

From: [Julie Downard](#)
To: [Mailroom Mailbox](#)
Subject: Plan Change 7 to the LWRP Submission
Date: Thursday, 12 September 2019 8:39:15 PM
Attachments: [Plan Change 7 Submission.docx](#)

Kia ora,

Please find attached my submission on Plan Change 7.

I do not wish to speak to my submission.

Nga mihi
Julie Downard

Plan Change 7 to the LWRP
Submission of Julie Downard
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Comments

The Christchurch aquifers provide an ancient and pure source water precious to the people of Christchurch. We now know that nitrates can leach under the Waimakariri river and into these aquifers. The land use currently allowed in the Waimakariri area is facilitating nitrate leaching.

Current average nitrate levels for the deeper wells from which we extract city water is around 0.477mg/l. The proposed increase in the Christchurch area is a target of 3.8mg/l on average. This is a significant increase and is concerning for a number of reasons.

First, this is an average only. This means that at times the nitrate levels in the wells could be substantially higher.

Secondly, there appear to be no penalties for going above this level, meaning that the effective allowable level could be the current maximum allowable level of 11.3mg/l. The very minor reductions required in the plan change for land users in the Waimakariri District seem almost to be voluntary in that there is no mention of any penalties for non-compliance.

ECan states on their website that “Environment Canterbury’s role is to... protect it at its source.” To allow such a massive increase in nitrates in a very rare, ancient, pure water source to is not “protecting our water at its source.” Rather, it is environmental vandalism in the extreme. Plan Change 7 (PC7) does not achieve the objectives of the Land and Water Regional Plan because it is too slow and doesn’t seek sufficient reduction in nitrates.

There is major damage to the ecosystem and stygofauna above 0.44mg/l and a comprehensive Danish study links nitrate levels above 0.87mg/l with an increase in colorectal cancers. Despite the health impacts of nitrate increases not being considered in PC7, ECan clearly considers the Danish report robust, as it has asked the Ministry of Health to undertake further research on this. I would expect the body responsible for protecting the water source to take a precautionary approach on this.

ECan has only modelled the nitrate management targets based on the 50th percentile and not the more precautionary 95th percentile. Again this is a high risk approach, the risk being the potential destruction of the deep drinking aquifers.

The economic and social impact analysis in PC7 is deficient. There is no mention of the significant cost to residents in terms of ecosystem and personal health, nor is there a good assessment of the cost of removing the nitrate from the drinking water. While the economics for the farmers have been calculated, only limited mention has been made of the cost to Christchurch water users (all residents). The people of Christchurch do indeed have a vested interest in the plan, and should have been given equal weight in the financial considerations.

The effective outcome of these plan changes would be to externalise costs of nitrate-leaching activities onto the residents of Christchurch and the community of Waimakariri, while those causing the damage suffer no consequence. The cost of remediating our water, if indeed it is even possible to remove the nitrates once they have entered the aquifer, will be enormous. It is not right for the burden of cost to fall on the city ratepayer when the body charged with protecting our water (ECan) has failed to act.

There are no Christchurch representatives on the working group for the Zone Implementation Programme Addendum. The introduction talks of local residents only and councillors from Waimakariri and ECan, but not the Christchurch City Council or Christchurch residents. I note some representatives are farmers who would normally be judged as conflicted in most issues of local government. The views of the Christchurch City Council have been dismissed by ECan, despite them representing nearly 400,000 people who are significantly impacted.

The action proposed is insufficient and will not protect the aquifers fast enough. It is too slow, the damage too great, and the reductions too small. The remedy sought by me is the same in all cases: a much faster, and much lower target nitrate concentration. I want to see the nitrate threshold set at 0.6 mg/L. I want to see fast action to reduce the nitrate leaching from that area of Waimakariri District with an average nitrate loss reduction of 90% beyond baseline Good Management Practice (GMP). The common good must be prioritised over private profit.

The ECan website and notification pamphlet:

- imply that we will be lowering the levels of nitrate going into the Christchurch aquifers, when in fact what the PC7 enables is decades of nitrate level increase;
- fail to highlight that the plan change allows for a huge increase in nitrates;
- fail to mention damage to the Christchurch aquifer is a potential outcome of the plan change;
- fail to mention the cost to Christchurch residents of removing the nitrates later.

ECan has a responsibility to explain what it is doing so that public input is informed. The information on the website is extremely complex, and because the easier to understand notification pamphlet omits a number of important points, one could conclude that ECan is not really interested in hearing the opinion of Christchurch residents. In fact these omissions lead me to question the integrity and intent of ECan in this consultation.

