Freshwater Submissions
Ministry for the Environment
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Submission on Action for Healthy Waterways

Introduction

1) The Taranaki Regional Council (the Council) thanks the Ministry for the Environment (MfE) for the opportunity to make a submission on the National Policy Statement for Freshwater Management (NPS-FM) and National Environmental Standards for Freshwater Management (NES) and the Stock Exclusion Regulations (SER) as outlined in the Ministry’s discussion document Action for healthy waterways.

2) The Council makes this submission in recognition of its:
   - functions and responsibilities under the Local Government Act 2002 and the Resource Management Act 1991 (RMA);
   - the environmental regulator functions, responsibilities and costs to be incurred by the Council to implement the NPS-FM, NES and SER proposals;
   - regional advocacy responsibilities whereby the Council represents the Taranaki region on matters of regional significance or concern, and
   - experience having successfully implemented water quality improvements within Taranaki.

3) The Council has also been guided by its Mission Statement ‘To work for a thriving and prosperous Taranaki’ across all of its various functions, roles and responsibilities, in making this submission.

4) The Council notes its concerns about the short time available for submissions with respect to such a substantial reform package, a concern exacerbated by the timing coinciding with local authority elections and the often inadequate information provided in the support package to enable considered choices consistent with Part 2 disciplines of the RMA.

5) The Council requests a hearing from the review panel.
Structure of submission

6) In making this submission the Council has provided feedback on the Taranaki context, the Essential Freshwater package generally, as well as feedback on the specific clauses in the NPS-FM and NES, which are in the attached table.

7) In particular, this submission comments on a number of matters and challenges that Council foresees in implementing the Essential Freshwater package. They are grouped under the following headings/themes.

8) First, is the Taranaki context that sets the scene as to what are the freshwater challenges, trends and interventions already successfully occurring in the region.

9) Second, are the concerns that nutrient and sediment limits lack a credible basis, are out of line with overseas criteria, and would force a very substantial contraction of farming productivity, with consequential impacts on community wellbeing, for no clear benefit.

10) Third, is the socio-economic cost of adopting the Essential Freshwater proposals relating to the Waingongoro catchment, adopting nitrogen caps and the use of OVERSEER in a regulatory framework, and the compulsory preparation and auditing of freshwater modules in farm environment plans.

11) Four, is the perverse outcomes from universally restricting ‘intensification’ in regions experiencing low levels of intensification.

12) Fifth, is the technical challenges and questionable added costs associated with some of the monitoring requirements for freshwater attributes and wetlands set out in the NPS-FM and NES.

13) Sixth, is the concern of that stock-exclusion regulations would conflict with Taranaki’s successful Riparian Management Programme, causing unnecessary costs and poorer freshwater outcomes.

14) Seven, are general comments relating to Te mana o te Wai and the proposed new planning process for freshwater.

15) Eight, are examples of a large number of drafting issues that need to be addressed so that councils can effectively implement the NES and NPS-FM and/or avoid perverse outcomes.

Executive summary

16) In general, the Council supports the Government’s objective to improve the health of water bodies across New Zealand. However, the Council has significant concerns around specific aspects of the proposed new policies and regulations, and requests that the Minister for the Environment consider suggestions for amendments or alternative approaches to some of the proposed measures as a means to achieve better freshwater outcomes.

17) The Council’s key messages from this submission are:

   • One size does not fit all. Taranaki is unique in its geography and advancement in water maintenance and improvement programmes. Implementing much of the proposal would have unpredictable and likely only marginal environmental benefits but significant perverse outcomes for community wellbeing.
The proposal should focus on improving trends rather than setting limits. This would recognise and provide for natural differences throughout regions, and nationally, while halting the decline of water degradation. Regulation should only be used where there is a proven cause and effect and demonstrable benefit.

For Taranaki there is no cost-benefit justification for the policies and regulation in the NES and NPS-FM, indeed the opposite applies.

