results.

Things to note include:

- Stock access to waterbodies, or dead stock or animals on or near a waterbody
- Any pugging upstream or near the sample site
- Effluent application schedules and rates
- Rain events
- Fertiliser application
- Stream works in progress
- Wintering activity.

Need some more guidance?

ORC community liaison and education staff can provide more information on water quality testing and ways to improve your water quality. Ring them on: **0800 474 082**

Median flows recorded at representative monitoring sites.

Median flows are fixed. *Sampling should be done when flow is at or below the median flow.*
For up to date median flow information, visit **www.orc.govt.nz/WaterInfo**

ORC reference waterway and monitored flow site	Median flow (cumecs)
Bengerburn at Booths	0.37
Cardrona at Mt Barker	1.95
Catlins at Houipapa	2.34
Dart at The Hillocks	51.49
Kakanui at Clifton Falls Bridge	1.29
Leith at University Foot Bridge	0.34
Lindis at Ardgour Road	3.50
Lindis at Lindis Peak	3.51
Lovells Creek at SH1	0.14
Manuherikia at Campground	11.60
Manuherikia at Ophir	8.01
Matukituki at West Wanaka	44.99
Mill Creek at Fish Trap	0.35
Nevis at Wentworth Station	7.25
Pomahaka at Burkes Ford	15.48
Pomahaka at Glenken	7.00
Shag at Craig Road	0.65
Shotover at Peats	18.12
Silverstream at Taieri Depot	0.30
Taieri at Canadian Flat	2.45
Taieri at Outram	15.86
Taieri at Sutton	10.52
Taieri at Tiroiti	7.88
Taieri at Waipiata	6.02
Tokomairiro at West Branch Bridge	0.44
Waianakarua at Browns	0.78
Waikouaiti at Confluence	1.34
Waitahuna at Tweeds Bridge	1.55
Waiwera at Maws Farm	1.58

Sampling point guides

Depending on what waterbodies you have on your farm your points of compliance will be in one or more of the following areas.

FIGURE 1. Compliance sampling points for contaminant and sediment discharge to lakes, rivers, wetlands or the coastal marine area

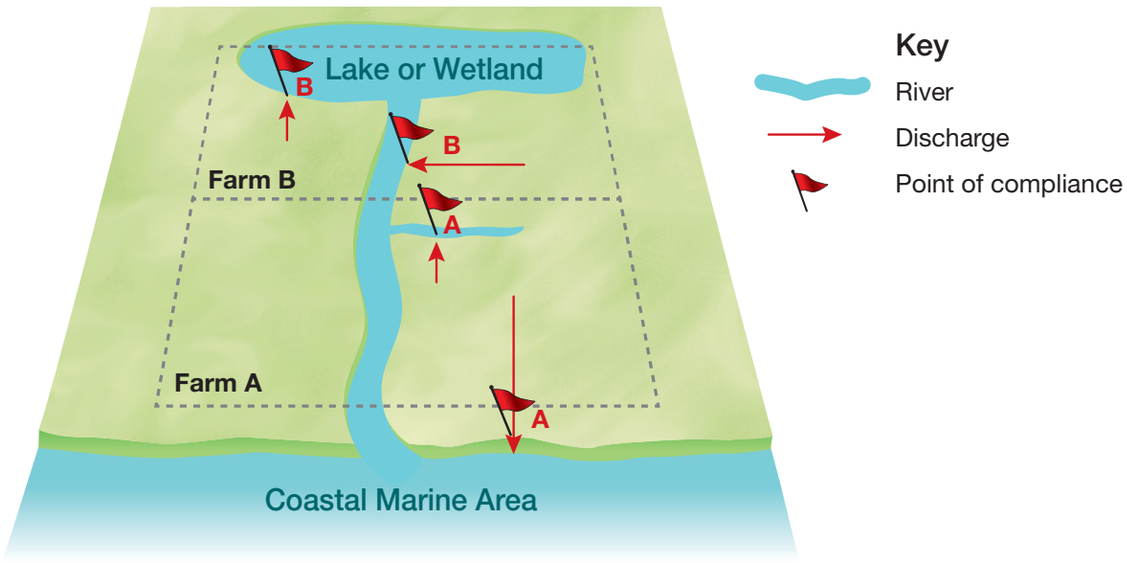


FIGURE 2. Compliance sampling points for contaminant and sediment discharge to drains

