



Public Health South

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SUBMISSION ON CLEAN WATER PACKAGE

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Details of Submitter: The Southern District Health Board

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Our Reference: 17April18

Date: 18/04/2017

Introduction

Southern District Health Board (Southern DHB) presents this submission through its public health service, Public Health South. This Service is the principal source of expert advice within Southern DHB regarding matters concerning Public Health. Southern DHB has responsibility under the New Zealand Public Health and Disability Act 2000 to improve, promote and protect the health of people and communities. Additionally there is a responsibility to promote the reduction of adverse social and environmental effects on the health of people and communities.

Public health services are offered to populations rather than individuals and are considered a "public good". They fall into two broad categories – health protection and health promotion. They aim to create or advocate for healthy social, physical and cultural environments.

Public Health South is commenting on this submission from the point of view of our values statement on freshwater water as follows –

- a) *Public Health South believes the health and wellbeing of current and future generations of Southerners should always take priority in water management decisions, particularly where there are competing interests for water use.*

- b) Public Health South, as part of the Southern District Health Board (SDHB), has responsibility under the New Zealand Public Health and Disability Act 2000 to improve, promote and protect the health of people and communities. Additionally there is a responsibility to promote the reduction of adverse social and environmental effects on the health of people and communities.
- c) Consequently Public Health South will work collaboratively with local government and iwi in all measures to protect the quality of water in the district.
- d) Public Health South believes that all efforts to protect and restore water quality should be supported by the most comprehensive and current scientific evidence. Where evidence is lacking, the principle of "prudent avoidance" will be used.
- e) Public Health South acknowledges that water is of major importance for Otago and Southland's economic development. However, while economic wellbeing is necessary for good health, social, recreational, cultural and environmental assets such as drinking water quality, are also fundamental to health. A sustainable and thriving ecosystem is vital to supporting and sustaining the health of present and future generations in Otago and Southland.

General Comments

1. 'Suitable for Immersion' vs 'Secondary Contact'

Public Health South supports the removal of the references to secondary contact and its replacement with 'suitable for immersion' in the amended National Policy Statement for Fresh Water Management (2014) (NPS-FM). This will reflect more accurately how New Zealanders expect to be able to use the rivers and lakes in their region, and reduce confusion.

2. Restriction of Monitoring to 'Large Rivers and Lakes'

The proposed amendment to the NPS-FM requires regional councils to monitor suitability for immersion in 4th order rivers or lakes with a perimeter larger than 1.5km on average. This may lead to the exclusion of existing monitoring sites that regional council know to be well utilised for recreational and cultural activities despite not being large rivers or lakes. This could put public health at risk as resources that regional councils currently utilise to monitor these known sites could be reallocated to allow for monitoring of potentially less utilised sites on 4th order rivers and large lakes.

Recommendation 1 – That the amended NPS-FM provides regional councils with some flexibility and discretion in regards to deciding which sites are most appropriate to monitor given local knowledge and current resourcing limitations.

3. Groundwater Reference Omission

The recognised link between surface water contamination with pathogenic bacteria such as *Campylobacter* and subsequent groundwater contamination should be reflected in the amended NPS-FM document.¹ Large waterborne outbreaks have been linked to groundwater aquifer contamination due to faecal loading in surface waters in New Zealand (i.e. the Darfield *Campylobacter* outbreak)² and as implicated most recently in the Havelock North *Campylobacter* outbreak.

¹ Ritter, L., Solomon, K., Sibley, P., Hall, K., Keen, P., Mattu, G. & Linton, B. (2002). Sources, Pathways, and Relative Risks of Contaminants in Surface Water and Groundwater: A Perspective Prepared for the Walkerton Inquiry. *Journal of Toxicology And Environmental Health, Part A*, Vol 65 (1). Retrieved from <http://dx.doi.org/10.1080/152873902753338572>

² Bartholemew, N., Brunton, C., Mitchell, P., Williamson, J. & Gilpin, B. (2014). A waterborne outbreak of campylobacteriosis in the South Island of New Zealand due to a failure to implement a multi-barrier approach. *Journal of Water and Health*. DOI: 10.2166/wh.2014.155

Ground water is utilised in many rural communities in Southland and Otago for drinking water via deep and shallow bores. The increasing agricultural intensification and contamination of the surface freshwater of these regions has been linked to increased nitrate levels in ground water which is also a health risk alongside that posed by pathogenic bacteria.

Recommendation 2 – That the amended NPS-FM contains reference to the influence contaminated surface water can have on groundwater and recommend an associated attribute table for groundwater values is incorporated into this document.

