Otago Rivers & Lakes Water Quality
Schedule 15 Report 2026

Otago Regional Council

Introduction

Otago Regional Council carries out routine water quality testing at over 100 sites across the region as part of its State of the Environment (SoE) monitoring programme. This report card summarises the results for the five-year period from July 2021 to June 2026, assessed against the Schedule 15 water quality limits in the operative Regional Plan: Water for Otago.

Water Quality Monitoring Limits and Targets

Monthly water samples are collected at 105 river sites and 8 lake sites to test for the following parameters:

- **Nutrients -** Nitrite–nitrate nitrogen (NNN) and dissolved reactive phosphorus (DRP) are biologically available nutrients that drive algae and plant growth. NNN mainly comes from land drainage, while DRP typically originates from effluent and fertiliser runoff. Ammoniacal nitrogen (NH_4-N) indicates effluent contamination and can be toxic at high levels. Total nitrogen (TN) and total phosphorus (TP) are used to assess overall nutrient loads and eutrophication risk in lakes.
- ***Escherichia coli*** (*E. coli*) – high levels of these bacteria indicate faecal contamination from human or animal sources and are used to assess health risks and suitability of water for recreation and stock drinking.
- **Turbidity –** measures water cloudiness caused by suspended particles. High turbidity reduces light for photosynthesis and deposited sediment can smother streambed habitats, affecting macroinvertebrates and fish spawning.

Schedule 15 of the Regional Plan: Water for Otago sets out the numerical limits and targets for achieving acceptable water quality for all catchments in the Otago region. Based on the frequency of flushing flows rivers are categorised as Group 1 (more flushing flows) or Group 2 (fewer flushing flows) with Upper Clutha/Mata-Au sites in Group 3 based on the exceptional water quality in this area. Groups 4 and 5 represent small and large lakes respectively. Specific limits and targets for each group (Table 1) reflect the influence of differences in river flows and land cover type on expected water quality.

Table 1. Water quality limits and targets (5-year 80th percentile, when flows are at or below median flow) *

Schedule 15	NH_4-N mg/l	NNN mg/l	DRP mg/l	TN mg/l	TP mg/l	*E. coli* cfu/100ml	Turbidity NTU
Group 1	0.10	0.444	0.026			260	5
Group 2	0.10	0.075	0.010			260	5
Group 3	0.01	0.075	0.005			50	3
Group 4	0.10			0.55	0.033	126	5
Group 5	0.01			0.10	0.005	10	3

5-year 80th percentile when flows are at or below median flow means results are based on five years of monthly water quality samples, but only include the samples taken during normal flow conditions—not during high flows or floods. Removing high-flow samples avoids the big spikes in contaminants that happen during storms. From the remaining samples, the 80th percentile is calculated, which is the value that 80% of those samples are below (and 20% exceed).