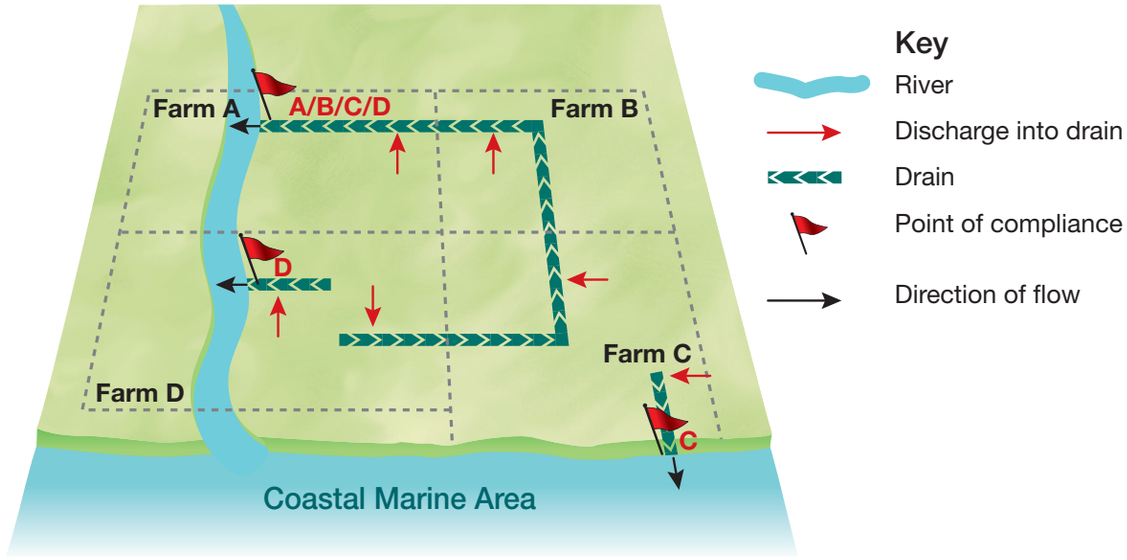


FIGURE 3. Compliance sampling points for contaminant and sediment discharge to races