There is also competition for the use of groundwater with agricultural interests being prioritised over the need for drinking water supplies. This can result in deterioration of water quality as aquifers are drawn down and in some cases there is direct competition for water for irrigation against that needed for domestic or community water supplies. This is most notable for the town of Gore that has to recharge the aquifer that feeds to the town water supply when agricultural interests draw it down in periods of dry weather.

Recommendation 3 – That the revised NPS-FM contains text that reflects the need for groundwater allocations to prioritise domestic and community water supply over other uses including agriculture.

4. Lack of Clarity of the Attribute State Table for Human Health for Recreation

There is information on the Ministry for the Environment (MfE) website that lends further detail to the methodology used to grade waterways. This information (i.e. median values and 95 percentiles) was not incorporated into the Clean Water document causing confusion and difficulty with the interpretation of the document and Attribute State Table for Human Health for Recreation.

Recommendation 4 - The median should be included in the Attribute State Table of the amended NPS-FM document rather than in supporting documentation on the MfE website. This would clarify the criteria used to grade a site and help clear up general confusion regarding the actual health risk associated with the particular site.

5. Stock Exclusion and Lack of Reference to Sheep Input to Waterway Contamination

Public Health South supports the MfE requirement for compulsory stock exclusion from waterways 1m wide and understands that this will have economic implications for many farmers. The proposed staggered approach to fencing off livestock on different types of land over the next 13 years is a long timeframe, especially given that certain livestock (e.g. deer and beef cattle on rolling land) will legally continue to pollute waterways until 2030.

Recommendation 5 – All stock exclusion from waterways, regardless of the topography of the land should be required by 2022 to prevent further unnecessary pollution of New Zealand waterways and associated risk to public health.

It is notable that sheep have been omitted from the proposed stock exclusion plan which was not addressed in the Clean Water package. Despite the fact that sheep have reduced interest in wallowing or defecating in water, and produce less faeces on a daily basis than dairy cows for example, sheep do produce faeces that contain significantly higher concentrations of pathogenic bacteria (e.g. *E. coli* and *Campylobacter*) than cows.

The study 'Sheep as a Potential Source of Faecal Pollution in Southland Waterways' prepared by ESR for Environment Southland³ concludes "due to the large number of sheep in Southland (4.1 million), the prolonged survival of *E. coli* in ovine faeces during the warmer seasons and their daily faecal output (approximately 1kg per day), a potentially large reservoir of contamination exists in Southland. During rainfall or irrigation generated overland flow could result in considerable contamination of the waterways. While overland flow of microbial contamination originating from bovine faeces and its effect on water quality is well recognised, the impact of ovine faeces on the water quality in Southland and New Zealand needs to be recognised and addressed" (p.10).

Recommendation 6 – That the Clean Water package acknowledges the risk of contamination to waterways that sheep also pose alongside other livestock and require the exclusion of sheep from waterways greater than or equal to 1m wide.

6. Cyanobacteria Attribute State Table

Benthic cyanobacteria appear to have been omitted from the Clean Water package document despite the potential threat to human health posed by these mat forming organisms. Many benthic cyanobacterial species release hepatotoxins and neurotoxins, the effects of which upon humans are poorly understood⁴.

Recommendation 7 – That the amended NPS-FM incorporates an Attribute State Table for Benthic Cyanobacteria, utilising the alert level framework outlined in the New Zealand Guidelines for Cyanobacteria in Recreational Freshwaters: Interim Guidelines.

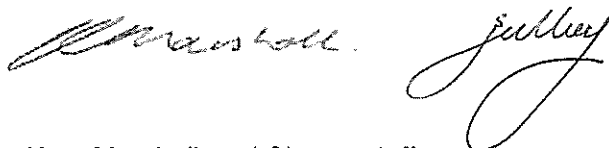
Decision Sought

Southern DHB requests that the above recommendations be accepted and integrated into the amended National Policy Statement for Freshwater Management.

Summary

We do not wish to be heard in regards to this submission.

Yours sincerely



Kate Marshall and Simone Jeffrey
Health Protection Officers
Public Health South
Southern DHB

³ Moriarty, E. (n.d.). *Sheep as a Potential Source of Faecal Pollution in Southland Waterways*. Retrieved from <http://www.esr.govt.nz/Document%20Library/Research%20and%20reports/Various%20reports/Science%20reports/Ecosystem%20Health/Sheep%20as%20a%20potential%20source%20of%20microbial%20contamination%20in%20Southland.pdf>

⁴ Mohamed, Z. (2015). Cyanobacterial Toxins in Water Sources and Their Impacts on Human Health. In McKeown, A. & Bugyi, G. (Eds.), *Impact of Water Pollution on Human Health and Environmental Sustainability* (pp 121-122). Doi 10.4018/978-1-4666-9559-7