As a final insult to the people of Christchurch, ECan has proposed this plan change under legislation which means that there can be no appeal to the Environment Court on the merits of the case. Use of this Act is inappropriate when something as essential to life as our drinking water is at stake.

Water is the most precious taonga we have and Christchurch has a very rare and pure system. We must keep it so.

Submission

For the Orari, Temuka, Opihi, Pareora and Waimakariri sections:

- I strongly support the caps on any new water allocation.

- I strongly support the setting of nitrate limits for rivers and groundwater and the policies and rules that restrict any further increase of nutrient discharges.
- I strongly support higher required reductions in nitrogen losses in High Nitrogen Concentration Areas beyond “Good Management Practice” but want to see greater reductions required in the life of this current plan. In particular I want to see reductions of 90% so that the average nitrate concentration threshold remains at 0.6mg/l.
- I strongly request all minimum flows and associated partial restrictions to provide for the ecological health of the stream, river, hapua (lagoons), etc. within the life of this current plan.

For the Waimakariri section:

- I consider the implications of nitrate leaching in the Waimakariri ‘Nitrate priority area’, which is modelled to result in a nitrate level of 3.8 mg/l, poses an unacceptable risk to the drinking water of current and future Christchurch citizens.
- I consider that the implication for future nitrate pollution of Christchurch’s drinking water is inconsistent with the following Strategic Policies in the [Land and Water Regional Plan](#):
 - 4.4 Groundwater is managed so that: ...e. Overall water quality in aquifers does not decline
 - 4.5 Water is managed through the setting of limits to safeguard the life-supporting capacity of ecosystems, support customary uses, and provide for community drinking-water supplies and stock water, as a first priority...’.
- I consider the nitrate reduction rules should require appropriate reductions in the ‘Nitrate priority area’ which will maintain or improve the current quality of the Christchurch drinking water aquifers as is required under the NPS for Freshwater.
- The decisions we make today will have serious and lasting implications for current and future generations and I believe it is entirely inappropriate for the activities of private individuals and enterprises to put at risk the drinking water of nearly 400,000 people, with population projections estimating 500,000+ by the time nitrate contamination levels are expected to reach 3.8 mg/l.
- The economic assessments, which informed PC7, state: “The total reduction from Current Pathways to the Solutions Package will be approximately \$5.8 million in operating profit, and \$5.7 million per annum in regional GDP” and appear to have a minor impact (0.3%) on the \$1.57 billion GDP for the Waimakariri district.
- I consider that economic externalities must be taken into account alongside farm operating surplus assessments, such as the cost to younger and future generations if they are faced with needing to treat their drinking water or source alternative supplies. The future cost to the Christchurch public is likely to vastly exceed that of any short term economic impact on farm profits.
- I strongly support a science-based precautionary approach to both the protection of human health and the protection of Christchurch’s drinking water sources, which rely on functional, healthy aquifer ecosystems.
 - Graham Fenwick (NZ’s leading groundwater ecosystem scientist) suggests in his evidence to the Te Waikoropupu springs WCO hearing a trigger value of 0.4–0.5 mg/l as a precautionary value to ensure ecosystem health.
 - Chris Hickey (NZs leading ecotoxicologist) recommends in his evidence to the Te Waikoropupu springs WCO hearing that where long lag times apply, a management limit of 0.55–1.1 mg/l is appropriate (Hickey considers a ‘long

time lag' to be 8 years, whereas in the lag effects for the Waimakariri 'Nitrate priority area' is modelled as being 50+ years).