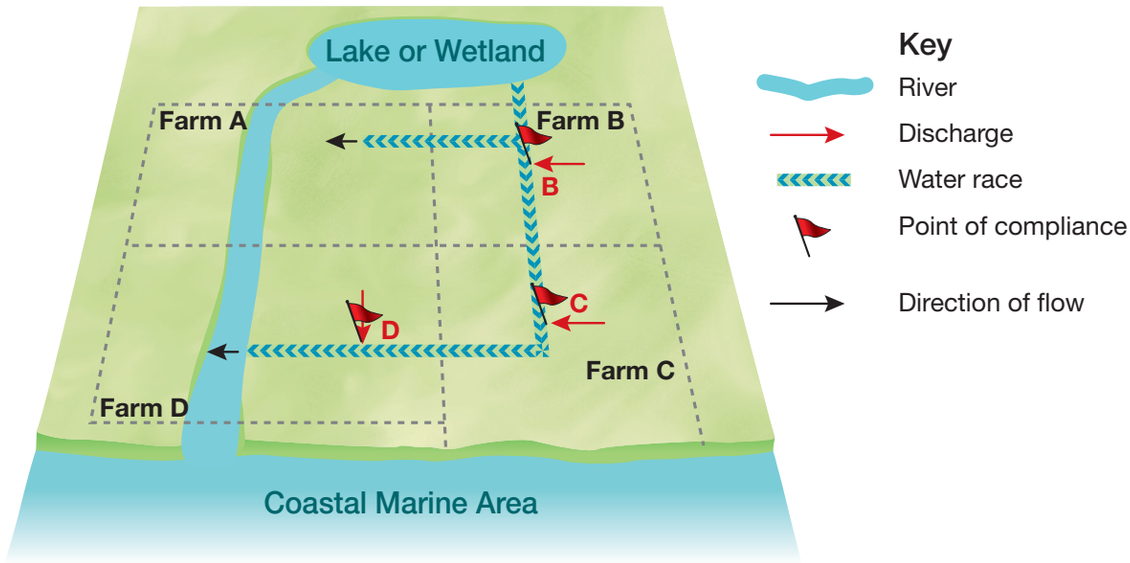


FIGURE 4. Compliance sampling points for discharges to rivers, lakes, wetlands or the coastal marine area

