

## DOC and hapū working together to assess ecological health in the Whanganui River

DOC wants to support hapū aspirations for improved ecological health in the Whanganui River. One way to do that is to work together to resurvey sites last surveyed in 1996/97.

Aquatic invertebrate communities provide a useful measure of stream ecological health which can be assessed by looking at the MCI (macroinvertebrate community index), which sums up the scores of species present according to their sensitivity to pollution, or the quantitative MCI (QMCI), which incorporates the numbers of individuals as well as their sensitivity score.

While Horizons and NIWA annually monitor eight sites regularly in the Whanganui catchment<sup>1</sup>, the last comprehensive one-off survey of invertebrate communities across the whole catchment surveyed 47 sites in 1996/97 (Horrox 1998). This survey found that ecological health was high in both forested mudstone streams and forested hardstone streams but was lower in pasture mudstone streams than hardstone pasture streams, suggesting that mudstone streams are more susceptible to the impacts of agriculture.

DOC and hapū resurveyed ten of the Horrox sites over the 2021/22 summer.

Ecological health was excellent at four sites. These sites were generally the more pristine sites irrespective of geology. Ecological health in the remaining sites within pasture was not as high. Ecological health was worse at most sites, particularly the pasture ones, although there are limitations with a one-off survey given our inability to detect variation between years over that time. Declining or stable ecological health is also evident in Horizon's state of environment monitoring.



*Stream health assessment with hapū at the Whatauma site*



*Juvenile mayflies are indicators of good water quality.  
Photo: Angus McIntosh, Uni of Canterbury*

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<sup>1</sup> [Land, Air, Water Aotearoa \(LAWA\) - Whanganui](#)

Hapū representatives found the stream health check (a questionnaire designed for landowners and communities to assess the health of their streams) to be good way of quantifying intuitive measures of stream health and correlated well to more technical measures.

*Results for the ten sites:*

	Geology	Land use - % indigenous vegetation <sup>2</sup>	MCI NPSFM band			QMCI NPSFM band		
			96/97	2022	Change	96/97	2022	Change
Kaiwhakauka	Soft	97	A	A	-	A	A	-
Pumice Creek	Hard	100	A	A	-	A	A	-
Whakapapanui	Hard	81	A	A	-	A	A	-
Whanganui	Soft	96	A	A	-	A	A	-
Motuaruhe	Soft	45	B	C	↓	B	D	↓ ↓
Kaurapaoa	Soft	80	B	B	-	A	B	↓
Operiki	Soft	80	B	B	-	A	B	↓
Stream X <sup>3</sup>	Soft	27	B	C	↓	B	C	↓
Mangare	Soft	39	B	B	-	B	B	-
Whangamomona	Soft	37	C	C	-	A	D	↓ ↓ ↓

*NPS<sup>4</sup> classes for the three metrics are A - pristine, B- moderately healthy C- moderately impacted and D - below the national bottom line, although these classes are normally used where sites are monitored regularly.*

We can't say for sure what have caused these changes in ecological health (if they are real) so perhaps hapū and landowners could explore whether there have been any obvious changes over the last 26 years.

It is recommended that DOC and hapū continue to re-survey the remaining sites together as a means of getting to know the current state of ecological health collaboratively. Once the majority of sites have been re-sampled, it would be interesting to analyse the whole dataset see if soft geology catchments remain more vulnerable to land-use.

Finally, it is recommended that once ecological health objectives have been set for either the whole catchment or for specific restoration programmes, that it would be timely to explore how to develop a comprehensive coordinated and integrated monitoring programme incorporating all forms of monitoring and knowledge together (western science, mātauranga Māori and citizen science).

A more detailed report on this study is available on request. Contact: [rmiller@doc.govt.nz](mailto:rmiller@doc.govt.nz)

<sup>2</sup> From LCDB from 2018: alpine grassland, broadleaved indigenous hardwood, indigenous forest, manuka or kanuka, sub alpine tussock and tall tussock.

<sup>3</sup> Site name withheld from wider publication on request from hapū

<sup>4</sup> National Policy Statement for Freshwater