

We will be filing Dr. Belinda Margett's rebuttal evidence soon.

Ngā mihi,

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**BEFORE THE CANTERBURY REGIONAL COUNCIL
HEARING COMMISSIONERS**

IN THE MATTER of the Environment Canterbury (Transitional
Governance Arrangements) Act 2016

AND

IN THE MATTER of submissions on Proposed Plan Change 7 to the
Land and Water Regional Plan and Proposed Plan
Change 2 to the Waimakariri River Regional Plan

**REBUTTAL EVIDENCE OF DR BELINDA MARGETTS FOR THE CHRISTCHURCH CITY
COUNCIL**

18 September 2020

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INTRODUCTION

1. My full name is Belinda Isobel Margetts. My qualifications and experience are set out in my evidence in chief (**EIC**) dated 17 July 2020.
2. Whilst this is not an Environment Court hearing, I have read the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2014. I have complied with the Code in preparing this evidence and I agree to comply with it in presenting evidence at this hearing. The evidence I give is within my area of expertise, except where I state that my evidence is given in reliance on another person's evidence. I have considered all material facts that are known to me that might alter or detract from the opinions that I express in this evidence.

SCOPE OF EVIDENCE

3. My rebuttal evidence is provided in response to the evidence filed by the following submitters:
 - 3.1. Dr Nicholas Dunn for the Department of Conservation (in relation to Indigenous Freshwater Species Habitat);
 - 3.2. Treena Davidson for Ngā Rūnanga of Canterbury (in relation to Indigenous Freshwater Species Habitat);
 - 3.3. Annabelle Coates for Beef + Lamb New Zealand Limited (in relation to Indigenous Freshwater Species Habitat);
 - 3.4. Kathryn Jane McArthur for the Department of Conservation (in relation to Schedule 8 and groundwater nitrate limits); and
 - 3.5. Graham Fenwick (in relation to nitrate limits to protect stygofauna).

DR NICHOLAS DUNN FOR THE DEPARTMENT OF CONSERVATION

4. Dr Dunn states in Paragraph 31c of his evidence in regard to Indigenous Freshwater Species Habitat:

“While I see it as desirable to include provisions to protect the habitats of at risk species, particularly freshwater crayfish and freshwater mussels (both At Risk: Declining; Grainger et al. 2018), they have more widespread distributions, which has the effect of significantly increasing the mapped habitat areas, thus I think their inclusion warrants further consideration.”

5. However, I disagree with delaying the inclusion of At Risk species in the Indigenous Freshwater Species Habitat definition. As stated in my EIC (Item 1 in Appendix A), I consider the Indigenous Freshwater Species Habitat should include all At Risk: Declining species, not just threatened species. Whilst I understand this will result in larger areas included in the Indigenous Freshwater Species Habitat planning maps, I consider that this is necessary to ensure protection of these species, to allow their numbers to recover and halt their decline to a threatened status.
6. In Paragraph 31e, Dr Dunn also states “Moreover, Allibone & Gray (2018) fail to first define the term “critical habitat”, then seemingly use different criteria between species, but in general it appears they are describing significant habitats, especially for non-migratory species.” Whilst I consider this report does define what critical habitat is for each species mentioned in the report, within the bullet points for each species section, I agree with Dr Dunn that critical habitat should be defined overall and consistent between species. I am not so concerned with whether the word ‘critical’, ‘significant’ or another word is used, and more concerned with the definition of the habitat.
7. In regards to what I consider critical habitat should be, in my EIC (Item 1 in Appendix A), I state that “This mapping should cover all known locations of these species, not just their critical habitat (e.g. not only spawning sites for lamprey). This extension to the definition is important to protect these species and would also allow alignment with the

Council's Sites of Ecological Significance criteria." This is particularly important for kanakana/lamprey, given very little is known about their spawning locations, which was identified as critical habitat. I also note that the critical habitat for longfin eel should include more than just fish passage – further discussion on longfin eel is provided below in response to Ms Davidson's evidence for Ngā Rūnanga.

8. Whilst I understand Dr Dunn's concerns with truncating the dataset at the year 2000 (Paragraph 30j of his evidence), there does need to be a cut-off point for records to ensure a realistic database. I consider twenty years is a practical and conservative timeframe (i.e. I have used a 10-year cut-off in my own work before).

TREENA DAVIDSON FOR NGĀ RŪNANGA OF CANTERBURY

9. Ms Davidson states in Paragraph 138 of her evidence "The Section 32A report Appendix 4 concludes that discrete habitat protection (i.e. mapped habitat) is not recommended for longfin eel, although they are "at risk, declining", as they are more widely distributed than the 11 mapped indigenous species. I have included as a part of my evidence a map of the extent of both short and long-finned Tuna for the Hearings Panel's consideration. While I appreciate that they are expansive, I am not aware of any discussion with Ngā Rūnanga to look at whether or not some areas of habitat could be identified as important habitat areas."
10. I agree that longfin eel currently inhabits expansive areas within the Christchurch City Council's area of jurisdiction at least. Inclusion of this species under the District Plan Sites of Ecological Significance substantially increased the areas of significance. I have discussed this issue with Ms Davidson. Should the Panel be of a mind to include longfin eel in the Indigenous Freshwater Species Habitat planning maps, I would be interested in working with the Rūnanga and Environment Canterbury, to develop key habitat areas for Tuna.

