

**IN THE ENVIRONMENT COURT
WELLINGTON REGISTRY**

**I TE KŌTI TAIAO O AOTEAROA
TE WHANGANUI-A-TARA ROHE**

UNDER	the Resource Management Act 1991
IN THE MATTER	of appeals under sch 1, cl 14(1) against the decision of Manawatū-Whanganui Regional Council on Plan Change 2 to the One Plan
BETWEEN	TE RUNANGA O RAUKAWA ENV-2021-WLG-20 NGĀTI TURANGA ENV-2021-WLG-21 ANDREW DAY ENV-2021-WLG-22 WELLINGTON FISH AND GAME COUNCIL ENV-2021-WLG-23 Appellants
AND	MANAWATŪ-WHANGANUI REGIONAL COUNCIL Respondent

**STATEMENT OF REPLY EVIDENCE OF MAREE ELLEN PATTERSON ON BEHALF OF
MANAWATŪ-WHANGANUI REGIONAL COUNCIL**

WATER QUALITY

Dated: 13 November 2023



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REPLY EVIDENCE OF MAREE ELLEN PATTERSON**A. INTRODUCTION**

- [1] My full name is Maree Ellen Patterson.
- [2] I prepared a statement of evidence dated 6 October 2023 (**Evidence**) regarding the development of the One Plan's water quality provisions and the current state of the environment, on behalf of Horizons for PC2.
- [3] My experience and qualifications are set out in my Evidence.
- [4] In this reply evidence I use the same defined terms as in my Evidence.
- [5] I repeat the confirmation given in my Evidence that I have read and will comply with the Code of Conduct for Expert Witnesses in the Environment Court Practice Note 2023, and that my evidence has been prepared in compliance with that Code.

B. SCOPE

- [6] My reply evidence responds to points made in evidence by Hayden Turoa on behalf of Ngāti Turanga, Michael Scott on behalf of Mr Day, and Gregory Carlyon on behalf of Ngāti Turanga and Fish and Game, regarding water quality outcomes.

C. TABLE 14.2 AND THE SCHEDULE E TARGETS

- [7] Mr Scott, at paragraph 8.34 of his evidence, states that "*the nitrogen leaching levels set out in Table 14.2 were predicated on all activities in each relevant sub-zone reducing their nitrogen leaching to levels set out in the Table*". He continues:

If some are able to exceed those levels (albeit they may have reduced their leaching to a lower level of exceedance), others in the sub-zone may be asked to do more in terms of their leaching, or the water quality targets risk being effectively abandoned.

[8] I disagree with this assessment. As I stated in my Evidence, compliance with Table 14.2 alone would never achieve the water quality targets in Schedule E of the One Plan.¹

[9] To illustrate, I use the Upper Manawatū monitoring site Manawatū at Hopelands as an example. The evidence that Dr Roygard and I presented to the Environment Court at the initial One Plan appeal hearings estimated the load of soluble inorganic nitrogen (SIN) at the Manawatū at Hopelands Site was more than double the “*target load*” (that being the load calculated using the Schedule E target for the site rather than measured data).² Meaning that to meet the Schedule E target the load in river would have to reduce by more than half. Table 1 below presents the estimated loads for Hopelands from the evidence. The area in IFLU upstream of the monitoring site is approximately 16% with the majority of the IFLU being dairy farming.

Table 1: Manawatu at Hopelands Measured and target SIN loads, extracted from Roygard and Clark 2012.

Measured SIN Load	Target SIN Load	Point sourced SIN load	Diffuse Sourced SIN Load
786.5	364.3	24.15	762.36

[10] The contribution of the dairy footprint to the load in the catchment was estimated to be 262.7 tonnes, or around one third of the measured load. All IFLU in the catchment were estimated to be approximately 34% of the measured load, so non-dairy IFLU contributed an approximate additional 1%.

[11] This total load from IFLU is significantly less than the reduction required to meet target load, meaning that requiring IFLU to meet Table 14.2 was never going to be able to reduce diffuse nitrogen sufficiently to achieve the Schedule E target. In fact, even ceasing all IFLU in the catchment would have left the Manawatu at Hopelands site an estimated 159.5 tonnes of SIN above the Schedule E target.

¹ Statement of Evidence of Maree Patterson (6 October 2023) at [58].

² Roygard and Clark 2012.