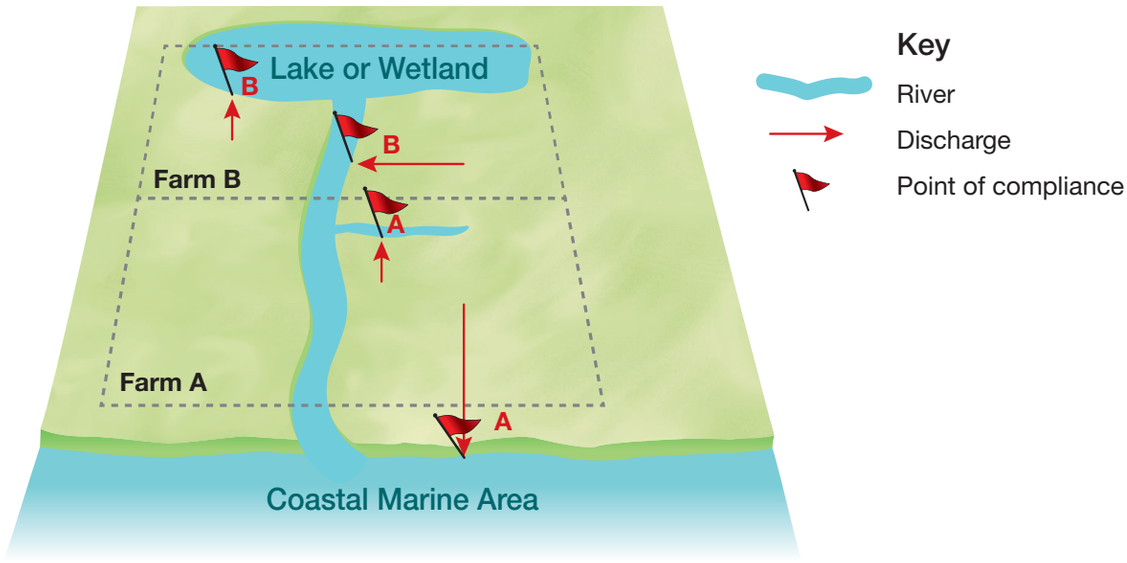


FIGURE 5. Compliance sampling points for flows augmented from irrigation

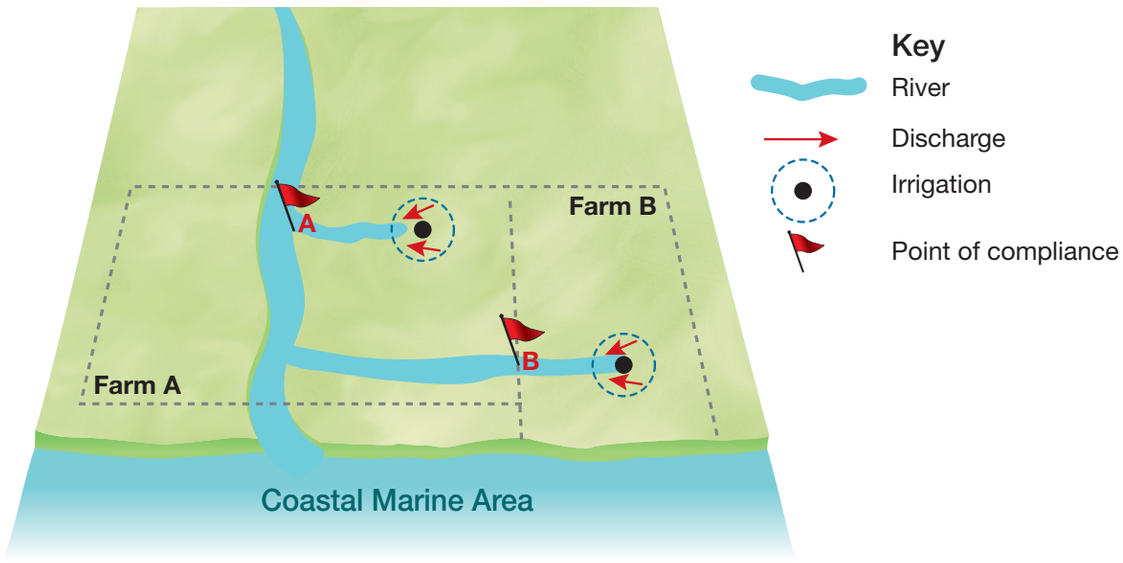


FIGURE 6. Compliance sampling points for discharges to drains (including open drains and tile drains). This example applies where landholders of A, B, C and D have not advised the council in writing that they share responsibility for discharges from the drain.

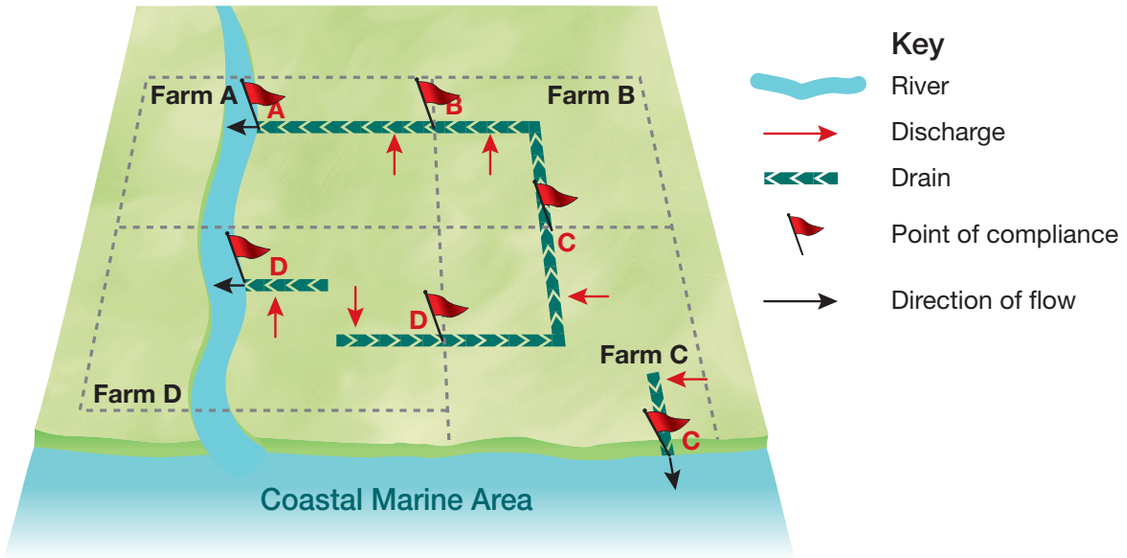


FIGURE 7. Compliance sampling points for discharges to drains (including open drains and tile drains).
This example applies where all of the landholders have advised the Council in writing that they share responsibility for discharges from the drain.

