

**IN THE ENVIRONMENT COURT
AT CHRISTCHURCH
I TE KŌTI TAIAO O AOTEAROA
KI ŌTAUTAHI**

IN THE MATTER of the Resource Management Act 1991

AND appeals under clause 14 of the First
Schedule of the Act

BETWEEN ARATIATIA LIVESTOCK
LIMITED

(ENV-2018-CHC-29)

(and all other appellants listed in
the Schedule attached)

Appellants

AND SOUTHLAND REGIONAL
COUNCIL

Respondent

**MINUTE OF THE ENVIRONMENT COURT
Water quality – further conferencing with Tables 1 and 2
(21 July 2022)**

Introduction

[1] This Minute is released for the purpose of case management and concerns the topic of water quality.

Expert conferencing

[2] Following the empanelling of Doctors Snelder and Depree the court has



given the topic of water quality its further consideration. We have also had a chance to read the two papers authored by Plew and referred to in their evidence.

[3] We consider that we now have a sufficient understanding to evaluate their evidence and any differences in methodologies. There is however a matter on which the experts could assist the court further.

[4] When recalled, the experts identified macroalgal and phytoplankton biomass as the relevant attributes when describing whether an estuary is likely degraded and in need of improvement. Biomass is a response to the load of total nitrogen (TN) and total phosphorus (TP). More particularly, the macroalgal response is a function of TN load and the phytoplankton response a function of both TN and TP loads. We understand that the experts use the methodologies in the Plew papers to identify nutrient bands likely to result in different levels of eutrophication. That said, how well the estuary conforms to the equivalence of biomass and TN or TP loads depends on site specific features such as flushing time and salinity.

[5] We have updated the table attached to the Minute ‘Water quality – expert conferencing’ dated 5 July 2022 in light of their evidence. The experts will be directed to confer and confirm (making changes to the table as required). The updated table is **attached** as Table 1 to this Minute.

[6] In Table 2 **attached** we list all the estuaries identified by Drs Snelder and Depree. Using Toetoes estuary as an example, we have assumed this estuary is identified by both experts because the current TN loads correspond with ETI band D. If our understanding is correct, the estuary has a very high risk of eutrophication¹ and is likely to display high levels of eutrophic degradation under current (modelled) loads.² If TN load corresponds with Estuary Trophic Index

¹ Plew D (July 2020) at 9.

² Plew D (July 2020) at 38.

(ETI) band C, there is still a high risk of eutrophication.³ I will direct the experts are to complete this table and invite them to comment on paragraphs [5]-[6] (if we are mistaken in our understanding).

[7] Secondly, I will direct the experts give narrative descriptions for bands C and D for the macroalgal and phytoplankton attributes and secondly, bands C/D, being the minimum acceptable state, (if latter is appropriate).⁴ If one or more of the bands are not relevant to their evidence, they are to say so.

[8] Thirdly, the experts do not agree on the inclusion of all the estuaries identified in Table 2. For example, Dr Depree identifies Jacobs River estuary, but Dr Snelder does not. For those estuaries on which they are not agreed, are these located in estuarine catchments that both experts identify as needing improvement?

[9] Finally, I have made an asterisk against three waterbodies that while called ‘estuaries’, are coastal lakes or ICOLLS. The experts are to make clear whether Plew’s macroalgal or phytoplankton indicators were used in relation to these waterbodies or the NPS-FM 2020 Table 1 phytoplankton (trophic state) attribute or both.⁵

Directions

[10] I direct:

- (a) the experts are to conference on the matters raised in this Minute and file a further joint witness statement by **Wednesday 27 July 2022**; and

³ Plew D (July 2020) at 9.

⁴ Note: we are unclear why the threshold for minimum acceptable state is given as two bands i.e. C/D.

⁵ Note: if macroalgal or phytoplankton indicators were used, the court does not require further consideration under NPS-FM 2020.

- (b) if the parties require the experts to answer questions arising in relation to their statement, they are to give notice to the court by **Friday 29 July 2022**.

Jane S.



J E Borthwick
Environment Judge

Issued: 21 July 2022

TABLE 1

| Attribute/indicator | Water body type | Threshold to indicate water body in need of improvement | Threshold is either below a national bottom-line or minimum acceptable state |
|--|--|--|---|
| Suspended sediment (water quality). Visual clarity. | Class 1b river Class 2b river Class 3b river Class 4b river | <1.34m ⁶ <0.61m <2.22m <0.98m | Is consistent with NPS-FM, Table 8. ⁷ NBL applied. Areas mapped are below the national bottom line for this attribute. |
| E.coli (med) E.coli (Q95) E.coli (G260) E.coli (G540) | All rivers | >130 per 100 ml ⁸ >1200 per 100 ml >34% >20% | NPS-FM, Table 9, Band D. There are exceedances to one or more thresholds. There is no NBL. Band C is the ‘minimum acceptable state’ for the human contact value. Both experts map areas in Band D and E. |
| MCI (median) | All wadeable rivers | <90 for lowland rivers | NPS-FM, Table 14 applies. For lowland rivers, both experts mapped areas below the NBL. |

⁶ Water quality JWS, July 2022. Note: we are uncertain why E.coli (G540) is given as >20% as opposed to NPS-FM, Table 9, Band D 20-34%.