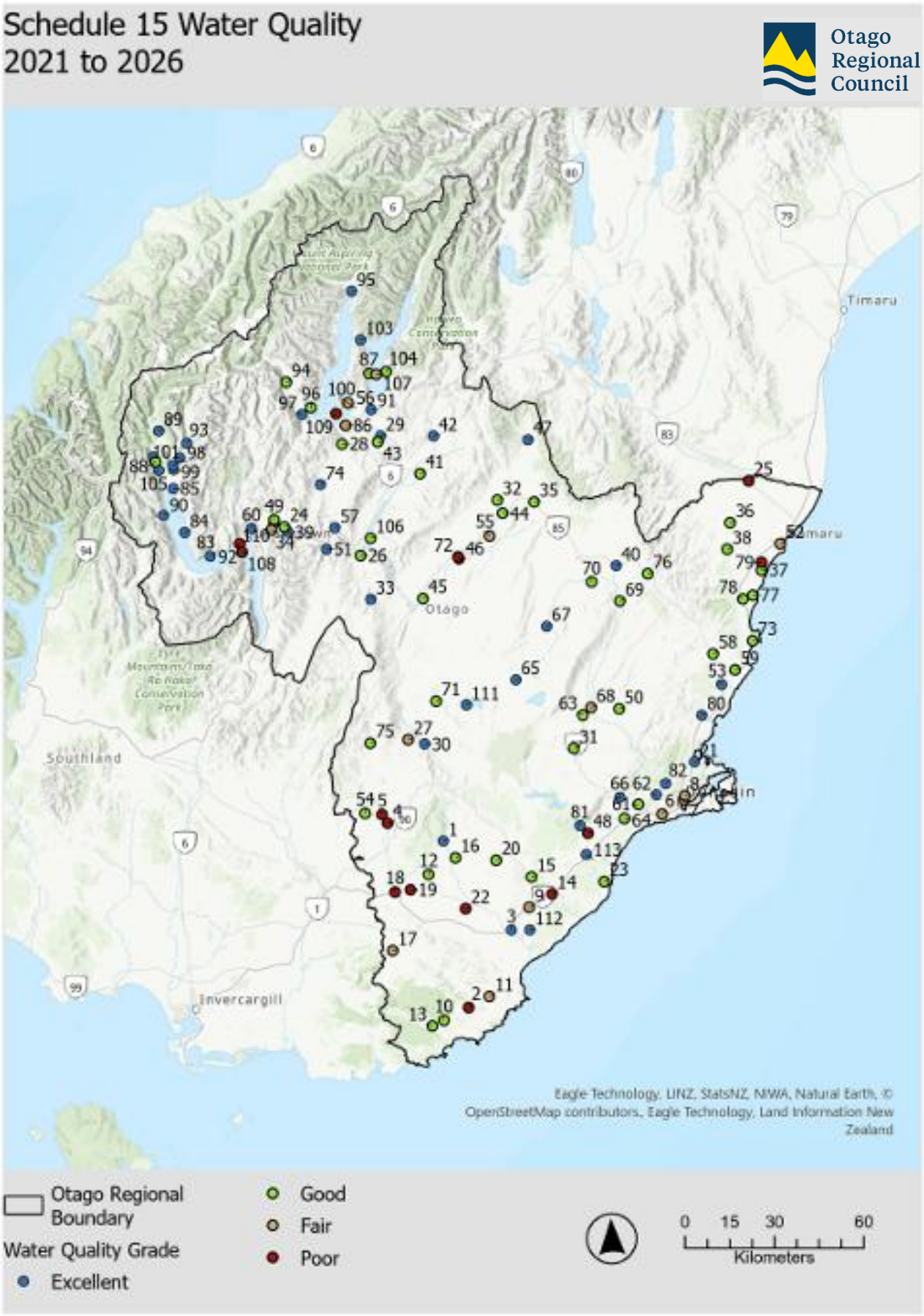

Figure 1. SoE water quality monitoring results 2020-2025. Site numbers and overall grades (alongside 80th values at or below median flows for each parameter) are shown in Tables 3-7.

Table 2. ORC Water Quality Reporting Index

Grade	Number of parameters complying with Schedule 15 limits and targets
Excellent	All five parameters comply
Good	Four of five values comply
Fair	Three of five values comply
Poor	Two or fewer values comply

Monitoring results for each parameter are assessed against the Schedule 15 limits. ORC uses a water quality index to classify each site into one of four groups based on the number of parameters which comply with the limits (Table 2). A summary of results for the Otago Region is shown in Figure 1.

Water Quality Results – Group 1 (More flushing flows)

- Fair or poor water quality at 13 of 22 sites (59%)
- Good or excellent water quality at 9 of 22 sites (41%)
- Sites with poor water quality include tributaries of the Pomahaka, the Waiwera River, and Dunedin urban streams
- Schedule 15 limits were most often exceeded for *E. coli* (91% of sites did not meet limit) and NNN (59% of sites did not meet limit)

Table 3. Water quality results for Group 1 (more flushing flows) sites; grey shading ( ) denotes parameter non-compliant with Schedule 15 limit (5-year, 80th percentile below median flow exceeded Schedule 15 limits and targets); (N) = site monitored by NIWA.