18) The Taranaki region has, over time, collectively demonstrated strong commitment to improving freshwater health, taking carefully considered long-term action and spending millions of dollars on interventions of proven effectiveness. Good environmental results are becoming increasingly evident, including through independent assessment, and the efforts and good waterway health trends will be continued through measures already signalled to and agreed by the community’s stakeholders in preparations for the next Regional Land and Water Plan.

19) The Essential Freshwater package includes comprehensive and complex proposals that on initial assessment raise many issues, notably:

- Nutrient and sediment limits lack a credible basis, are out of line with comparable overseas criteria, and would force a very substantial contraction of farming productivity for no clear benefit\(^1\)

Compulsory new bottom-line catchment limits are proposed for Dissolved Reactive Phosphorus (DRP), Dissolved Inorganic Nitrogen (DIN), and sediment. Our analyses to date suggest these limits take inadequate account of regional geology, do not recognise the multiple drivers of stream health across diverse geologies, hydrologies and landscapes, have not been shown to be either effective or efficient, are unnecessarily stringent even where their use as an intervention might in principle be justified, and would not be achievable across much of Taranaki’s ring plain without damaging restrictions on many individual dairy farmers and municipal and industrial activities (with consequences for dependent industrial and commercial activities) and wider community wellbeing, for uncertain and at best marginal environmental gains. Exemptions outlined in the package are too narrow and would place a cost burden on communities to justify their application- a ‘guilty until proven innocent’ presumption.

- OVERSEER given a role it’s not suitable for

The proposed water quality limits and requirements to prepare farm plans would rely on the use of the OVERSEER farm-management tool. The Council supports farmers’ use of OVERSEER as a farm-management tool offering guidance to help them identify best practices and reduce inappropriate nutrient leaching. But the Council shares the view of many experts and authorities that OVERSEER is unfit for use as a regulatory tool, is highly inaccurate, remains unproven in many landscapes, and does not correlate with the state of the receiving environment. This view

\(^1\) ‘[New Zealand’s] diversity in physical setting also results in a great diversity in catchments, and the waterbodies that they feed...the baseline or ‘reference’ conditions for measuring aspects of water quality vary between systems [rivers, lake, aquifers, wetlands] and between regions, depending on factors such as climate, hydrogeology, vegetation, soil composition and land use.’ from New Zealand’s fresh waters: values, state, trends and human impacts, Q and A pg x, and Technical report pp 10-11, Office of the Prime Minister’s Chief Science advisor, April 2017
has been stressed by the Parliamentary Commissioner for the Environment, while the Environment Court has found that OVERSEER has ‘notable limitations in a regulatory context’.

- **Stock-exclusion rules override Taranaki’s successes**

  The proposals include new ‘one size fits all’ stock-exclusion regulations that would override the proven, successful, and much more comprehensive Taranaki Riparian Management Programme, for added cost, dubious gain, failure to address critical source zones in waterways (the headwaters and springs), and the generation of loss of credibility and confidence.

- **Questions over farm and community viability and wellbeing**

  The Government has not provided appropriate cost-benefit analyses so the precise extent of the impacts remain unclear. The Council has found the likelihood of a very adverse impact on the viability of many farms because of imposed reductions in fertiliser use and soil fertility (per constraints on both nitrogen and superphosphate usage), regardless of any suggestions of a compliance timeframe of ‘a generation’. This would impact on the economic and social wellbeing of the wider community, urban as well as rural. The financial burden will not be spread equitably but would fall predominantly on those farming activities in wetter areas, regardless of the extent of adoption of good practice.

- **Major costs for questionable gain – we’re already making good progress with considered and sound substantial investments**

  If adopted, the Government’s proposals will impose major costs on the Taranaki region for unpredictable and probably only marginal freshwater-quality gains. The Council commissioned report *Assessment of the agricultural economic impacts of DIN limit proposal in Essential Freshwater package in Taranaki* (Appendix 3) indicated that the cost to reach the DIN bottom line proposed in the NPS-FM would exceed $100,000 per annum for 33% of farms and $50,000 per annum for 70% of farms. Taranaki’s mountain-fed rivers are in the ‘A’ and ‘B’ bands for ecological health according to the Government’s own measures. Their ecological health has, with only rare exception, been stable or improving over the past decade or more. In terms of swimmability, our rivers are mostly in good or excellent health at the places and times most people swim. The Council has a clear view based on evidence that the proposed national interventions are neither credible nor necessary with respect to Taranaki. Indeed, the Council notes the view expressed by the Prime Minister’s former Chief Science Advisor, Sir Peter Gluckman: ‘Irrespective of any global goal that is set, most people want to know whether at any monitored site the water quality meets requirements for human and ecosystem health, and if it does not, that there is evidence of improvement over time.’