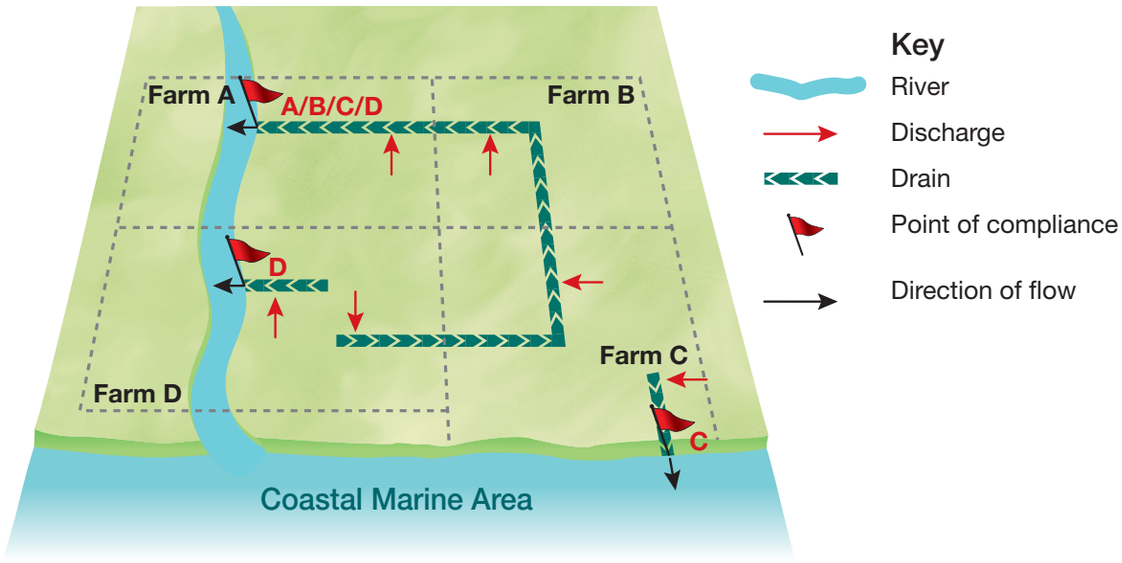


FIGURE 8. Compliance sampling points for discharges to races.
This example applies where all individual landholders have responsibility for their discharges.