⁷ Transcript (Depree) at 1077 and 1950. Dr Depree states he has no issue with the Dr Snelder’s numeric thresholds nor his mapping of suspended fine sediment, including that Dr Snelder has mapped areas which fall below the national bottom line.

⁸ Snelder, evidence dated 11 February 2022 at Table 1; Depree, evidence dated 22 February 2022 at Table 1; Water quality JWS, July 2022.

| | | | |
|---|---|--|---|
| | | <100 for upland rivers | For upland rivers, both experts mapped areas where the modelled MCI scores were <100 (i.e. above the NBL for MCI). |
| Macroalgae and phytoplankton indicators | Estuaries | Band C/D threshold for minimum acceptable state. ⁹ Band C – high risk eutrophication. ¹⁰ Band D – very high risk of eutrophication and likely to display high levels of eutrophic degradation under current loads. ¹¹ | Methodologies in Plew et al (2020) and Plew D (2020) applied. For macroalgae, both experts identify estuaries using TN loads that correspond with likely macroalgal biomass. The estuaries and contributing catchments are mapped. For phytoplankton, Dr Snelder (only) identifies estuaries using TN and/or TP loads that correspond with likely phytoplankton biomass. Dr Snelder maps estuaries and contributing catchments. |
| Phytoplankton biomass | Lakes (including coastal lakes namely Waituna Lagoon and Lake Brunton). | NPS-FM 2020, Table 1 and NBL applied. | ??? |

⁹ Transcript (Depree) at 1941. Plew D (2020) at 9.

¹⁰ Plew D (2020) at 9.

¹¹ Plew D (2020) at 9 and 38.

TABLE 2

| Dr T Snelder | | | | Dr C Depree |
|-------------------|--|--|--|--|
| Estuary | Microalgae biomass | Phytoplankton biomass | | Macroalgae biomass |
| | TN load corresponds with B and C or D. | TN load corresponds with B and C or D. | TP load corresponds with B and C or D. | TN load corresponds with B and C or D. |
| Waikawa Harbour | | | | |
| Haldane | | | | |
| Toetoes | TN load corresponds with ETI band D. | N/A ? | N/A ? | TN Load corresponds with ETI band D. |
| New River Estuary | | | | |
| Jacobs River | | | | |

| | | | | |
|----------------------|--|--|--|--|
| Estuary | | | | |
| *Te Waewae Lagoon | | | | |
| *Waituna Lagoon | | | | |
| *Lake Brunton | | | | |

Schedule – List of appellants

| | |
|-----------------|--|
| ENV-2018-CHC-26 | Transpower New Zealand Limited |
| ENV-2018-CHC-27 | Fonterra Co-operative Group Limited |
| ENV-2018-CHC-29 | Aratiatia Livestock Limited |
| ENV-2018-CHC-30 | Wilkins Farming Co Limited |
| ENV-2018-CHC-31 | Gore District Council & others |
| ENV-2018-CHC-32 | DairyNZ Limited |
| ENV-2018-CHC-33 | H W Richardson Group Limited |
| ENV-2018-CHC-34 | Beef + Lamb New Zealand |
| ENV-2018-CHC-36 | Director-General of Conservation |
| ENV-2018-CHC-37 | Southland Fish and Game Council |
| ENV-2018-CHC-38 | Meridian Energy Limited |
| ENV-2018-CHC-40 | Federated Farmers of New Zealand (Southland Province) Inc |
| ENV-2018-CHC-44 | Wilkins Farming Co Limited (previously Campbell's Block Limited) |
| ENV-2018-CHC-45 | Wilkins Farming Co Limited (previously Robert Grant) |
| ENV-2018-CHC-46 | Southwood Export Limited & Others |
| ENV-2018-CHC-47 | Te Rūnanga o Ngāi Tahu, Hokonui Rūnaka, Waihopai Rūnaka, Te Rūnanga o Awarua & Te Rūnanga o Oraka Aparima |
| ENV-2018-CHC-49 | Rayonier New Zealand Limited |
| ENV-2018-CHC-50 | Royal Forest and Bird Protection Society of New Zealand Incorporated |