- **Uncertainty over interpretation and application of the concept of Te Mana o te Wai**

  The proposed NPS-FM gives a fundamental pre-eminence to the concept of Te Mana o te Wai. The interpretation, policy incorporation, and implementation of this metaphysical concept sit uneasily within the established RMA framework and will inevitably cause confusion, uncertainty and frustration if given effect to in its existing vague form and framework. Extensive, careful and

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2 *New Zealand’s fresh waters: values, state, trends and human impacts*, Summary report, Office of the Prime Minister’s Chief Science advisor, April 2017, pg xxvii
well-considered examination and explanation are needed in order to give proper recognition to this concept within an RMA regulatory tool.

Taranaki context

20) The Council seeks greater recognition of the local context when imposing national regulations. The Council is committed to maintaining and enhancing Taranaki’s freshwater quality. Maintaining and improving water quality has been a successful focus of the Taranaki community for decades. Taranaki’s communities require good quality water for their cultural, social, economic and environmental well-being. Hence, for many years, the Taranaki community has invested heavily in fit-for-purpose policies and work programmes to maintain and enhance our freshwater quality. Unlike other parts of New Zealand, the health of Taranaki’s freshwater is indeed being maintained and improved through regulatory and non-regulatory programmes – as confirmed by extensive and long standing state of the environment monitoring (with independent review).

21) Taranaki is unusual in a recent New Zealand land use and freshwater context. Dairy farming is well established in Taranaki and it has not experienced the intensification seen in some other regions. For example, the total number of milking dairy cattle in 1998/1999 was 481,034 (nearly 15% of the nation’s milking herd) and by 2013/2014 it was still only 493,361 (10% of the national herd). Likewise, stocking rates have hardly changed, from an average of 2.8 cows per hectare in 1998/1999 to 2.85 cows per hectare in 2013/2014. These are lower stocking rates than the national average. The pressures on land use are not increasing, and measures of water quality are trending in the right direction. The region is not facing an unmanaged crisis in water quality, quite the opposite situation is evident.

22) Over 300 rivers and streams radiate from Mount Taranaki across the ring plain. These are generally short, narrow, incised, cool, and fast flowing, and water leaving the Egmont National Park has usually reached the sea within 24 hours. High rainfall on the mountain generally means that most ring plain rivers and streams receive a steady flow of water with frequent intensive flushing. These natural features along with the recognised benefits of vegetated riparian boundaries mean that the ring plain rivers should not be judged by the ecological consequences of nutrient loads evident in other areas.

23) The Taranaki hill country is steep and prone to soil erosion and slipping, but managed properly can support both pastoral farming and commercial forestry alongside reversion to and regeneration of native bush. Hill country rivers have short tributaries contained by narrow valleys and invariably carry high sediment loads because of the soft sandstone and siltstone geology and intensive rainfall. The water quality issues in the hill country are different from the ring plain in that sediment is the main attribute requiring management.

24) The maintenance and enhancement of our freshwater quality has not occurred by accident. For decades the Council has used its internationally recognised voluntary programmes, proactive compliance monitoring programmes, and strict regulatory enforcement to ensure that freshwater quality, which was degraded up to the 1980’s, is now generally a source of pride for the Council and Taranaki communities. The Council’s programmes have been developed in close consultation with the community over many years and reflect widespread community support and aspirations. As expressed in its preparatory work for its draft next generation Regional Land and Water Plan, the Council and stakeholder groups are pursuing further gains in stream health.