#	Site Name	Grade	Schedule 15 limit or target				
			NH4-N mg/L	NNN mg/L	DRP mg/L	*E. coli* cfu/100 ml	Turbidity NTU
			0.1	0.444	0.026	260	5
1	Blackcleugh Burn at Rongahere Rd	Excellent	0.007	0.126	0.022	159	2.4
2	Catlins River at Houipapa	Poor	0.016	0.464	0.011	435	3.4
3	Clutha River at Balclutha (N)	Excellent	0.005	0.121	0.002	137	5.5
4	Crookston Burn at Kelso Rd	Poor	0.023	0.962	0.044	2108	4.4
5	Heriot Burn at Park Hill Rd	Poor	0.021	1.078	0.040	1414	4.4
6	Kaikorai Stream at Brighton Rd	Fair	0.017	0.573	0.015	2420	3.5
7	Leith at Dundas Street Bridge	Fair	0.011	0.490	0.024	1122	3.0
8	Lindsays Creek at North Rd Bridge	Fair	0.015	0.656	0.020	1068	3.4
9	Lovells Creek at Station Rd	Fair	0.019	0.906	0.015	446	2.3
10	Maclennan River at Kahuiku School Rd	Good	0.015	0.022	0.012	274	2.4
11	Owaka River at Katea Rd	Fair	0.018	0.920	0.020	411	2.9
12	Pomahaka River at Burkes Ford	Good	0.021	0.435	0.013	282	3.2
13	Tahakopa River at Tahakopa	Good	0.014	0.311	0.009	337	3.8
14	Tokomairiro River at Blackbridge	Poor	0.049	0.505	0.028	3468	8.2
15	Tokomairiro River West Branch Bridge	Good	0.017	0.269	0.012	459	2.4
16	Tuapeka River at 700m u/s bridge	Good	0.009	0.122	0.025	288	2.3
17	Waipahi River at Cairns Peak	Fair	0.018	0.569	0.017	777	4.2
18	Waipahi River at Waipahi	Poor	0.014	0.953	0.027	387	1.9
19	Wairuna River at Millar Rd	Poor	0.077	1.153	0.163	2420	10.7
20	Waitahuna River at Tweeds Bridge	Good	0.011	0.184	0.015	391	2.8
21	Waitati River at Mt Cargill Rd	Excellent	0.003	0.010	0.003	252	1.2
22	Waiwera River at Maws Farm	Poor	0.018	0.795	0.044	488	3.2

Water Quality Results – Group 2 (Fewer flushing flows)

- Excellent water quality at 19 of 59 sites, and Good water quality at a further 31sites (83% of sites graded Excellent or Good)
- Most sites with Excellent water quality are upper catchment sites across the region
- Fair water quality at five sites
- Poor water quality at five sites
- Schedule 15 limit most frequently exceeded for NNN (20 sites) and *E. coli* (19 sites)

Table 4. Water quality results for Group 2 (fewer flushing flows) sites; grey shading ( ) denotes parameter non-compliant with Schedule 15 limit (5-year, 80th percentile below median flow exceeded Schedule 15 limits and targets); (N) = site monitored by NIWA.

#	Site Name	Grade	Schedule 15 limit or target				
			NH4-N mg/L	NNN mg/L	DRP mg/L	*E. coli* cfu/100ml	Turbidity NTU
			0.1	**0.075**	**0.01**	**260**	**5**
23	Akatore Creek at Akatore Creek Road	Good	0.011	0.999	0.005	155	0.81
24	Arrow at Morven Ferry Road	Good	0.003	0.176	0.001	94	0.78
25	Awamoko at SH83	Poor	0.009	0.655	0.060	281	0.65
26	Bannockburn at Lake Dunstan	Good	0.004	0.001	0.003	123	5.51
27	Benger Burn at Booths	Fair	0.009	0.060	0.013	1098	1.21
28	Cardrona at Mt Barker	Good	0.004	0.118	0.001	146	1.03
29	Clutha at Luggate Bridge	Excellent	0.005	0.041	0.001	33	0.56
30	Clutha at Millers Flat	Excellent	0.003	0.045	0.001	50	1.45
31	Deep Stream at SH87	Good	0.006	0.002	0.002	387	0.96
32	Dunstan Creek at Beattie Road	Good	0.005	0.095	0.003	191	0.88
33	Fraser at Old Man Range	Excellent	0.003	0.028	0.002	29	0.37
34	Hayes Creek at SH6	Fair	0.066	0.014	0.025	325	3.21
35	Hills Creek at SH85	Good	0.003	0.205	0.004	190	0.55
36	Kakanui at Clifton Falls Bridge	Good	0.004	0.055	0.001	517	0.50
37	Kakanui at McCones	Good	0.014	0.591	0.003	133	0.52
38	Kauru at Ewings	Good	0.009	0.032	0.003	366	0.26
39	Kawarau at Chard Road	Excellent	0.009	0.020	0.000	25	1.09
40	Kye Burn at SH85 Bridge	Excellent	0.004	0.061	0.004	159	2.13
41	Lindis at Ardgour Road Bridge	Good	0.003	0.225	0.001	241	0.69
42	Lindis at Lindis Peak	Excellent	0.004	0.049	0.002	147	1.39
43	Luggate Creek at SH6 Bridge	Good	0.003	0.008	0.010	196	1.17
44	Manuherekia at Blackstone Hill	Good	0.004	0.008	0.003	276	4.25
45	Manuherekia at Galloway	Good	0.010	0.058	0.014	247	1.99
46	Manuherekia at Ophir	Poor	0.019	0.115	0.028	423	2.55
47	Manuherekia downstream of Fork	Excellent	0.003	0.004	0.003	30	0.37
48	Meggat Burn at Berwick Road	Poor	0.013	0.106	0.013	386	2.30
49	Mill Creek at Fish Trap	Good	0.012	0.530	0.005	143	4.00
50	Nenthorn at Mt Stoker Road	Good	0.013	0.004	0.018	82	1.55
51	Nevis at Wentworth Station	Excellent	0.002	0.005	0.002	58	1.02
52	Oamaru Creek at SH1	Fair	0.023	0.605	0.335	243	1.62
53	Pleasant River at Patterson Road Ford	Excellent	0.007	0.005	0.004	84	3.35
54	Pomahaka at Glenken	Good	0.005	0.021	0.006	349	0.96

