

**BEFORE THE CANTERBURY REGIONAL COUNCIL
AT LINCOLN**

IN THE MATTER **of the Resource Management Act
1991**

SUBMITTER **COMMUNITY AND PUBLIC HEALTH
A DIVISION OF THE CANTERBURY
DISTRICT HEALTH BOARD**

SUBJECT **HEARING – VARIATION 5 TO THE
LAND AND WATER REGIONAL PLAN**

SUBMISSION ID NO **67196**

STATEMENT OF EVIDENCE OF DR DANIEL WILLIAMS

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INTRODUCTION

Qualifications and experience

- 1 My name is Daniel John McIntosh Williams. I am a public health physician employed by the Canterbury District Health Board. I am a Fellow of the New Zealand College of Public Health Medicine. As well as my medical qualifications, I hold a Master of Public Health Degree. I am a Medical Officer of Health for Canterbury and South Canterbury designated by the Director General of Health pursuant to section 7 (a), of Health Act 1956, but this submission is delivered on behalf of the Canterbury District Health Board

Background

- 2 Community and Public Health (CPH) a Division of the Canterbury District Health Board (CDHB) provides public health services to people living in the Canterbury, South Canterbury and West Coast regions.
- 3 CDHB's vision is to improve, promote, and protect the health and well-being of the Canterbury community. Ki te whakapakari, whakamanawa me te tiaki i te hauora mō te oranga pai o ngā tāngata o te rohe o Waitaha.
- 4 The Canterbury District Health Board has an obligation under the Health and Disability Act 2000 to improve, promote and protect the health of people and communities (section 22a) and to promote the reduction of adverse social and environmental effects on the health of people and communities (section 23h). Specifically, the purpose of part 2A of the Health Act 1956 is to protect the health and safety of people and communities by promoting adequate supplies of safe drinking water from all drinking water supplies.

Scope of evidence

- 5 This evidence relates to the submission of the Canterbury District Health Board (CDHB) on Variation 5 to the Land and Water Regional Plan. The submission is number 67196 and concentrates on the areas of nutrient management, farm environment plans, management areas

and the Waitaki subregional plan. The evidence will examine and expand on the points that we made in our submission.

SUBMISSION POINTS

- 6 The CDHB supports a defined approach to protecting water quality and the strengthening of the associated requirements so that they clearly inform expectations to protect sources of human drinking water and recreational water sites.
- 7 Estimates of the burden of endemic drinking waterborne gastro-intestinal disease in New Zealand are of the order of 18,000 to 34,000 cases per annum. (*Ball A 2006*) Water borne disease also places a significant economic burden on the community as seen by the Darfield outbreak in 2012 which was estimated to cost up to 1.26M dollars.
- 8 Rising nitrate levels in Canterbury groundwater are another key concern. As evident in work carried out by Environment Canterbury (*Hanson et al 2010*) some Canterbury groundwater from which drinking water supplies are sourced already have varying levels of nitrate and in some cases E. coli present, influenced by surface activities on land. (*Parliamentary Commissioner for the Environment 2013*) Nitrate above the maximum acceptable value (MAV) for drinking water, has been found in some domestic bores in Canterbury and also at least one community drinking water supply.
- 9 Once ground water is contaminated with nitrate this cannot easily be reversed. Water which has more than 50mg/L nitrate (11.3mg/L nitrate-nitrogen) should not be consumed by pregnant women or by infants under 6 months of age due to the risk of methaemoglobinaemia.
- 10 Ground water is the primary source of drinking water for Canterbury communities and individuals. (*Register of Community Drinking-water Supplies in New Zealand*). Current applications in New Zealand to address nitrate in drinking water include managed aquifer recharge, which is an expensive mitigation, and dilution, often with water which needs other form of treatment such as disinfection.

- 11 Currently in Canterbury there are 8 drinking water supplies which require nitrate to be monitored as a compliance criterion as nitrate levels are elevated in the source water. There are a number of other supplies for which further information regarding nitrate levels is being collated and hence the total number of supplies requiring nitrate monitoring may increase. Once these levels are reached mitigation becomes very difficult to achieve. Water suppliers must consider contingencies for the likelihood of the maximum acceptable value being transgressed, and also need to consider how they will warn affected persons to ensure that their health is not put at risk.
- 12 It is our most vulnerable community members, pregnant women and infants under the age of 6 months, who are most at risk from elevated nitrate levels. Nutrient management must protect these community members and policies to protect them must be explicit in their requirements, and must require timely action.