25) The Council and indeed the Taranaki community is therefore demonstrably supportive of the intent of the proposed NPS-FM, NES and SER.
26) Taranaki has two long running large scale non-regulatory water protection and enhancement programmes – its riparian management programme and hill country sustainable land management programme. These programmes focus on tailored interventions that contribute to making the greatest cost beneficial improvements in water quality for the location and relevant water quality pressures. Both programmes have been running for over 25 years and focus strongly on farm management plans as the basis of driving actions to improve water quality. They have both been very successful in this regard.

27) The Taranaki Riparian Management Programme focuses on fencing and planting every waterway and wetland on the intensively farmed ring plain and coastal terraces. This is an area of approximately 230,000ha, of which approximately 80% is in pasture with the remainder being mainly indigenous vegetation. Since the 1990s, landowners and farmers on the Taranaki ring plain and coastal terraces have voluntarily protected rivers, streams and wetlands with strong individual encouragement from the Council. The riparian management programme has resulted in 99.9% (2,889) of Taranaki dairy farms having riparian management plans. The plans cover 15,916 km of streambanks. Of this, 13,863km (87.1%) is currently protected by fencing and 9,156km (75.2%) is currently protected by vegetation. Annual progress under the programme is accelerating towards substantial completion within 5 years. The Council has publicly stated its intention to regulate its riparian management programme through its resource management plan provisions and this will capture those few farms yet to implement plans and ensure ongoing compliance for those who have completed their programmes.

28) The Taranaki hill country sustainable land management programme focuses on achieving sustainable land management practices in the steep eastern hill country of the region. This is an area of approximately 400,000ha, of which more than 70% is indigenous vegetation, 10% exotic forestry, and the remainder pastoral farm land. The Council has worked with landowners to prepare over 450 farm plans covering over 200,000ha. Farm plan recommendations, which are principally based on detailed land use capability assessments, include actions focused on reducing erosion, including – exotic and indigenous forestry planting, permanent land retirement, fencing and poplar pole planting. Much progress has been made with 90% of farm plan recommendations having been implemented in whole or part. Long term monitoring of sustainable land use shows that 87% of the hill country is currently being sustainably managed as identified by Landcare Research.

29) The riparian and hill country programmes proves the value of a bottom-up approach that emphasizes winning support from the community in question, as the first stage towards effective intervention.

30) Through the Council’s own peer reviewed data, independent scientific analysis and expert accounts we know that Taranaki’s approach to
freshwater management is producing the desired environmental outcomes. Professor Bruce Clarkson (Deputy Vice-Chancellor Research, University of Waikato) has stated that “… Taranaki is on a trajectory, which puts it at the forefront of a more sympathetic and intergenerational approach to land and water management. This comes in the form of regenerative and sustainable agricultural practices and landscape scale ecological restoration” (Transforming Taranaki, 2019 – Appendix 1). NIWA’s and the Council’s own monitoring data show that Taranaki’s rivers and streams are at, or near, the best ecological health ever recorded. Taranaki’s river ecology trends (1995-2018) at 57 sites show that 47% of sites are improving, 53% have no obvious trend and none are deteriorating. NIWA have independently concluded that the “landscape scale restoration …of the Taranaki Riparian Management Programme has had beneficial effects on stream health and water quality for human health and recreation in the region…” (Analysis of stream responses to riparian management on the Taranaki ring plain, NIWA, 2008 www.bit.ly/RiparianReport2018)

31) The Council therefore cannot find justification for further nationally imposed regulation-based interventions that enshrine a one-dimensional approach to improving stream health (i.e. by manipulation of nutrient concentrations), when a demonstrably effective alternative (based on bespoke management, hands-on delivery, mitigation of multiple drivers of stream health, and most of all community buy-in) is already in place achieving the results desired. This more bespoke, targeted approach to having effective interventions, right down to the farm scale, is consistent with current international trends in land and water resource management.