Water Quality Results – Group 2 (continued)

Table 4 (continued). Water quality results for Group 2 (fewer flushing flows) sites; grey shading ( ) denotes parameter non-compliant with Schedule 15 limit (5-year, 80th percentile below median flow exceeded Schedule 15 limits and targets); (N) = site monitored by NIWA; + = site exempt from turbidity limit.

#	Site Name	Grade	Schedule 15 limit or target				
			NH4-N mg/L	NNN mg/L	DRP mg/L	*E. coli* cfu/100ml	Turbidity NTU
			0.1	0.075	0.01	260	5
55	Poolburn at Cob Cottage	Fair	0.011	0.060	0.050	291	1.18
56	Quartz Reef Creek at SH8	Good	0.003	0.004	0.002	430	2.78
57	Roaring Meg at SH6	Excellent	0.003	0.040	0.010	113	0.64
58	Shag at Craig Road	Good	0.006	0.126	0.003	131	0.48
59	Shag at Goodwood Pump	Good	0.013	0.355	0.005	209	0.54
60	Shotover at Bowens Peak (N) +	Excellent	0.005	0.0091	0.001	15	(2.3)+
61	Silverstream at Taieri Depot	Good	0.006	0.443	0.003	253	0.87
62	Silverstream at Three Mile Hill Road	Excellent	0.003	0.005	0.002	130	0.63
63	Sutton Stream at SH87	Good	0.009	0.008	0.008	489	1.27
64	Taieri at Allanton Bridge	Good	0.015	0.036	0.009	579	3.95
65	Taieri at Linnburn Runs Road	Excellent	0.006	0.003	0.002	227	1.45
66	Taieri at Outram	Excellent	0.008	0.025	0.007	118	2.67
67	Taieri at Stonehenge	Excellent	0.006	0.010	0.007	84	1.64
68	Taieri at Sutton	Fair	0.011	0.024	0.010	388	2.95
69	Taieri at Tiroiti	Good	0.005	0.036	0.019	196	3.24
70	Taieri at Waipiata	Good	0.012	0.035	0.034	225	2.41
71	Teviot at Bridge Huts Road	Good	0.006	0.005	0.002	193	7.27
72	Thomsons Creek at SH85	Poor	0.026	0.607	0.096	980	5.20
73	Trotters Creek at Mathesons	Good	0.036	0.665	0.008	141	1.55
74	Upper Cardrona at Tuohys Gully Road	Excellent	0.003	0.015	0.001	148	1.58
75	Upper Pomahaka at Aitchison Runs Road	Good	0.004	0.011	0.005	281	0.37
76	Upper Shag at SH85 Culvert	Good	0.003	0.014	0.002	435	0.39
77	Waianakarua at Browns	Good	0.005	0.566	0.002	91	0.24
78	Waianakarua at South Branch SH1	Good	0.007	0.918	0.001	183	0.39
79	Waiareka Creek at Taipo Road	Poor	0.014	0.432	0.253	281	1.23
80	Waikouaiti at 200m d/s DCC intake	Excellent	0.005	0.026	0.001	130	0.78
81	Waipori at Waipori Falls Reserve	Excellent	0.008	0.041	0.006	83	3.40
82	Whare Creek at Whare Flat Road	Excellent	0.005	0.025	0.004	60	1.74