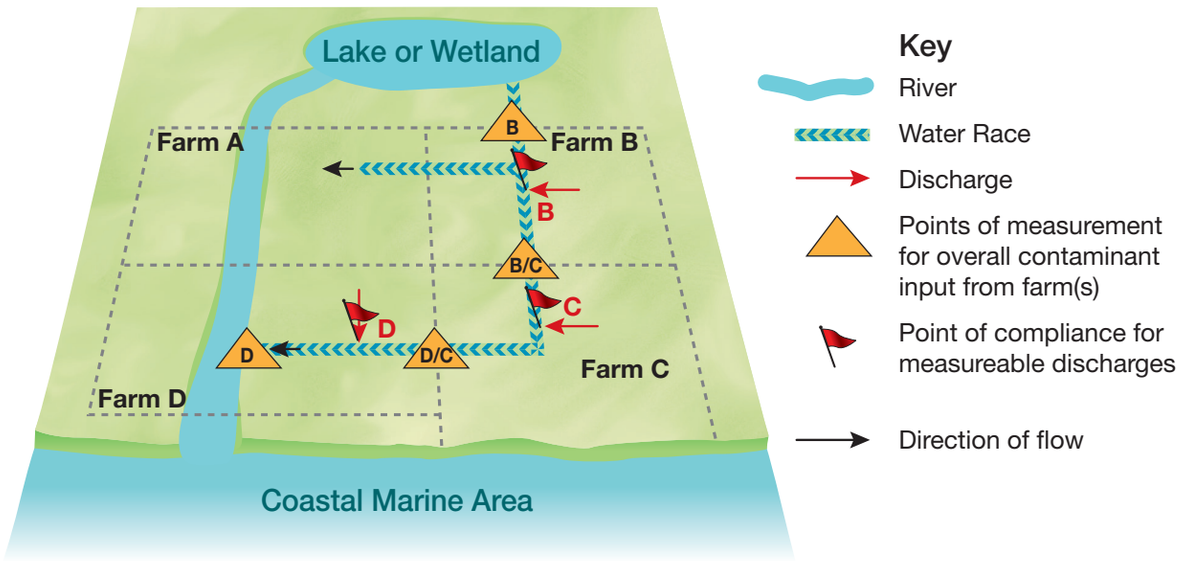


FIGURE 9. Compliance sampling points for discharges to races.
This example applies where the race operator has advised Council in writing that it takes responsibility for all discharges to the race that discharges to the river at farm D.

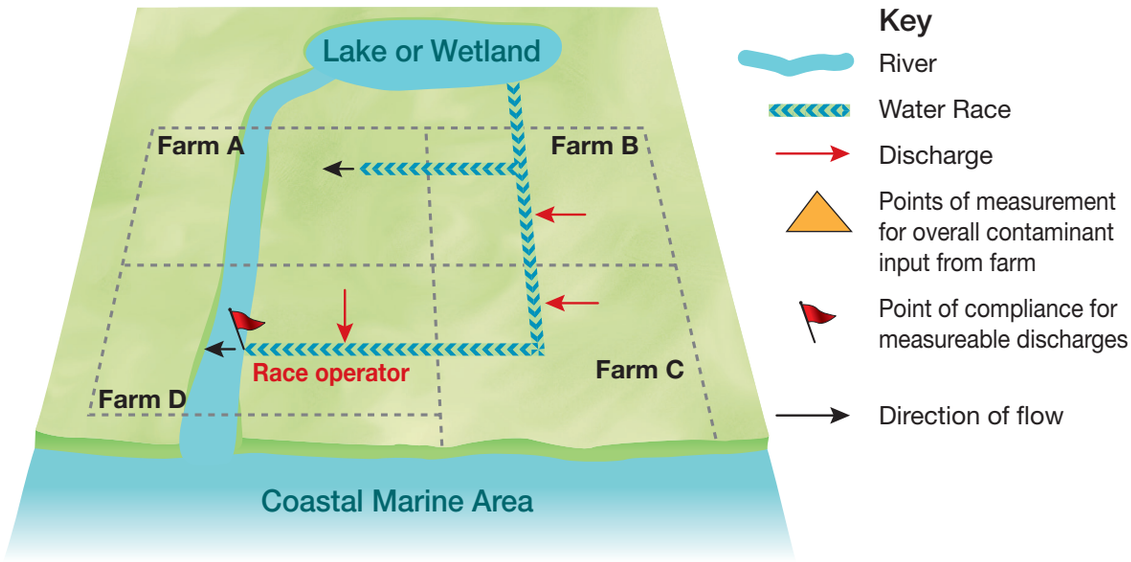
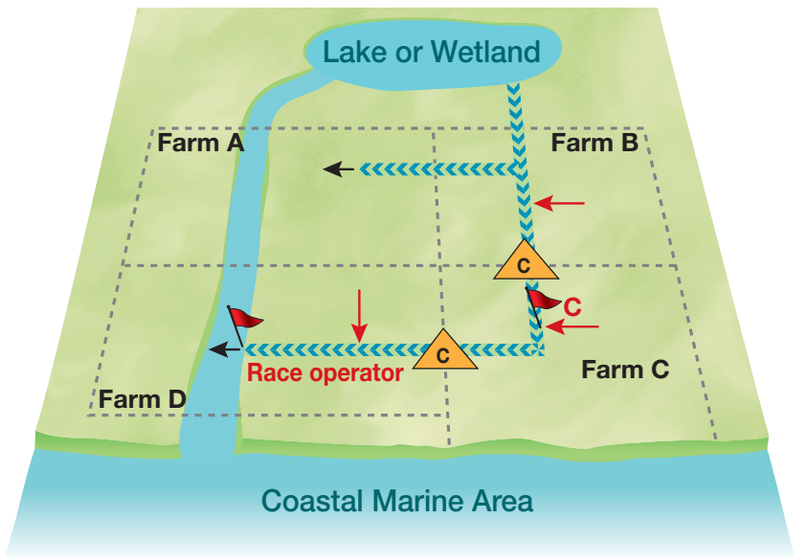


