

Water Quality in New Zealand: Understanding the science

Update Report

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Parliamentary Commissioner
for the **Environment**
Te Kaitiaki Taiao a Te Whare Pāremata

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1. Introduction

In March 2012, the Parliamentary Commissioner for the Environment released a report on water quality titled: *Water quality in New Zealand: Understanding the science*. The report focused on the three main freshwater pollutants: pathogens, sediment, and nutrients.

The report differed from the Commissioner's previous reports in that it contained no recommendations. Its purpose was to provide an accessible, educative guide to water quality science, to help inform public debate and assist decision making. This update report describes the response to the 2012 report, and explains how it has been used.

2. Background

Water quality has become a challenging and contentious environmental issue in New Zealand over the last decade. The science of water quality is very complex and much of the information required to fully understand it is highly technical.

The Government has begun a series of reforms aimed at improving the way in which fresh water is managed in New Zealand. One of these reforms would involve greater use of collaborative planning processes and it is vital that this be underpinned by a widespread understanding of the relevant science.

In 2010 the Commissioner delivered a presentation on water quality science to Members of Parliament. A request from several MPs for more led to the development of greater expertise on water quality within the office and eventually to the preparation of the 2012 report.

3. What the report covers

The report is focused on the three major freshwater pollutants in New Zealand – pathogens, sediment and nutrients, and covers the following:

The history of water quality in New Zealand is outlined and shows how its nature has changed over time. Pathogens from town sewage caused disease and death, and deforestation caused erosion which continues to lead to sedimentation of waterways. Today the combination of two nutrients – phosphorus and nitrogen – can lead to algae and weeds growing in water.

The sources, impacts, and measurement of pathogens, sediment, and nutrients are described in turn.

The reasons why some water bodies are more vulnerable to pollution than others are explored. The greater the natural vulnerability of a body of fresh water is, the greater the impact that human activities have on it.

Some approaches to mitigation – ways of protecting and improving water quality – are described.

A case study of the Manawatu River is presented to illustrate how science aids understanding of the state of a particular water body.

The report concludes with a summary of the main points and presents a framework for examining particular water quality problems.

4. Reaction to the report

Over recent years public concern about water quality has grown and the report generated wide media interest. It featured in news articles across many of the country's major newspapers, and was discussed in editorials in *The New Zealand Herald*, *The Press*, *Waikato Times*, *The Southland Times* and the *Taranaki Daily News*. *The Dominion Post* also ran an opinion piece written by the Commissioner. Television New Zealand and TV3 both ran stories featuring the report.

Government and Political Parties

The Minister for the Environment, the Hon Amy Adams, made the following comments on the report in a letter to the Commissioner:

"...the report was used as an exemplar for effectively explaining complex issues for a lay audience. The report has also been commended to external partners as an example of good, clear communication of science."

"The report is routinely provided to policy staff as an introduction to water quality science"

"We expect that your approach to thinking about water quality problems will be useful to councils as they practically consider what is needed to manage within limits." ¹

Green Party water spokesperson Eugenie Sage commented:

"It is great to have this resource which can support informed debate and decision-making about how to begin the long process of cleaning up our rivers and lakes".²

Scientists

The Science Media Centre contacted experts in water quality and freshwater science for reaction to the report. Dr Clive Howard-Williams (NIWA), Professor Jenny Webster-Brown (University of Canterbury & Lincoln University) and Professor David Hamilton (Waikato University and President of the NZ Freshwater Sciences Society) all responded.³

Professor Howard-Williams stated *"This is a good report that covers the basics of the science and is admirably concise. I agree with the decision to focus on the big three contaminants."* In contrast, Professor Webster-Brown thought the report was too simple and should have covered urban contaminants.

Professor Hamilton's view was that *"The report by the Parliamentary Commissioner for the Environment (PCE) provides a wide ranging snapshot and history of water quality changes in New Zealand, suitable for educating and informing the public, water stakeholders, policy-makers and politicians."*

Others

Bruce Wills, President of Federated Farmers wrote: *“If you have an interest in water, a report by Jan Wright, the Parliamentary Commissioner for the Environment, “Water quality in New Zealand: Understanding the Science”, is a must read. ... farmers hope it will spark a much needed discussion about some difficult decisions we all face.”*⁴

Beef + Lamb New Zealand Chairman, Mike Petersen commented that the report was written: *“in a plain and easy to understand fashion”* and *“will provide an excellent resource for anyone with an interest in water quality issues.”*⁵ Ian Mackenzie, Federated Farmers National Board water spokesperson also welcomed the report.⁶

The report was commented on by Environment Southland in its Long Term Plan as follows:

*“As the Parliamentary Commissioner for the Environment reported this year, the links between intensive land use and deteriorating water quality are strong, obvious and undeniable. Jan Wright’s report endorses the conclusion of our own State of the Environment Report on freshwater in Southland, which found that the state of our lowland waterways was generally poor and getting worse because of intensified land use – principally dairy farming.”*⁷

In its decision on the Horizons Regional Proposed One Plan Appeals, the Environment Court quoted from the report to explain important differences between the two nutrient contaminants, nitrogen and phosphorus:

*“The most concise explanation of the difference we saw is in the report of the Parliamentary Commissioner for the Environment...”*⁸

Massey University now use the report in training teachers and a number of schools have expressed an interest in using it as a teaching resource.⁹ Consequently, arrangements are being made to send a copy to every high school in the country.

5. Conclusion

The report continues to be one of the Commissioner's most requested publications. Another report on water quality focused on nutrient contamination is currently in preparation.

Endnotes

- 1 Letter from Hon Amy Adams, Minister for the Environment, 9 May 2013.
- 2 Press Release, "Green Party welcomes the PCE's water report", 20 March 2012.
- 3 Press Release, "Water quality report – scientists respond", 20 March 2012.
- 4 Sunday Star Times, 25 March 2012.
- 5 Press Release, "Water quality report an excellent resource", 21 March 2012.
- 6 Press Release, "Federation backs report to improve water science", 20 March 2012.
- 7 Environment Southland, Long Term Plan 2012-2022 p.2.
- 8 Decision of the Environment Court. 31 August 2012. Manawatu-Whanganui Regional Council Proposed One Plan Appeals. Section 5-2.
- 9 Letter from Massey University August 2012.