Nutrient Management Policies

- 13 Section 4.36(bb) refers to “*farming activities with the potential for more significant nutrient losses, managing their nitrogen loss in accordance with Good Management Practice Loss Rates and being subject to a resource consent process.*” The term “*more significant nutrient losses*” requires a clear indication as to when water quality outcomes will be considered to be met.
- 14 Additionally if a discharge is likely to impact on a recreational water body the discharge should be mitigated to ensure that if the body is of swimming quality then it should not be degraded and should remain safe to swim in.
- 15 The term ‘*avoiding*’ rather than ‘*not granting*’ in section 4.37(a) which relates to the granting of any resource consent that will allow the nitrogen losses from a farming activity to exceed is not considered strong enough to provide clear direction about the implementation of this policy. We note the reference in the S42A report to a Supreme Court decision indicating that that “avoid” means “not allow” or “prevent occurrence of”. However, we suggest that in this instance it is important

for CRC staff to have clear and specific wording which is not open to alternative interpretations.

Recommendation: In section 4.37(a) remove ‘*avoiding*’ and replace with ‘*not granting*’.

- 16 The CDHB supports Section 4.38AB which states “*When considering any application for resource consent for the use of land for a farming activity, the consent authority must not disregard any adverse effect of the proposed activity on water quality on the basis that this Plan permits an activity with that effect*”. The reference to water quality is an appropriate consideration because land use may impact on the quality of sources of human drinking water. This approach correlates to the fundamental principles which underpin the Canterbury Water Management Strategy and in particular the first order priorities which include community supplies

Recommendation: Retain Section 4.38AB.

The Red Nutrient Allocation Zone : Rules

- 17 The Restricted Discretionary Activity Section 5.45A (Also 5.50A3, 5.55A3, 5.58A3)/ 6(3) states, “*The exercise of discretion is restricted to the following matters ... the actual or potential adverse effects of the activity on surface and ground water quality and sources of drinking water*”. The consideration of how these will be avoided or mitigated should be included in the matters for exercising discretion or at least reference from another section in order to provide clear guidance and expectation.

Recommendations: In section 5.45(A) add: “... *and how these will be avoided and mitigated*”

Schedule 7 : Farm Environment Plans : Definitions

- 18 In the Definitions section of Part B (2) there is no requirement to include information regarding the location of unprotected aquifers, direction of groundwater flow and drinking water sources located within proximity to the farm operation. As drinking water sourced from ground water can be adversely affected by farming activities these are essential factors which should be considered as part of the assessment, and all parties need clear and accessible information about them.

Recommendation: Include as 2 (j) in Farm Environment Plan default content, the identification of unprotected aquifers, 2(k) direction of groundwater flow, and 2 (l) drinking water sources to be indicated on maps or aerial photograph as required by this section.

- 19 Schedule 7 :Management Areas

The Management Area: Waterbody Management Objective/ Subsection 3 states, “*To manage wetlands, riparian areas and surface waterbodies to avoid damage to the bed and margins of a water body, and to avoid the direct input of nutrients, sediment and microbial pathogens*”. The inclusion of microbial pathogens in this list is supported as they significantly contribute to the risk to public health.

- 20 As stated above, estimates of the burden of endemic drinking waterborne gastro-intestinal disease are of the order of 18,000 to 34,000 cases per annum. (Ball A 2006) Water borne disease also places a significant economic burden on the community as seen by the Darfield outbreak in 2012 which was estimated to cost up to 1.26M dollars.

Recommendation: Retain the reference to microbial pathogens in the waterbody management objective subsection 3.

WAITAKI PLAN

Pt 30/Section15B/Subsection4.3/Page 4-7

Pt 38 Schedule 7/S8/Page 5-1 Mahinga kai

- 21 CDHB supports the requirement to protect mahinga kai value when considering applications for resource consent to use land for a farming activity.
- 22 Mauri and mahinga kai are recognised as key cultural and environmental indicators of the cultural health of waterways and the relationship of Ngāi Tahu to water.
- 23 As people may be entering the water to gather mahinga kai the implication for their safety is that the water quality should be such that they can safely do this, and so should meet the appropriate safety standards for recreational water.

Recommendation: Retain: Section 15B.4.3

Recommendation: Retain: Schedule 7 Section 8

Pt 31/Section 15B/Subsection 4.11/Page 4-8

- 24 CDHB supports the requirement for Farm Management Plans (FEP) to be included in any resource consent to use land as a farming activity and also to describe specific activities that will be undertaken to implement Good Management Practices (GMP).
- 25 It is noted that the use of FEPs and GMP is also required in Variation 3 throughout the South Canterbury Coastal Area, specifically to help reduce the loss of sediment, phosphorus and nitrogen. Williams et al (2014) fully support the use of FEPs and GMP via the Matrix of Good Management (MGM) and CDHB also supports the use of GMP / FEPs, as advocated by the authors, towards attaining the goals of the National Policy Statement for Freshwater Management 2014 (Anon., 2015a) and water quality targets of the CWMS.