ANNABELLE COATES FOR BEEF + LAMB NEW ZEALAND LIMITED

11. Ms Coates discusses in paragraphs 27 – 47 of her evidence that she considers the presence of the species detailed in the Indigenous Freshwater Species Habitat definition should be confirmed by a suitably qualified and experienced practitioner.

12. I disagree with this recommendation for a number of reasons. Firstly, it makes for a complicated permitted activity status, as fish surveys would be required that would then need to be audited by Environment Canterbury. Secondly, fish surveys need to be undertaken in the summer months (December – April) to ensure accurate results (fish become less active and less susceptible to capture when temperatures are low)¹. This would therefore mean timelines for obtaining data on the presence of species defined in the Indigenous Freshwater Species Habitat are restricted. Thirdly, the lack of fish presence at the time of sampling, does not mean that the fish species are not present, as discussed by Ms Coates in her evidence. The Section 42A Report also clarifies in Paragraph 5.63 that “the PC7 provisions seek to protect the habitats of the listed species rather than where the species physically are at that moment in time. Habitat protection is particularly important for threatened, at risk and/or migratory species”. I also do not consider that ground truthing of records is required, provided the maps are developed using a robust and consistent method.

13. Ms Coates raises a number of concerns regarding the definition and consistency in the mapping of Indigenous Freshwater Species Habitat, including the use of very old historical records. I have also discussed above Dr Dunn’s concerns with the accuracy of the planning maps. In my EIC I noted that the maps are missing more recent and important records. Overall, I consider that the definition of Indigenous Freshwater Species Habitat and the subsequent mapping methodology needs to be clarified, and a consistent approach applied across species.

¹ Joy, M., David, B. & Lake, M. 2013. New Zealand freshwater fish sampling protocols. Part 1: wadeable rivers & streams. The Ecology Group – Institute of Natural Resources, Massey University.

KATHRYN MCARTHUR FOR THE DEPARTMENT OF CONSERVATION

14. Paragraph 59 of Ms McArthur's evidence states that she supports the nitrate-nitrogen limit in Schedule 8 to prevent toxicity effects on ecosystem health, as well as the footnotes pertaining to managing nitrogen to meet periphyton, macrophyte and cyanobacteria outcomes in Table 1a in Schedule 8. This is in conjunction with the requirement in Footnote 2 that attribute states shall not deteriorate below 2018 levels.
15. In paragraph 61, Ms McArthur also states "the recent release of the government's Action for Healthy Waterways has signalled an intention to shift the nitrate and ammonia toxicity national bottom lines up to the B band state to better protect ecosystem health...".
16. I note that the National Policy Statement for Freshwater Management 2020 (NPS-FM) has now been released and came into effect on 3 September 2020. The national bottom line for nitrate in rivers is now in line with the 'B Band' (2.4 mg/L annual median and 3.5 mg/L annual 95th percentile).
17. I support both Ms McArthur's evidence and the amendments to the NPS-FM, as this will result in better protection against toxicity effects on biota. I consider that the proposed limits to Schedule 8, of PC7 for 'spring-fed – plains' and 'spring-fed – plains – urban' waterways should therefore now be updated to reflect these new values.
18. However, I support this amended 2.4 mg/L nitrate value for rivers within Schedule 8 only due to the additional provisions in Schedule 8 that are provided in the footnotes. Footnote 1 pertains to managing nitrogen to meet the periphyton, macrophyte and cyanobacteria outcomes in Table 1a, and Footnote 2 requires that attribute states (including nitrate) shall not deteriorate below 2018 levels.
19. In addition, to ensure these values within spring-fed waterways are met, I would like to amend Paragraph 14 of my EIC to:

~~“I recommend that to achieve the nitrate-nitrogen limits within waterways, a median nitrate-nitrogen target for the Christchurch groundwater system of 3.8 mg/L is specifically included within PC7. In addition, the reductions in Table 8-9 should ensure that the nitrate-nitrogen limits within waterways will be met. **the PC7 limits and targets that relate to groundwater that feeds waterways should ensure that the NPS-FM 2020 bottom line nitrate target for rivers (2.4 mg/L) is met. This is on the proviso that where nitrate levels in rivers are below this bottom line, levels shall not deteriorate below 2018 levels (i.e. in line with Footnote 2 of Schedule 8 of the Canterbury Land and Water Regional Plan)**”.~~

GRAHAM FENWICK

20. I have had discussions with Graham Fenwick regarding his evidence. I queried whether a nitrate standard for groundwater could be proposed within the Canterbury Land and Water Regional Plan that would prevent adverse effects on stygofauna. My understanding of our conversation was that there is not enough scientific knowledge to propose a limit. He suggested that a qualitative standard could be proposed instead, such as “nitrate levels in groundwater should not interfere with the life-sustaining quality of the aquifer”. I consider that implementing qualitative standards can be difficult, does not give certainty and may mean that effects are already occurring before it is established that the qualitative standard is being breached. However, this would still be better than not having a standard at all and could provide a placeholder until the science around stygofauna effects can be established. Therefore, I recommended this qualitative standard be included in PC7.

Dated at Christchurch this 18th day of September 2020



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Dr Belinda Margetts