Executive Summary

In general, our members support this initiative to improve the health of our waterways, however our submission focusses on the state of the waterbody underlying the Waimea Plain and the effect of that state on the environment and on public health.

Accordingly, we ask that the Waimea Plain and the Waimea River and its tributaries be declared a Schedule 1 Catchment as per the proposed N E S for Freshwater.

Introduction

Water Information Network Incorporated is a group of business and professional people who are concerned about, and provide factual information about, the availability, allocation, quality and cost of water, and the infrastructure to deliver water, in the catchment of the Waimea River. We supply information to the residents, the media and the decision-makers.

The Waimea Plain and Catchment

The Waimea Plain comprises a triangular area of roughly 6000 ha of river flat bounded to the south by the village of Brightwater, to the north by approximately 7 km of the Tasman Bay coastline, and to the east by the foothills of the Barnicoat Range. The town of Richmond is situated at the north-east corner and the urban area spills down onto the flat plain. The Waimea River and its tributary the Wairoa bisect the plain so that approximately 3000 ha lie east of the rivers. Underlying the plain are 4 aquifers, which on the eastern side of the river are highly contaminated with nitrates up to concentrations of 30 mg/L. More alarming is the fact that there is no evidence that overall nitrate concentrations are decreasing. A recent report plots the nitrate concentrations over time for
bores on the Waimea Plains. Only 34 of these show a concentration consistently below 10 mg/L over the last 10 years or more.

The mechanism of recharge of these aquifers is complex, and may never be known precisely, but is a combination of run-off from the Barnicoat Range, percolation of rainfall through the pervious gravel soils of the plain, and recharge from the Wairoa River just downstream from Brightwater.

The flat land of the Waimea Plain is intensively farmed and has been for at least 100 years. Crops grown include grapes, apples, market vegetables, stone-fruit and flowers. There are several commercial nurseries and some dairy and other pastoral farming. At least one apple grower has encountered difficulty growing a commercial crop owing to the contaminated groundwater.

Environmental Impacts

Near the coast, the groundwater resurges as several spring-fed watercourses which then flow to the sea. The waters of these reflect the nitrate concentrations of their source. “Spring-fed streams in the Waimea Plains have very high nitrate concentrations. For example, nitrate concentration in the Pearl, Borck and Neimann Creeks ranges from 3 – 10 g/m3 of NO3-N”. Another report records nitrate-N concentrations as high as 16 mg/L in Neimann’s during the summer of 2011-2012.

The source of the nitrate contamination is a subject of much controversy; however it is clear that the source is a mix of animal excrement and nitrogenous fertiliser. Anecdotal, but reliable evidence exists of farmers deliberately contaminating the groundwater to expedite fertigation of their crop.

Seasonally, Neimann Creek experiences extraordinarily high E coli counts, the source of which remains a mystery. These have been as high as 7500 cfu/100 ml.

Domestic Water Supply

The water supply for the Richmond urban area is sourced from the Richmond and the Waimea bore-fields located close to the coast 2 km and 5 km respectively west of the Richmond central business district. The former is highly contaminated with nitrates at approximately 10 mg/L while the latter lies much closer to the river and so is much less contaminated at approximately 1.5 mg/L. Tasman District Council blends the water from these 2 sources to achieve a concentration of 5 mg/L in the urban supply which is acceptable under current legislation, but significantly higher than is indicated as desirable by the latest research. Richmond reticulated water possibly has the highest nitrate contamination of any significant urban area in New Zealand.