Recommendation: Retain: Section 15B.4.11

Pt 32/Section 15B.4.16/Page 4-9

- 26 CDHB supports the policy to restrict farming activity consents (and nutrient discharges) to a maximum of 15 years, and the condition enabling a review in response to any exceedance of limits set in the Variation.
- 27 A 15-year consent duration is consistent with Policy 4.74 of the LWRP itself which itself points to section 128(1)(a) of the RMA, allowing nutrient losses from farming, nutrient discharges, and rates and volumes of water taken to be subject to regular review (if the land use and associated nutrient discharges or water take and use may impede the ability of the community to find an integrated solution to manage water quality and the over-allocation of water).
- 28 The consent authority will obtain useful guidance by limiting the duration of any resource consent. CDHB agrees that the continuous understanding and development of changing land use practices on the impact on water quality merits this shorter time frame for consents and helps to overcome any limitations in the review process.

Recommendation: Retain: Section S.15B 4.16

Section 15 B.6 Freshwater Outcomes Table 15B(a)

- 29 Table 15B (a) states that the Cyanobacteria mat cover is 20% for alpine and hill-fed and spring-fed upland rivers, but 50% for all other river types.
- 30 At 20% to 50% coverage there is a potential risk to public health. When cyanobacteria (blue-green algae) is present with coverage greater than 20% the public health unit is advised, sampling is increased, and if levels reach 50% an immediate public health warning situation is invoked. Similarly, if coverage is greater than 20% with cyanobacteria mats detaching from the river bed, an immediate media notification to the public is issued, warning of the health risks associated in contact

with the water. Notices are erected advising the public of the risks and collection of food (mahinga kai) is no longer considered safe.

- 31 The suggested cover in the plan for hill fed lower and spring fed plains at 50% means the trigger value for public health concern could already be surpassed by the time the value recognised in the plan is reached; especially under the detaching mats scenario.
- 32 Cyanobacteria become problematic when some species sporadically and seasonally produce toxins that contaminate water. From a health perspective (human or animal) the greatest problems associated with algal blooms are through drinking water, consumption of mahinga kai and direct recreational contact. Therefore when cell density is (or has been) high in water used for recreation or for human or animal drinking-water and food gathering, there is major concern for public health. These toxins can be difficult to remove by most conventional treatments and if consumed can cause severe adverse health effects.
- 33 The ideal protection of waterways from cyanobacteria and their toxins is to prevent bloom formation. Bloom formation can be positively influenced by catchment management to reduce the input of nutrients and by maintaining rapid river flow. Recent research by the Cawthron Institute has identified a number of physical and chemical factors that are important in explaining these blooms. The relative importance of these factors may vary between rivers and temporally and spatially within a river. Although it may not initially be achieved, the freshwater outcomes for the affected rivers should be set to reflect how the rivers should be performing once all the adaptation and mitigation measures are in place. This is confirmed in the Section 42a report in Appendix G (page 98) where the authors suggest that 'cyanobacteria cover thresholds for all river types could be amended to 20% in the Waitaki sub-region, with the expectation that not all rivers would meet this in the short term, but would be expected to in the long term...'.
- 34 Clear guidance is given by Canterbury Iwi in the Mahaanui Iwi management Plan, (<http://mkt.co.nz/mahaanui-iwi-management-plan/Mahaanui-IMP.pdf>) this has direct targets for water quality:

- Ngāi Tahu and the wider community can participate in mahinga kai/food gathering activities without risks to human health.
- Mauri and mahinga kai are recognised as key cultural and environmental indicators of the cultural health of waterways and the relationship of Ngāi Tahu to water.
- Drain management can have adverse effects on Ngāi Tahu values, particularly mahinga kai
- Targets are recognised for E.coli and cultural values so the guidelines for cyanobacteria should be in line to protect this value.

Recommendation: The CDHB recommends that Table 15B (a) is amended to change the limits for cyanobacteria cover from 50% to 20%.

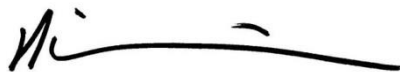
Section 15 B.6 Freshwater Outcomes Table 15B(a)

- 35 CDHB supports the E. coli levels for human recreational use specified in Table 15B (a). Table 15B (a) states that the E.coli levels for human recreational use should be set at <540/100ml. These values are required so that they do not exceed the Microbial Assessment Category D value of <550 E.coli per 100ml within the current Suitability for swimming indicator update (2013) of the Microbiological Water Quality Guidelines for Marine and Freshwater Recreational Areas (2003), especially where food is gathered for consumption.

Recommendation: Retain: Table 15B (a) retains the recommended values for E.coli

CONCLUSION

- 36 CDHB supports Variation 5 to the Land and Water Regional Plan; however the submission points made are focused on specific aspects where amendments will assist in ensuring Variation 5 aligns with the CWMS, the DWSNZ where appropriate, and the rights of communities to have access to safe drinking water, safe recreational water use, and safe access to mahinga kai.



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References

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