FIGURE 10. Compliance sampling points for discharges to races.
This example applies where the race operator has advised Council in writing that it takes responsibility for the discharges from landholders *A, B and D* to the race that discharges to the river at farm D.



Schedule 16 contaminant discharge thresholds

Discharge leaving your open or tile drains or paddocks must meet these thresholds when the representative monitoring site for your area is at or below median flow (see page 4).

Discharge thresholds **Area 1 Catchments** **Applying from 1 April 2020**	**Nitrate-nitrite nitrogen** **(NNN)**	**Dissolved reactive phosphorus** **DRP**	**Ammoniacal nitrogen** **NH4**	***Escherichia coli*** ***E.coli***
Catlins Carey's Creek Kaikorai Leith Mokoreta (within Otago) Owaka Pomahaka, downstream of Glenken Tahakopa Tokomairiro Tuapeka Waitahuna Waitati Waiwera Any unlisted tributary on the true right bank of the Clutha/Mata-Au, south of Judge Creek Any unlisted tributary on the true left bank of the Clutha/Mata-Au, south of the Tuapeka Any unlisted catchment that discharges to the coast, south of Taieri Mouth	**3.6 mg/l**	**0.045 mg/l**	**0.2 mg/l**	**550 cfu/100 ml**

Key

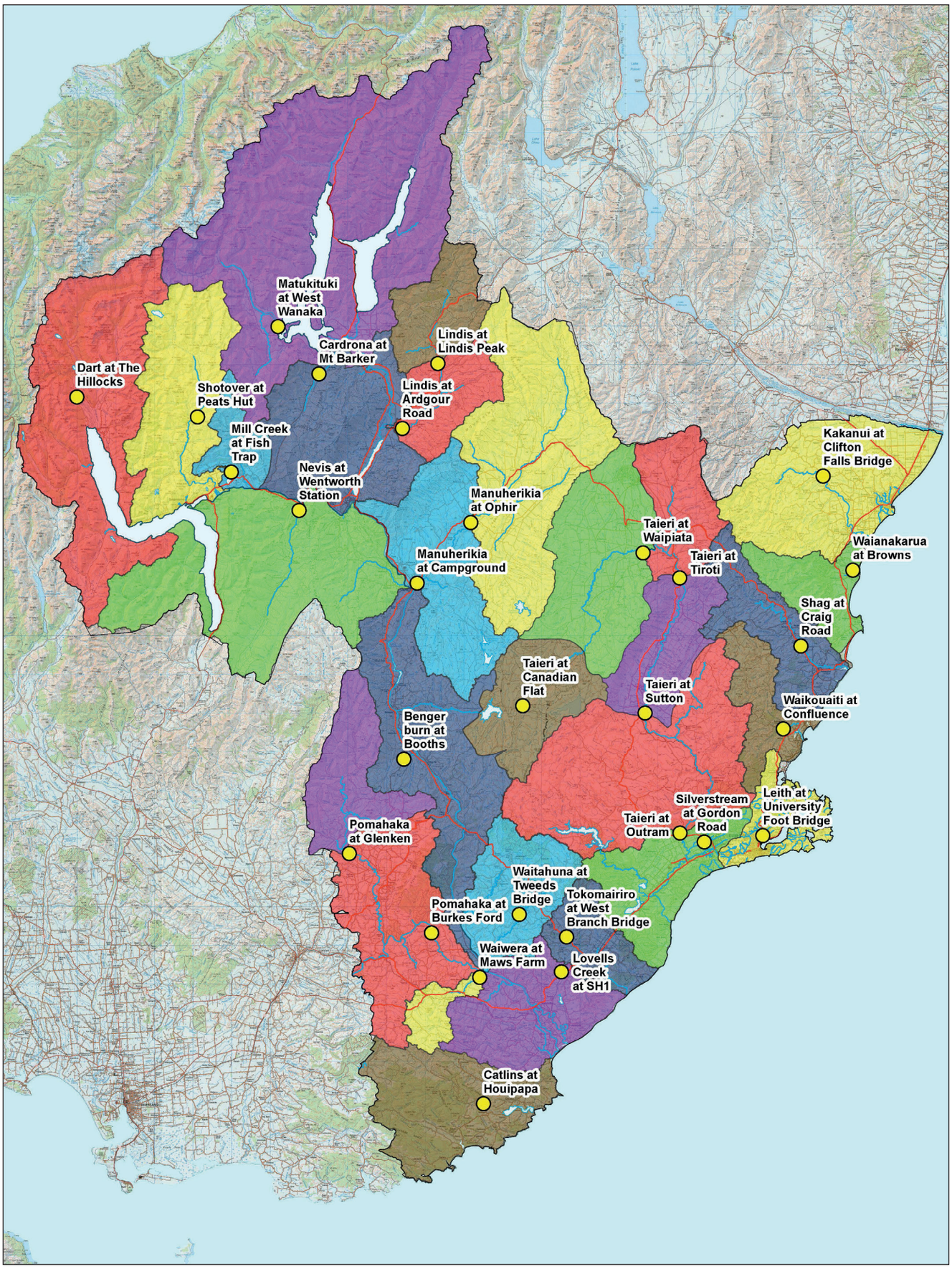
mg/l = milligrams per litre
cfu/100 ml = colony-forming units per 100 millilitres