32) The Council also has a long and effective history of intentional and proactive compliance, monitoring and enforcement (CME). A December 2018 report by The Catalyst Group Independent analysis of the 2017/2018 compliance monitoring and enforcement metrics for the regional sector showed that the Council had the most full time equivalents of CME staff of any regional council in New Zealand. CME staff undertake proactive monitoring of a range of resource consents including all discharge consents. When the high standards set by the Council and the community are not met, the Council takes enforcement action. In the five years to 30 June 2019, the Council issued 996 abatement notices (920 for water related infringements), 411 infringement notices (313 for water related infringements) and initiated seven successful prosecutions (five for water related infringements). Because of this, the Council has a very high full compliance rate of 94.2% compared with a national average of 71.1% (the Catalyst Group, 2018).

33) The 2019 audit of Taranaki Regional Council by the Controller and Auditor-General (OAG) also found that the Council had strong regulatory approach noting that “Taranaki Regional Council was particularly active...in providing good support and useful information to help users understand their obligations under the Resource Management Act, plan rules and resource consents... “(pg 61). “…Taranaki Regional Council .... have comprehensive dairy compliance monitoring programmes and monitor all dairy farm consents annually...Taranaki Regional Council includes how much contact staff have with consent holders in staff performance measures. This helps ensure regular contact” (pg 64). “We were satisfied with Taranaki Regional Council’s approach. Its rigorous approach helps maintain the integrity of its overall environmental management model. It also shows that being strong and effective environmental regulator does not preclude having healthy and co-operative relationships with land owners” (pg 65). “Taranaki Regional Council’s healthy relationships with farmers enables it to maintain a strong approach to compliance while working alongside them to implement its voluntary riparian management programme”

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3 Managing freshwater quality: challenges and opportunities, Controller and Auditor-General September 2019
Taranaki Regional Council has a strong approach to regulatory enforcement that includes warranting its compliance team and empowering it to issue abatement notices on-site.

34) Given that stream health across the region is already good by national measures, the imposition of a national-level framework involving further consenting and compliance-based performance would offer marginal added value at high administrative cost and diversion of resources from practical stream health enhancement.

35) The Council is very concerned that aspects of the Government’s proposal (such as the requirement to reach stringent dissolved inorganic nitrogen (DIN), dissolved reactive phosphorus (DRP), and sediment attribute limits) will divert the Council’s and community’s resources away from scientifically proven successful initiatives to those that, while well intentioned, are very expensive and not likely to achieve significant environmental gain.

36) In September 2019, the Office of the Auditor-General report Managing freshwater quality: Challenges and opportunities was released. Importantly, the Controller and Auditor-General noted that he was “...concerned that there is not enough information about freshwater at a national level to prioritise efforts on a national basis. Decision-makers do not have the information they need to prepare a national approach or long-term strategy to this significant environmental issue.” Given this strongly worded statement, the Council is concerned that the Government is rushing through a national proposal which could undermine both the effective work achieved in Taranaki at a regional level and the goodwill of a community dedicated to achieving enhanced water quality.

37) The Council has continually tested the effectiveness of its interventions against recognised science, ongoing monitoring of both uptake and outcomes, and independent audit. On the other hand, the Council notes with concern the above comments of the OAG, concerns which are reinforced when the STAG’s own recommendations are noted: 'Recommendation 15: undertake urgent work to fill the identified knowledge gaps which currently constrain our ability to effectively manage freshwater and the health of freshwater ecosystems...we are particularly concerned that the current framework for freshwater management has important gaps relating to...applied science to describe what is required to lift ecosystem health to meet community objectives and support adaptive management'.

General comments

38) The Council supports the Government’s goal of maintaining and enhancing freshwater quality across New Zealand, and indeed Taranaki has been following that pathway for more than three decades already.

39) Notwithstanding that support, the Council is concerned that the Government has had insufficient regard to social and economic costs of their proposals, that the underpinning scientific rationale for key aspects of the proposal is poorly defined if not highly selective, and that the Government has had insufficient regard to the capacity of the sector (and others) to deliver.

40) The Council also acknowledges the submission from Local Government New Zealand and broadly supports their ‘Solutions’ where they align with the relief sought in this submission.

