



RIVER AND STREAM HEALTH

Annual Monitoring Summary 2011

Why we monitor water quality and ecosystem health

Rivers and streams have important natural and cultural values. They are also important resources for drinking water, recreational activities, managing storm water flushes and industrial use. Direct discharges to rivers, or indirect via storm water and run-off from land affects the quality of water and it's suitability for human uses and biodiversity.

Key Results

The water quality classification for each site is compared to the 'long term' classification, derived from data collected between 2000-2007 to track changes in water quality at each site and within catchments. Nine out of 28 sites monitored in 2011 were classified as Degraded or Very Degraded, below the Councils freshwater quality target.

Rural streams and rivers in the Whangamoia, upper Wakapuaka and upper Maitai catchments have maintained Excellent-Very Good (grades A and B).

Streams within the Nelson urban and lowland pastoral farming areas are degraded (grades D and E) and have not improved.

Catchments

The key water quality issues are summarised for the four river catchments, the Maitai, Wakapuaka, Whangamoia and urban streams. The catchments and water quality grades for each site are shown in Figure 1.

Maitai River Catchment

Water quality in the Maitai ranges from Excellent at the South Branch Intake to Moderate (grade C) at Groom Road and near Riverside Pool. Grades at these three sites have remained the same or improved.

The water quality grades at Sharland and Groom Creek have fallen to Degraded. Both these sites have elevated nitrate and poor water clarity scores, which coincides with recent logging activities in these catchments. The aquatic animal and plant communities are in good condition despite the nutrient and water clarity issues.

Wakapuaka River Catchment

Water quality in the upper Wakapuaka catchment ranges from Excellent at Duckpond Road and Pitchers Creek to Very Good at Teal River. The Teal River has upgraded from Moderate to Very Good, from improvements in bacteria counts and aquatic animal and plant communities.

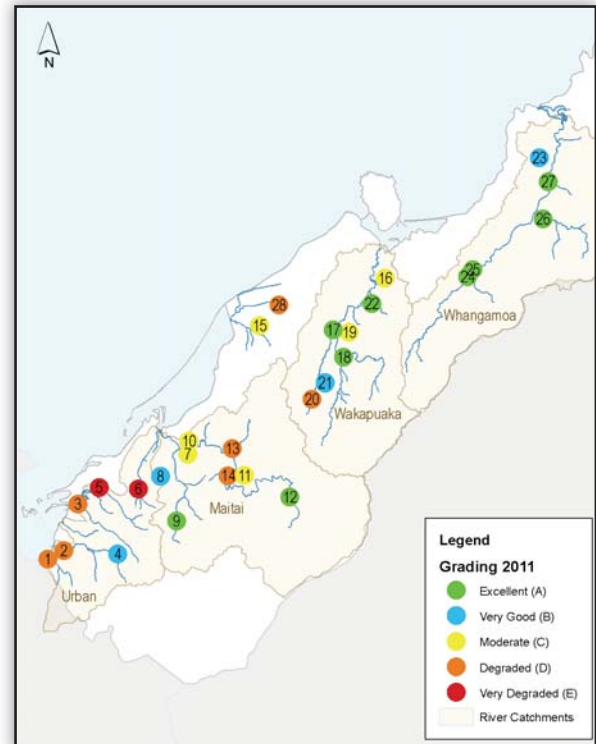
The Lud River has declined in water quality from Moderate to Degraded in the upper catchment and remains at moderate water quality in the lower catchment, where it merges with the Wakapuaka at Hira Reserve. Water quality in the Lud has elevated nitrates and poor water clarity. Isotope analysis of oxygen and nitrogen has shown that pastoral land use is the main source of nitrates in the Lud valley.

The Māori Pa Road Reserve in the lower Wakapuaka catchment has a Moderate grade, no change from the long term classification. Source tracking of bacteria has indicated that livestock and wildfowl are the main most likely cause of historical elevated bacteria levels in the Lud and at the Māori Pa Road Reserve.

Whangamoia River Catchment

Water quality in the upper Whangamoia, Graham Stream, Collins and Denker Creek is Excellent with no change from the long term classification. The lower Whangamoia has a Very Good grade. There was a slight decline in water clarity and invertebrate communities at Kokorua Bridge that may reflect previous rainfall and gravel river-bed changes prior to November.

Fig. 1. Nelson river and stream water quality grades, 2011.