- [12] This brief example demonstrates that requiring existing IFLU to meet Table 14.2 in targeted WMSZs was only intended to be one step among many required to achieve the Schedule E targets. It is not the case that if some farmers are able to seek to obtain consent through an alternative path to meeting the CNLM in Table 14.2 that the Schedule E targets would need to be considered “*abandoned*”, as Mr Scott suggests.
- [13] I would add that my understanding of Dr Snelder’s evidence is that the provisions in DV-PC2, and as amended to include a risk tool, are expected to improve water quality approximately as much as requiring unconsented IFLU farmers in targeted WMSZs to meet the CNLMs in a recalibrated Table 14.2.³

D. PRECAUTIONARY APPROACH

- [14] Both Mr Carlyon and Mr Scott express concern that DV-PC2, and as amended to include the risk tool, are both insufficiently precautionary in relation to the coastal environment.⁴ Mr Carlyon and Mr Scott refer to Policy 3(1) of the New Zealand Coastal Policy Statement 2010 and the need to “*adopt a precautionary approach towards proposed activities whose effects on the coastal environment are uncertain, unknown, or little understood, but potentially significantly adverse*”.
- [15] I understand their concerns, however, I do not agree that PC2 is any less precautionary than utilising the recalibrated Table 14.2. With regards to the coastal environment, given that both DV-PC2 and PC2 as currently proposed have been modelled/assessed by Dr Snelder to give a similar outcome to the implementation of the recalibrated Table 14.2, then the outcomes from implementing PC2 are likely to be at least as precautionary as the recalibrated Table 14.2 in relation to the coastal environment.
- [16] I understand that Ms Foster addresses this point further from a policy perspective in her reply evidence.

³ Statement of Reply Evidence of Antonius Snelder (13 November 2023) at section D.

⁴ Statement of Evidence of Gregory Carlyon (6 November 2023) at 7.40; and Statement of Evidence of Michael Scott (6 November 2023) at 9.17.

E. TARGETED WATER MANAGEMENT SUB-ZONES

- [17] Mr Turoa suggests that PC2 will “*lock in an existing pathway of degradation*”, particularly in relation to the coastal environment.⁵ To remedy this he suggests that all coastal catchments should be included as targeted water management sub-zones (**WMSZs**) in Table 14.1 of the One Plan. This point is echoed to an extent by Mr Carlyon, who in summarising Mr Turoa’s point seems to suggest that PC2 was designed to be limited in scope to “*enable[e] [Horizons] to reject submission points*”,⁶ presumably relating to the additional targeted WMSZs requested by Ngāti Turanga.
- [18] The question of scope is discussed by Ms Foster, and I understand that a request to expand the spatial application of the existing IFLU provisions in the One Plan would be out of PC2’s scope. However, in addition to that, I wish to reiterate certain points in my Evidence relating to why the targeted WMSZs were initially selected.⁷
- [19] The existing IFLU provisions in the One Plan control certain diffuse sources of nitrogen leaching – dairy farming, commercial vegetable growing, cropping, and intensive sheep and beef. The catchments which were therefore good targets for intervention (i.e., by inclusion in Table 14.1) were those where:
- (a) Nutrients were high and the main source of those nutrients was from diffuse rather than point sources (Upper Manawatū, Mangatainoka, Mangapapa, Upper Gorge and Waikawa);
 - (b) Catchments where nitrogen targets were meeting the One Plan target but were close to exceeding it, and there was potential for the expansion of the existing footprint due to the availability of water in the allocation framework (Coastal Rangitīkei);
 - (c) Catchments where there was little information but were identified as at risk due to the proportion of IFLU in proximity to them, and the

⁵ Statement of Evidence of Hayden Turoa (6 November 2023) at 4.8.

⁶ Statement of Evidence of Gregory Carlyon (6 November 2023) at 7.13.

⁷ See Statement of Evidence of Maree Patterson (6 October 2023) at section H.

vulnerability of the receiving environment (the coastal lakes, Lake Horowhenua, and the other southwest catchments).

- [20] Catchments like the Lower Manawatū were intentionally excluded from Table 14.1 due to the influence of the wastewater discharges (that is, point source discharges not captured by the existing IFLU framework in the One Plan) from Feilding and Palmerston North.⁸
- [21] As has been reiterated out by Dr Daly in her reply, the entire framework for regulating the health of our waterways will be revisited through the Oranga Wai process.⁹ I expect that process will yield a better mechanism than Table 14.1 (which only focuses on contaminants from IFLU as defined by the One Plan) for improving water quality in the coastal catchments that Mr Turoa and Ngāti Turanga are concerned about.

13 November 2023

Maree Ellen Patterson

⁸ Statement of Evidence of Maree Patterson (6 October 2023) at [49].

⁹ Statement of Reply Evidence of Elizabeth Daly (13 November 2023) at [20].

F. REFERENCES

- **Roygard J. and Clark M., (2012).** Supplementary statement by Jon Roygard and Maree Clark on Nutrient Load Scenarios and Methodology. *Evidence to the Environment Court in the matter of appeals under clause 14 of the First Schedule to the Resource Management Act 1991 concerning proposed One Plan for the Manawatu-Whanganui region.*