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Dissolved Inorganic Nitrogen Limits (NPS-FM – Appendix 2a)

41) The Council strongly opposes the use of dissolved inorganic nitrogen (DIN) as an attribute requiring nationally applicable compulsory limits. There is a demonstrably poor correlation in Taranaki between nutrient concentrations and instream ecosystem health (and anticipated instream effects). Indeed, this has also been emphasized by the Prime Minister’s former Chief Science Advisor, Sir Peter Gluckman: ‘Determining acceptable level of nitrogen and phosphorus is complex because different situation (eg light/shading, river flow regimes, river bed type, lake type) influence the response of algae and lead to one or the other nutrient being the limiting factor for the growth of plants and determining the trophic state’.

Sir Peter went on to point out the need to establish **locally-relevant objectives for water quality and ecosystem health. The differences in waterbody character greatly influence management actions and their outcomes** (emphasis added).

42) He further pointed out ‘These dynamics, and between-river variations in other influences including flow regimes, shade (and water temperature), bed stability, and grazing by benthic herbivores, lead to high variation in nutrient/periphyton relationship (Larned, 2010) and high uncertainty in statistical models used to predict periphyton biomass from these combined influences (Snelder et al, 2014). As a consequence, location-specific studies and location-specific nutrient targets are needed to effectively manage periphyton. This is very complex and difficult from a management perspective. In discussing whether nutrient limits can control eutrophication, Sir Peter noted that ‘given that trophic status can vary spatially and temporally due to a number of dynamic factors including climate, flow, geology, soil composition, and biological processes, this is now considered to be overly simplistic’.

43) The Council’s analysis of freshwater monitoring data indicates that around two-thirds of all the waterways on the southern ring plain around Mt Taranaki fail the proposed DIN national bottom line, yet with little to no eutrophication effects in our waterways and generally good to excellent instream ecosystem health. For example, only two of the 11 sites in the Taranaki region for which both chl-a and nutrient data are available, meet both of the proposed DIN and DRP bottom lines. Yet every site lies in the ‘A’ band for the effect being controlled, that of chl-a in periphyton as a measure of trophic state. Our experience from our own data sets is that there is a poor correlation between nutrient concentrations and macroinvertebrate scores This reflects the complex nature of ecosystem health with multiple drivers all working in differing ways in different locations. The Council’s analysis and observation has been independently verified by NIWA.

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5 New Zealand’s fresh waters: Values, state, trends and human impacts, Summary report, Office of the Prime Minister’s Chief Science Advisor, April 2017 pg xxvi

6 New Zealand’s fresh waters: Values, state, trends and human impacts, Technical report, Office of the Prime Minister’s Chief Science Advisor, April 2017, pg 11

7 Ibid, pg 50

8 Ibid, pg 49

9 Analysis of stream responses to riparian management on the Taranaki ring plain, NIWA March 2018, pp29-30
44) On the other hand, the cautionary note expressed by MfE’s consultants should be given full recognition:

“...It is generally recognised that nutrient concentration criteria are highly site specific (Biggs, 2000; Snelder, 2018). A recent analysis suggests that total nitrogen concentrations that are consistent with the periphyton bottom line vary spatially between approximately 0.2 to 3.5 mg L\(^{-1}\) (Snelder, 2018).

A key assumption in this analysis was that periphyton bottom lines would be achieved purely by managing instream nutrient concentrations. This is a conservative assumption (i.e. it maximises the impact of the current NPS-FM requirements) because measures other than nutrient concentration management can contribute to achieving periphyton objectives. Stream shading may be a more effective measure for achieving the periphyton bottom lines in many, particularly small, streams and rivers. Stream shading may reduce the need partially or wholly to reduce instream nitrogen. In some situations it may be possible to manage periphyton biomass by managing river flows, for example where additional flushing flows can be provided from hydro power facilities. However, it is expected that nitrogen load reductions are the most generally applicable method of managing periphyton biomass.”\(^{10}\)