LONG TERM RIVER CLASSIFICATION		
1	Saxton at Main Rd	E
2	Orphanage at Saxton Rd East	D
3	Poorman at Seaview Rd	D
4	Poorman at Barnicoat Walkway	C
5	Jenkins at Pascoe St	E
6	York at Waimea Rd	E
7	Brook at Manuka St	D
8	Brook at Burn Pl	*
9	Brook at Motor Camp	A
10	Maitai at Riverside	D
11	Maitai at Groom Rd	C
12	Maitai South Branch at Intake	A
13	Sharland at Maitai Confluence	C
14	Groom at Maitai Confluence	B
15	Todds at SH6	D
16	Wakapuaka at Maori Pa Rd	C
17	Wakapuaka at Hira	A
18	Wakapuaka at Duckpond Rd	A
19	Lud at SH6	C
20	Lud at 4.7km	C
21	Teal at 1.9km	C
22	Pitchers at 890m	A
23	Whangamoia at Kokorua Bridge	A
24	Whangamoia at Hippolite Rd	A
25	Graham at SH6	A
26	Collins at SH6	B
27	Dencker at Kokorua Rd	B
28	Hillwood at Glen Rd	D

Key to site codes in map

* No long term grade



Urban streams

Water quality remains Excellent in the upper Brook and is Good to Moderate from Burn Place to Manuka Street in the lower catchment. Todd Valley improved from Degraded to Moderate water quality. Hillwood, Saxton, Orphanage, Jenkins, York and lower Poormans stream all have Degraded or Very Degraded grades that have not improved. These small streams have elevated nitrates, bacteria levels, poor water clarity and aquatic animal scores. Wastewater from house-hold, garden and industrial activities combine with fine sediments and pollutants from roads and earthworks, which are transported to the streams in stormwater and run-off. Elevated nutrients and temperatures along unshaded stream banks promote increases in aquatic plants and slime during summer months that are detrimental to aquatic animals and limit flows.

Initiatives to improve water quality

Working with land owners

The Nelson City Council Land Management Adviser provides free advice for land owners and financial assistance toward fencing and native plants for riparian planting and biodiversity enhancement. Improving water quality in the Lud and Wakapuaka River is a key focus. Several residents have taken up the offer of Council assistance to fence and plant along the Lud Stream.

WORKING WITH COMMUNITIES

The Stoke Stream Rescue Project is largely funded by MFE and in partnership with Cawthron Institute, aims to work with the Stoke community to improve water quality in the Stoke Streams and ultimately the Waimea Inlet. A flyer was delivered to 7,150 households explaining the issues and suggesting actions that can be taken to reduce contaminants entering waterways, especially by way of the stormwater system. The Waimaori programme is being introduced to the wider community and a number of initiatives are underway to encourage residents to take ownership of their streams.



The Waimaori Streamcare Programme works with schools and local people to actively monitor the health of streams through practical hands-on-workshops at the riverside. This raises community awareness about water quality and also brings a cultural perspective as to why clean water matters. For more information about Waimaori contact waimaori@ncc.govt.nz or 03 545 1752.

Council is working with the Brook and wider community to improve riparian management of the Brook Stream. This includes removal of weeds and community planting days to reinstate native vegetation along the streambanks. Community planting days include information stands, the presence of Waimaori, the Brook Sanctuary and other interest groups.

Council has also initiated a case study on the Orphanage Creek and is supporting a Nelson Intermediate School initiative to clean up York Stream. Council wants to work with other communities and schools to improve the health of streams and caring for them. If you are interested in getting involved please contact Lynne Hall, Land Management Adviser 546 0308 or Jo Martin, Environmental Education Officer 03 546 872.

Nelson City Council work in progress

Preparing a Maitai Catchment Management Plan. The Catchment Plan will look at the best way to improve the health of the Maitai while addressing flood risks.

Upgrades to stormwater are integrating the ecological values of streams, such as improvements to fish passage along Orphanage Creek at Saxton Field. Following the December 2011 flood, Council has embarked on a major programme to remove gravel accumulated in Nelson's waterways, survey and relocate fish populations and improve stream habitat for wildlife as part of the remediation work.

Working with NIWA to evaluate the most appropriate technical solutions to improve existing storm water systems and minimise contaminants from roads and adjoining land reaching rivers and streams.

Working with Cawthron to study the water quality from the bottom of the Maitai Dam and how its discharge to the Maitai impacts on the aquatic animal and plant communities.

For further information about Council environmental monitoring please visit www.nelsoncitycouncil.co.nz/environment



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