NTU = nephelometric turbidity units

Discharge Thresholds **Area 2 Catchments** **Applying from 1 April 2020**	**Nitrate-nitrite nitrogen**	**Dissolved reactive phosphorus**	**Ammoniacal nitrogen**	***Escherichia coli***
Cardrona Clutha/Mata-Au (above Luggate) Fraser Kakanui Kawarau Lake Dunstan Lake Hayes Lake Hawea and any tributary Lake Johnson Lake Onslow Lake Tuakitoto Lake Waipori & Waihola Lake Wakatipu and any tributary Lake Wanaka and any tributary Lindis Luggate Manuherikia Mill Creek (tributary to Lake Hayes) Pomahaka, upstream of Glenken Shag Shotover Taieri Trotters Waianakarua Waikouaiti Waipori Waitaki tributaries within Otago Clutha/Mata-Au and any unlisted tributary (Luggate to mouth, including Lake Roxburgh, and excluding tributaries described in Discharge Limit Catchment Area 1) Any unlisted catchment that discharges to the coast, north Taieri Mouth	**1.0 mg/l**	**0.035 mg/l**	**0.2 mg/l**	**550 cfu/100 ml**

Key

mg/l = milligrams per litre
cfu/100 ml = colony-forming units per 100 millilitres
NTU = nephelometric turbidity units

Localities of representative flow monitoring sites



Otago Regional Council

Otago Regional Council
Private Bag 1954
70 Stafford Street
Dunedin 9054

Phone 03 474 0827
Fax 03 479-0015
Freephone 0800 474 082

www.orc.govt.nz