45) The Council notes that at numerous public meetings and through the media the Ministry for the Environment (MfE) staff and the Minister for Agriculture have stated that tighter controls over nitrogen leaching were to the betterment of agriculture as it serves our international reputation. However, internationally, the use of DIN or nitrate criterion for management of freshwater ecology has been considered and found wanting due to lack of scientific validity. This includes the United Kingdom Technical Advisory Group (UKTAG) who provides instruction to the Government on the Water Framework Directive (which requires the setting of biological and physico-chemical standards necessary to protect and enhance the country’s waterways). All standards set by the UKTAG are intended to support at least good ecological status (ecological status can be categorised as high, good, moderate, poor and bad). In respect of DIN/nitrate, the UKTAG found:-

“...Although nitrogen may have a role in the eutrophication in some types of freshwaters, we consider the general understanding of this to be insufficient at present for it to be used as a basis for setting standards or conditions. The possibility is too strong that the statistical associations produced by these methods would represent correlation between nitrogen and phosphorus (and other factors), and not the standards for nitrogen that are truly needed to protect the biology. For these reasons no standards for nitrogen are proposed in this report.”\(^{11}\)

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\(^{10}\) Essential Freshwater: Impact of existing periphyton and proposed dissolved inorganic nitrogen bottom lines, September 2019 Ministry for the Environment

\(^{11}\) UK Environmental Standards and Conditions (Phase 1), April 2008, WFD UK TAG Pg 31. A subsequent revision of nutrient limits in 2014 did not see fit to introduce any DIN/nitrate standard.
Considering that DIN is not widely recognised internationally as a valid indicator of freshwater ecological condition, the Council is questioning why the Government is setting compulsory limits which are not well-supported outside New Zealand and will not necessarily have ecological benefits. This only serves to engender criticism of ourselves and from others for not meeting a standard – albeit one the Government has invented.
Appendix 2 of this submission provides further details supporting the Council’s discussion in relation to DIN.

**Economic Impacts of Dissolved Inorganic Nitrogen Limits**

48) The Council notes that should the Government persist with their proposals to apply the proposed DIN limits, the social and economic consequences in Taranaki are likely to be severe as farmers will need to change their land use, amend their land use practices, reduce stocking rates, and absorb substantially increased compliance costs. Surprisingly, given the questions around the scientific validity of using DIN limits to drive freshwater quality improvements, the Government has undertaken no meaningful analysis of the social and economic costs of their proposals, particularly with reference to regional and local scales.

49) Unfortunately, the 6-8 week consultation period on the Essential Freshwater proposals limits the Council’s opportunity to undertake its own social and economic analysis of the consequences of the entire *Action for healthy waterways* package. However, the Council has commissioned Simon Harris of Land Water People to prepare an *Assessment of the agricultural economic impacts of DIN limit proposal in Essential Freshwater package in Taranaki.* This work is built on previous analyses conducted by Mr Harris on the Taranaki situation commissioned by the Council in the earlier development of Taranaki’s freshwater plan proposals.

50) Harris modelled three alternatives for reducing DIN concentrations in receiving waters to deliver the proposed DIN bottom line; - (i) an equal proportional reduction for every farm on the southern ring plain of Taranaki; (ii) a single and universal N cap; and (iii) conversion of dairy farms to forestry. This report is provided in full as Appendix 3 and the key points are listed below:

- To achieve the N loss reductions in south Taranaki, manageable land uses (land use that can alter its N loss, such as farming, as opposed to land uses that cannot such as forestry and conservation forestry) must reduce N loss by 46%.
- If using the N cap approach, the N cap for south Taranaki would be 27.2 kilograms of N per hectare.
- The costs to achieve these reductions would exceed $100,000 per annum for 33% of farms and $50,000 per annum for 70 percent of farms.
- This is likely to involve large scale changes to affected catchments, and substantial disruption to the existing structure of farming and the community.
- To achieve reductions in N losses of approximately 50%, dairy farms are likely to have to make major changes to the farm system, such as moving all stock off pasture to herd homes and the capture of all effluent.
- The average debt to equity ratio for Taranaki farms in 2017/18 was 53%. In this year the average farm also made a loss and a return on equity of -8.4%.
- Approximately one quarter of farms are vulnerable to a sustained decrease in operating profit. A 46% N loss reduction could result in a 33% reduction in operating profit with land values likely to decrease by a similar amount. Such a decrease would result in a significant proportion of Taranaki farms becoming insolvent.
- The overall mitigation cost of the DIN limit for south Taranaki farms is estimated to be in the order of $46-$60 million per annum.
• To achieve the DIN limit through conversion of land uses, large parts of the southern Taranaki ring plain (up to 30,000 hectares or 32% of the area) will need to be converted to forestry and lost to dairying.

