

IN THE MATTER OF

The Resource Management Act 1991

AND

IN THE MATTER OF

Lake Rotorua Nutrient Management –
PROPOSED PLAN CHANGE 10 to the Bay of
Plenty Regional Water and Land Plan

**STATEMENT OF EVIDENCE OF SANDRA ALISON BARNES
OF THE BAY OF PLENTY REGIONAL COUNCIL**

Evidence topic: Economic and social impacts

SUMMARY

1. My full name is Sandra Alison Barnes. My qualifications, experience and commitment to the Code of Conduct for Expert Witnesses are as set out in paragraphs 2-7 of my evidence in chief undated, completed 15 January 2017 and filed 20 January 2017.
2. My evidence covers the economic benefits and costs of the proposed Plan Change, and the social costs where they overlap with the economics.
3. Economics has been an important part of understanding the costs and benefits of tackling the Lake Rotorua water quality issue with reports dating back more than a decade. Economic analyses has included willingness-to-pay studies to assess the benefit of a clean lake to individuals, the costs of purchasing properties in the catchment, the types and costs of nitrogen mitigation options for farmers, the costs and benefits of alternative allocation mechanisms. This information has helped to inform policies in the Bay of Plenty Regional Policy Statement, Rule 11, and the current proposed rules.
4. Prior to Plan Change 10, early work in understanding the benefits and costs of a cleaner lake informed the policies in the Regional Policy Statement, putting in place a framework which includes a sustainable nitrogen limit, principles of allocation among land uses, and a timeframe with interim targets.
5. A large body of economic work has helped to determine the policy approach for Plan Change 10, of particular importance is the case study analyses of Rotorua farms by Lee Matheson, Perrin Ag, the catchment modelling by Dr Graeme Doole, Oliver Parsons and Alvaro Romera, and the modelling of the wider economy by Dr Nicky Smith, Market Economics Limited. Lee Matheson, Dr Graeme Doole and Dr Nicky Smith will provide evidence to this hearing.
6. The Lake Rotorua catchment is 50,000ha, including the lake of 8,000 hectares. The make-up of the catchment and the size of the sectors in relation to the district is important context for understanding the wider impact of the rules. Blocks of less than 40 hectares are common, covering about 5,600 hectares, or 13% of land. Of the 1,045 small

blocks less than 4 hectares, 2% (21) are registered for GST. Dairy farming accounts for 5,500ha, and drystock (including deer farming) 16,500ha. Forestry covers about 10,000ha, and bush and scrub about 11,000ha.

7. Dairy farming in the Lake Rotorua catchment comprises about 12% of dairy farming in the Rotorua district when measured by the number of farms and the number of dairy cattle. Drystock farming in the catchment makes up 30% of drystock farming in the district. The Rotorua economy has three major inputs – tourism, farming and forestry. Tourism is the largest employer in Rotorua, and forestry the second largest.¹ Given the composition of the Rotorua economy, the costs of this policy are likely to be felt mainly at the individual farm level. The economic analysis by Dr Nicky Smith, Market Economics, confirms this.
8. The introduction of a nitrogen cap and subsequent allocation of nitrogen allowances is not intended to stop economic activity in the catchment, but to reduce nitrogen leaving the catchment by changing the way land is used and managed. A clean lake provides a potential economic benefit to tourism, while a polluted lake with toxic algal blooms is detrimental.²
9. The RPS sets a nitrogen limit of 435 tonnes (Policy WL 3B), and required allocation of the capacity to assimilate nitrogen among land use activities (Policy WL 5B). Policy WL 5B provides a list of principles for allocation, including the ‘Ease of transfer of the allocation’. In accordance with this, Plan Change 10 proposes what is known as a ‘cap and trade’ regime. This approach enables farmers to make farming decisions within their nitrogen limit – as opposed to a regulatory approach where the regulator makes farming decisions. Providing for transfers of nitrogen lowers the overall cost of the policy by allowing landowners with higher costs of reducing nitrogen to purchase nitrogen discharge allowances from those with lower costs. In this way, both landowners are better off.
10. Of the 320t nitrogen reductions target, the national, regional and local community will reduce 180 tonnes through the Incentives Fund, engineering solutions and removal of gorse. The balance is the allocation made to land uses in the catchment. This approach is called the Integrated Framework, and was initiated by the Lake Rotorua Primary Producers Collective and recommended by StAG to Council.³
11. Allocation of nitrogen was a topic on the agenda of the second StAG meeting in December 2012. The StAG minutes for March 2013 recorded broad agreement to develop sector averaging in more detail, and recognition that it would be a ‘mix of grandparenting and rough justice, with the expectation that high N loss farmers would ‘take a hit, even if they are a top farmer’. At this StAG meeting Dr Suzie Greenhalgh (Landcare Research) presented on methods for assessing the impacts of allocation options. This was followed up with modelling of sector averaging and grandparenting by