Water Quality Results – Group 3 (Upper Lakes sites)

- Excellent water quality at 15 sites and good water quality at five sites (87 % of Group 3 sites)
- Fair water quality at two sites
- Poor water quality at one site – Horn Creek exceeds limits for multiple parameters, similar to urban sites elsewhere in Otago
- Horn Creek is the only river site in the region to exceed the ammoniacal nitrogen limit
- Schedule 15 limits were most often exceeded for *E. coli* and NNN

Table 5. Water quality results for Group 3 sites; grey shading ( ) denotes parameter non-compliant with Schedule 15 limit (5-year, 80th percentile below median flow exceeded Schedule 15 limits and targets); * = sites monitoring < 5 years, grade is interim; + = site is exempt from turbidity limit.

#	Site Name	Grade	Schedule 15 limit or target				
			NH4-N mg/L	NNN mg/L	DRP mg/L	*E. coli* cfu/100ml	Turbidity NTU
			0.01	**0.075**	**0.005**	**50**	**3**
83	12 Mile Creek at Glenorchy Queenstown Rd	Excellent	0.003	0.006	0.003	10	0.2
84	25 Mile Creek at Glenorchy Queenstown Rd	Excellent	0.003	0.014	0.005	18	0.6
85	Buckler Burn at Glenorchy Queenstown Rd	Excellent	0.001	0.050	0.001	7	1.7
86	Bullock Creek at Dunmore Street Footbridge	Fair	0.003	0.927	0.001	215	0.5
87	Craig Burn at SH6	Good	0.003	0.014	0.003	78	0.5
88	Dart at The Hillocks +	Good	0.003	0.033	0.002	13	(30.8)+
89	Dundas Creek at Mill Flat	Excellent	0.003	0.052	0.003	2	0.3
90	Greenstone at Greenstone Station Rd	Excellent	0.003	0.022	0.002	21	0.4
91	Hawea at Camphill Bridge	Excellent	0.002	0.028	0.001	15	0.6
92	Horn Creek at Queenstown Bay	Poor	0.021	0.221	0.008	406	1.2
93	Invincible Creek at Rees Valley Rd	Excellent	0.001	0.010	0.001	3	0.6
94	Leaping Burn at Wanaka Mt Aspiring Rd	Good	0.003	0.026	0.002	161	0.3
95	Makarora at Makarora	Excellent	0.003	0.061	0.002	29	0.5
96	Matukituki at West Wanaka +	Good	0.008	0.088	0.004	40	(1.5)+
97	Motatapu at Wanaka Mt Aspiring Road	Excellent	0.003	0.051	0.001	30	0.7
98	Ox Burn at Rees Valley Road	Excellent	0.003	0.020	0.001	11	0.7
99	Precipice Creek at Glenorchy Paradise Rd	Excellent	0.003	0.011	0.002	11	0.2
100	Quartz Creek at Maungawera Valley Rd	Fair	0.003	0.128	0.001	191	0.3
101	Rees at Glenorchy Paradise Road Bridge	Excellent	0.003	0.016	0.001	6	2.4
102	Scott Creek at Routeburn Rd	Excellent	0.003	0.037	0.001	12	0.4
103	The Neck Creek at Meads Rd	Excellent	0.003	0.004	0.002	25	0.2
104	Timaru Creek at Peter Muir Bridge	Good	0.001	0.013	0.005	11	27.4
105	Turner Creek at Kinloch Rd	Excellent	0.003	0.053	0.002	10	0.2

Water Quality Results – Group 4 (Nutrient enriched lakes)

- Lake Hayes has good water quality and Lake Onslow has fair water quality based on Schedule 15
- Lake Hayes does not meet the Schedule 15 limits for total phosphorus and Lake Onslow does not meet the limits for total phosphorus and turbidity
- Trophic Level Index scores for Lake Hayes indicate the lake is eutrophic/very poor water quality and Lake Onslow is eutrophic/poor water quality.
- Lake Tuakitoto and Lake Waihola have poor water quality consistent with the supertrophic/'very poor' water quality status of these sites https://www.lawa.org.nz/explore-data/otago-region/lakes

Trophic Level Index is a commonly used measure of overall lake water quality. The score is calculated using four water quality measures – nutrients (total nitrogen, total phosphorus), water clarity and chlorophyll-*a* (the pigment that causes the green colour of plants which indicates how much algae a lake has) For more information see https://www.lawa.org.nz/learn/factsheets/lake-trophic-level-index/

Table 6. Water quality results for Group 4 (small lakes) sites; grey shading ( ) denotes parameter non-compliant with Schedule 15 limit (5-year, 80th percentile below median flow exceeded Schedule 15 limits and targets).