- I would like to see limits set in the life of this proposed plan that achieve those ranges of limits suggested as part of the Te Waikoropupu springs WCO hearing.
- In Graham Fenwick's presentation to commissioners on behalf of Wellington Regional Council in 2018 he states: "Available research evidence empirically demonstrates that this standard [NZ Drinking Water Standard], designed to protect human health, is inappropriate for ensuring the health of aquatic ecosystems and invertebrates under long-term exposure."
 - In light of Fenwick's and Hickey's findings mentioned above, it is clear that further to being inconsistent with policies 4.4 and 4.5 the proposed nitrate limit of 3.8 mg/l will not provide for the ecosystem health of the Christchurch drinking water aquifers.
- Even though the biodiversity within New Zealand's aquifers is poorly known, the New Zealand Conservation Act 1987 and the New Zealand Biodiversity Strategy requires regional councils to ensure that the intrinsic and other values of all biodiversity (including that of "underground aquifers") are adequately maintained and safeguarded for future generations.
- The ecosystem services delivered by groundwater biodiversity are integral to sustaining groundwater and surface water resources, cultural identities and economies at local, regional and national levels.
- The Resource Management Act 1991 (and amendments) requires regional councils to ensure the sustainability of these ecosystem services (safeguard "the life-supporting capacity of air, water, soil, and ecosystems" by "avoiding, remedying, or mitigating any adverse effects of activities on the environment" to ensure that the needs of future generations are met.).
- The NPS-FM Appendix 1 sets out national values and uses for freshwater, which explicitly includes "aquifer" as one "freshwater body type". These compulsory national values for ecosystem health are:
 - The freshwater management unit supports a healthy ecosystem appropriate to that freshwater body type (river, lake, wetland, or aquifer).
 - In a healthy freshwater ecosystem ecological processes are maintained, there is a range and diversity of indigenous flora and fauna, and there is resilience to change.
 - Matters to take into account for a healthy freshwater ecosystem include the management of adverse effects on flora and fauna of contaminants, changes in freshwater chemistry, excessive nutrients, algal blooms, high sediment levels, high temperatures, low oxygen, invasive species, and changes in flow regime. Other matters to take into account include the essential habitat needs of flora and fauna and the connections between water bodies.
- For these reasons, I consider that the aquifer ecosystem which provides Christchurch's drinking water requires specific protection, greater than that is afforded in the current plans rules for nitrate reductions.
- I do not believe that because the modelled nitrate pollution is 50+ years away, that it is of any less immediate concern (particularly because ECan's monitoring shows the northern bores are already showing increasing nitrate levels – in line with the model's predictions). Younger and future generations will be facing much greater challenges in the form of climate disruption and all the social, cultural, environmental and

economic issues associated with such disruption. The least we can do is provide them a safe, ecologically functional water supply, just like we enjoy today.

For the Omnibus section:

I support the rules applying to:

- Greater restrictions on activities to improve protection of the remaining habitat of native freshwater fish;
- Additional stock exclusion provisions for swimming sites,
- Greater recognition of values (such as mahinga kai) and protection of sites of significance to Ngāi Tahu, including wāhi tapu (sacred sites), wāhi taonga (treasured sites), tuhituhi o neherā (limestone rock art sites) and waipuna (springs), and,
- The addition of new salmon spawning sites.
- I could not gain an advantage in trade competition through this submission.
- Thank you for considering my submission.

Table 2-5: Nitrate concentrations (mg/L) in CCC water supply wells for different depth ranges for period 2008-2019¹⁴

Depth (m)	% of wells in depth range	Number of sampled wells	Number of samples	Minimum	Maximum	Average
< 50	20	30	141	0.05	6.6	1.63
50 - 100	25	22	55	0.05	1.8	0.58
100 - 150	35	35	56	0.05	2.9	0.49
150 - 200	15	16	32	0.05	1.4	0.42
> 200	5	6	49	0.05	1.3	0.42

Nitrate threshold option (mg/L N)	Rationale	Evaluation
0.6	Average current measured concentration in deep Christchurch aquifer	Modelling results indicate that an average nitrate loss reduction of around 90% beyond Baseline GMP could be required to achieve this. This could necessitate conversion of the whole Christchurch aquifer recharge area to forestry. Nitrate concentrations are expected to increase even if a forestry conversion was implemented immediately due to nitrogen loads already "in the post".
1.0	NPSFM A Band limit: protects 99% of aquatic species. Recognises that groundwater from deep Christchurch aquifer likely to ultimately discharge to spring-fed streams	An average N loss reduction of 80% beyond Baseline GMP is likely to be required to achieve this target. Assessment results indicate that conversion of all irrigated land to low intensity sheep and beef farming and forestry could be necessary to achieve this limit. As per the option above, nitrate concentrations may still increase beyond this value due to loads "in the post".
2.4	NPSFM B Band limit: protects 95% of aquatic species. Recognises spring-fed stream connectivity as above.	An average N loss reduction of 50% beyond Baseline GMP is likely to be required to achieve this target. This could potentially be achieved with less severe land use change, or potentially over a long period without land use change if new nitrate loss mitigation solutions are developed
3.8	Protects 90% of aquatic species. Recognises spring-fed stream connectivity as above.	30% beyond Baseline GMP N loss reduction required. Can be achieved without land use change and by using currently available N loss mitigation options.
>5.65		No modelled N loss reduction. All thresholds considered by the WWZC and Christchurch West Melton Zone Committee were lower than the 5.65 mg/L (50% of the drinking water limit)