¹ Rotorua Economic Development Limited (A Council-Controlled Organisation)

² See for example 2006 by Dr J Morgan Williams, Commissioner for the Environment. “Restoring the Rotorua Lakes. The Ultimate Endurance Challenge.”

³ Lamb, S EIC 2017

Levente Timar, Mōtū Economic and Public Policy Research, presented to StAG in May 2013. StAG noted that wider economic modelling would be required when more information was available.

12. In June 2014, when the policy was advanced to a level for meaningful analysis, StAG initiated a farm and catchment level modelling of the costs of eight allocation approaches, including three iterations of sector ranges. This modelling would inform the final choice of allocation method, and be important for the s32 evaluation. This project was led by DairyNZ and BOPRC, with representation from Beef and Lamb and Federated Farmers, and local farm consultants. Dr Graeme Doole will give evidence on the results of that analysis. The work by Parsons, Doole and Romera included scenarios with differing assumptions around trading to understand the role of trading in reducing costs. The modelling results showed that under efficient trading assumptions all methods have a similar overall cost. Under assumptions of trading frictions, the preferred sector range method performed well. However, the impacts on profit are distributed unevenly across sectors and individuals. The results of the modelling are provided in Dr Graeme Doole's evidence.
13. Complementing the work by Parsons, Doole and Romera, Council commissioned case study work to understand how the proposed nitrogen limits might impact farm income. Case study analysis was undertaken in 2014 by Lee Matheson, and again in 2015/16 following the completion of the Parsons, Doole and Romera report, and when the provisional NDA were available. This enabled a more realistic picture of effects. The findings of the case study work is consistent with the Parsons, Doole and Romera report, showing that farmers will have differing effects depending on their Rule 11 benchmark, the characteristics of their farm, and farmer ability. Lee Matheson is presenting evidence on the results of this analysis.
14. Since providing my evidence in chief I have provided rebuttal in response to Ms Muller's evidence for DairyNZ Limited and Fonterra Co-operative Group Limited (see para 4 of rebuttal). The rebuttal is based on work that Council staff is doing with farmers to set up Nutrient Management Plans and meet their 2032 provisional NDA targets. Of dairy farmers who have engaged with the process to date, 30% are already at their 2032 provisional NDA target, and the general pattern of where farmers are in relation to their targets tends to support the findings of Parsons, Doole and Romera, and the case study results of Matheson.
15. Catchment landowners have had a long lead-in time with regard to these changes. The Regional Policy Statement was notified 9 November 2010. It included the timeframe for achieving the reduction to the sustainable nitrogen limit in the Lake Rotorua catchment. The reduction period is staged, allowing time to plan and adapt.
16. Land use is dynamic. In New Zealand in the 10 years to 2016 the total number of dairy cattle increased by 26%, total beef cattle decreased by 22%, total sheep decreased by 32% and total deer decreased by 46%. Over the same time period the hectares in agriculture decreased by 6%. Economics drives farming decisions. Growth in new sectors, such as mānuka honey production, will make other land uses viable in the future. The Low Nitrogen Land Use Fund provides funding to for research to promote

uptake of existing low nitrogen land uses in the catchment, investigate application of existing low nitrogen land uses in the Lake Rotorua catchment, and find new low nitrogen land uses for the catchment.