Several hundred dwellings are located on the eastern Waimea Plain, with many consuming water from household bores. A survey carried out by members of Water Information Network Inc of a small sample chosen at random and tested by an accredited laboratory showed that with just one exception all had water with nitrate concentrations exceeding 6 mg/L, with a little over one-third well in excess of 11.3 mg/L, the maximum allowable value allowed under the N Z Standards.
The Future

Presently, the intensity of farming and crop type on the Waimea Plain is constrained by the lack of water for irrigation especially during drought. The Waimea Dam is currently under construction and is due to be commissioned prior to the 2022 – 2023 irrigation season. If this operates as planned, the farmers who have subscribed for shares will, under most circumstances, be able to operate and intensify without constraint. Clearly, for both environmental and public-health reasons this cannot be allowed to happen. Tasman District Council needs to have the tools to enable it to ensure that the amount of nitrates discharged to the environment does not increase any further, and that over a period of years it is reduced to more acceptable levels.

Recommendations – referring to the questions on pages 56 and 80 of the consultation document.

- **Q43** – We agree with the proposed amendments to the Drinking Water NES. Recent history demonstrates that national oversight is required in order to maintain consistent standards.
- **Q44** – Refer Regulation 7 – *Granting of water permit or discharge permit upstream of abstraction point where drinking water meets health quality criteria* - And Regulation 10 - *Limitations on permitted activity rules for activities upstream of abstraction points*. It is unclear whether the constraints are per abstraction point, or whether they are on the supply blended from a number of abstraction points. We ask that the amendments make it clear that the constraints apply to any and every abstraction point as, for example, Regulation 12 does.
- **Q51** – We ask for interim controls on intensification. The situation in the Waimea Catchment is dire and requires immediate action. The aquifers under the Waimea Plains constitute probably the most contaminated waterbody in the South Island.
- **Q52** – For land-use change to commercial vegetable growing we ask for Option 1: no increase in contaminant discharges.
- **Q54** – We ask for mandatory farm plans. We see no inclination on the part of farmers on the Waimea Plains to cooperate to reduce nitrate leaching into the environment, in fact there is good evidence that the groundwater has been deliberately contaminated.
- **Q58** – We ask for a combination of Options 1 and 3 in high nitrate catchments. Option 2 would be far too difficult to implement and would not take the individual circumstances of each catchment into consideration.
- **Q60** - We ask that the Waimea Plain and the Waimea River and its tributaries be declared a Schedule 1 Catchment as per the proposed N E S for Freshwater. This will enable Tasman District Council to effectively plan and implement the reduction of the currently unacceptable levels of nitrates in the waterbody underlying and on the Waimea Plain
- **Q62** – We do not support higher thresholds for farms that produce food products in winter.
- **Q65** – We support the proposals to exclude stock from waterways.
- **Q68** - We are aware of the fact that sheep are very loath to enter waterways so an exemption could be considered for established sheep farms.
References

1 Waimea Groundwater Nitrate Synoptic Study – 1 June 2017 - Glen Stevens – Appendix A

2 Unless otherwise stated, in this report all nitrate concentrations are expressed as mg/L nitrate-N, the mass per unit volume of elemental nitrogen in the form of the nitrate ion.

3 Evaluation of the physiographic method for the Tasman Region – Lovett & Rissmann – April 2018 – Lincoln University and University of Canterbury.

4 Waimea Spring Summary – Joseph Thomas – TDC

5 https://www.stuff.co.nz/nelson-mail/news/91552066/tasman-hunts-for-the-cause-of-a-waimea-plains-nitrate-plume

6 Nitrate in drinking water and colorectal cancer risk: A nationwide population-based cohort study – Schullehner and others – International Journal of Cancer

7 Refer Appendix B

8 Waimea Plains Groundwater Isotope Analyses – Glen Stevens – 14 July 2014 - TDC

9 Councillor Anne Turley said she had been told by some landowners that one of their neighbours had put nitrates into his well. Stevens said that practice had happened "in the past".
"You’re not allowed to do it and we’re not aware of anyone doing it presently. It’s not the most efficient way of fertilising; there are better ways."
- Nelson Mail 7 June 2017

10 Emails from Trevor James – TDC – to Cathy Hughson (18 Jan 2019) and Lew Solomon (18 Oct 2019)
Appendix B

Notes

- Data is from information received from the respective water supply authorities.
- In some cases this shows the simple average of more than one water source.