#	Site Name	Grade	Schedule 15 limit or target				
			NH4-N mg/L	TN mg/L	TP mg/L	*E. coli* cfu/100ml	Turbidity NTU
			0.1	**0.55**	**0.033**	**126**	**5**
106	Lake Hayes at Mid Lake 10m	Good	0.048	0.500	0.052	2	4
107	Lake Onslow at Boat Ramp	Fair	0.008	0.321	0.049	21	13
108	Lake Tuakitoto at Outlet	Poor	0.117	1.870	0.187	256	11
109	Lake Waihola at Waihola Mid	Poor	0.008	0.640	0.056	63	15

Water Quality Results – Group 5 (Large lakes)

- Excellent water quality at all the large lake sites (Group 5)
- Results reflect the trophic status of these lakes - microtrophic/very good water quality

Table 7. Water quality results for Group 5 (large lakes) sites; grey shading ( ) denotes parameter non-compliant with Schedule 15 limit 5-year, 80th percentile below median flow exceeded Schedule 15 limits and targets).

#	Name	Grade	Schedule 15 limit or target				
			NH4-N mg/L	TN mg/L	TP mg/L	*E. coli* cfu/100ml	Turbidity NTU
			0.01	**0.1**	**0.005**	**10**	**3**
110	Lake Dunstan at Dead Mans Point	Excellent	0.003	0.059	0.002	1	1
111	Lake Hawea South Open Water 10m	Excellent	0.003	0.065	0.002	1	1
112	Lake Wakatipu Open Water 10m	Excellent	0.004	0.091	0.003	7	1
113	Lake Wanaka Open Water 10m	Excellent	0.003	0.047	0.002	1	1

Summary

The proportion of sites achieving each water quality grade has remained largely unchanged over the past five years. (Table 8). Around 70 % of monitored sites consistently achieve 'excellent' or 'good' grades. Most of the sites with excellent river water quality were in Central Otago and the Upper Clutha Mata-Au catchments. In these areas, land-use tends to be low-intensity sheep farming and/or dominated by tussock lands. Poorer water quality was found in river catchments with higher-intensity farming/land-use or in streams draining urban environments.

Table 8. Summary of Schedule 15 water quality index results for Otago rivers and lakes for the last five reporting periods (2020-2025)

Grade	2016-21		2017-22		2018-23		2019-24		2020-2025		2021-26	
	Rivers	Lakes	Rivers	Lakes	Rivers	Lakes	Rivers	Lakes	Rivers	Lakes	Rivers	Lakes
Excellent	41	4	41	4	39	4	40	4	39	4	37	4
Good	32	2	31	2	34	2	35	2	35	1	42	1
Fair	17	0	17	0	16	0	15	0	16	1	13	1
Poor	17	2	17	2	17	2	15	2	15	2	13	2
Total	106	8	107	8	106	8	106	8	105	8	105	8

There were no changes to the monitoring schedule in 2025-26. Compared to the 2025 report card, all the lake sites remained the same grade. Of the rivers, 92 sites retained the same grade, 8 sites moved up one grade, one site moved up 2 grades, 3 sites moved down one grade, and one site moved down two grades. Most grade changes involved small changes in 80th percentile values that were close to the limit value and therefore do not generally indicate any significant change in water quality. The most recent analysis of long trends in Otago Region water quality were reported in the **2023 State and Trends report**.



Dart River at the Hillocks, Upper Lakes Rohe

The data reported here were current as of October 2026.

For more information about the State of Environment monitoring and reporting or the data presented here contact science.enquiries@orc.govt.nz or see our website - Reports and Publications – water quality

Water quality information for the Otago Region is also available at LAWA Land Air Water Aotearoa and on the ORC Environmental Data Portal