17. The Parsons et al. report was followed up with an analysis of the impact of three allocation methods the district, regional and national economies. The methods analysed were a single sector target, natural capital allocation, and a sector range. The analysis shows that the economic impact on the district is modest – most of the economic impact is within the Lake Rotorua catchment. As with the Parsons et al. study, if trading is efficient, then the results is the same for any method because trading brings it to the same point. Efficient trading lessens the overall cost. Where trading is modelled as less efficient, the sector range scenario is more favourable than the single sector or natural capital. Dr Nicky Smith is presenting evidence on the results of this modelling.
18. Where farmer debt is based on activities that have been curtailed, it may influence farmer decisions in response to Plan Change 10. The Parsons et al. report refers to farmer debt, although no debt information specific to the Lake Rotorua catchment was available. The work of Council staff with farmers in assessing current nitrogen discharges and provisional NDAs reveals a wide variation in the effort required to reach 2032 targets, suggesting the impact on ability to service debt will be farm specific.
19. The effect of provisional NDAs on property prices will vary. The Regional Policy Statement has been operative since 2014 (notified 9 November 2010). Uncertainty creates a greater price differential. The individual farm level impacts will become clearer as Council staff work with landowners to establish their provisional NDA and the required reductions. This process will help to bring back certainty to the property market.
20. Property prices will be affected where the land's highest and best use is no longer feasible. Analysis by Telfer Young, registered valuers, Rotorua, suggested that Rule 11 had introduced a 10% reduction in dairy farm prices through the imposition of land use restrictions, with a further 5-10% dependent on the actual nitrogen benchmark. The changes resulting from Plan Change 10 were, at the time of the Telfer Young analysis, expected to create a further 10-15% price reduction. For drystock farms Telfer Young assessed the Rule 11 property price impacts at 15-25% depending on the change to achieving the highest and best economic use. As a result of the Plan Change, the impact on price could be as much as 10-20%, again depending on the individual property characteristics. Lifestyle blocks are affected depending on their commercial potential, with the impact negligible where there is no economic return.

Social costs and benefits

21. The Regional Policy Statement set in place the 435t nitrogen limit and the principles for achieving it. This approach went through a full Schedule 1 process and was confirmed via the appeal and mediation process, becoming operative in 2014. The costs and benefits of the nitrogen limit were addressed at that time.

22. While the benefits fall to the community in terms of a cleaner lake, and potentially to the tourism sector, the costs also fall on the community in terms of the undertakings in the Integrated Framework, and to farmers for the on-farm reductions required.
23. The allocation method for nitrogen discharges key to the distribution of costs. This decision was made by StAG based on the principles and considerations established in the RPS. These principles include social factors such as equity and fairness.
24. Given the scale of reduction of nitrogen required and its impact on land use activities in the catchment, some social disruption is inevitable. The work of Council with landowners to establish current nitrogen leaching and provisional NDAs, is consistent with the economic studies, showing the variation in farmer effort required, suggests that social disruption will be wholesale land use change, although some land use change is likely to occur.
25. Land use practice improvements will be required, and farmers and farm workers are likely to have to upskill to achieve this. This is supported in the early stages through Advice and Support Funding as farmers work out their Nutrient Management Plans.
26. Employment is likely to shift within and across sectors. Employment in agricultural and related sectors within the catchment will reduce, while employment in forestry increases as a result of land use change. Where water quality affects tourism, service sectors such as 'accommodation' and 'food and beverage services' are likely to benefit [refer evidence of Dr Nicola Smith].
27. Policies in the RPS help to mitigate the social costs associated with improving water quality through the timeframe for reduction (to 2032), principles and considerations for allocation of nitrogen, and requirement to consider the equitable balancing of public and private costs and benefits. The latter is achieved through the Integrated Framework [Refer Stephen Lamb evidence].

Conclusion

28. In conclusion, it is my opinion that the Regional Council has addressed the key economic issues appropriately, and to the extent that it could reasonably be expected to consistent with the context. The research that has informed the proposed Plan Change 10 has been of a high standard and consistent with good practice.

Name: Sandra Barns

Date: 2 March 2017