• Conversion to forestry represents the lowest N mitigation cost when returns from greenhouse gas emission absorption are included. However, it relies on a continued robust market for forest products and NZ Units, which is not guaranteed if large scale conversion to single species (radiata) forestry occurs.

• In the N cap approach, there are properties in high rainfall areas which will need to reduce losses by over 80%. This could only be achieved by conversion to forestry or retirement of the land.

• The socio-economic impact to Taranaki region is expected to be substantial, particularly in the rural areas affected and for local businesses and communities that provide support services to dairy farms. Taranaki will typically expect to see falling populations in affected areas, loss of scale for services providers, and flow on impacts into the regional towns of Stratford, Hawera and New Plymouth. Household incomes of business owners and their employees will be affected, the impacts will extend into businesses that are not directly related to the agriculture sector. Conversion to forestry would result in reduced local population and associated impacts on local businesses, schools, clubs and community organisations, and a resulting reduction in health and other community services.

• For specific areas and farmers, the effects of the Essential Freshwater package will be in the same order of magnitude as the last rural downturn in the 1980s – 1990s.

51) The Council notes that the finding from the Land Water People report are broadly consistent with the three economic impact reports on the Action for healthy waterways package commissioned by DairyNZ. Further, the Council notes that all these economic reports relate only to dairy farming. The impacts on hill country farming are likely to be equally significant.

52) The Council requests the Government to reconsider imposing DIN and DRP limits. Again we highlight that the major impacts on Taranaki’s dairy farming industry with spill-over consequences to the regional economy are unlikely to yield any more than marginal gains in ecological benefits as for most measures of ecosystem health the affected catchments already have A or B ratings.

Relief sought:

a) That DIN limits be removed from the NPS-FM;
   OR
b) That Taranaki be excluded from any requirement to meet DIN national bottom lines;
   OR
c) That the DIN national bottom line only apply to those regions where there are proven ecological health problems and these have been proven to be caused by DIN.

**Dissolved Reactive Phosphorus Limits (NPS-FM – Appendix 2a)**

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12 Economic impacts of the Essential Freshwater proposals on New Zealand dairy farms, Dr G Doole, October 2019
13 The economywide effects of proposed environmental policies, Sense Partners, October 2019
14 Regional and National Impacts of Proposed Environmental Policies on the New Zealand Dairy Sector, Infometrics, October 2019
The Council opposes the use of dissolved reactive phosphorus (DRP) as an attribute requiring limits.

The Council’s analysis of freshwater monitoring data indicates that around three-quarters of all the waterways on the entire ring plain around Mt Taranaki would fail the proposed DRP national bottom line, by up to 280%; this is despite DRP levels in Taranaki being lower than in most intensive dairying regions.\textsuperscript{15}

The Council notes that the proposed NPS-FM bottom line for DRP is much more stringent than that applied within Europe. For example, the UK threshold for ‘good’ ecological condition is 2-3 times higher than that proposed in New Zealand for its new ‘bottom line’.\textsuperscript{16} Many sites in the UK which achieve the UK’s highest ecological condition rating would fail to meet the proposed New Zealand bottom line. Given that the Government is stating that they wish to achieve similar ecological objectives as for the UK, a fair assumption would be that the desired attributes and limits would be comparable. However, by comparison, New Zealand’s proposals are extreme, without rigorous scientific justification. They would unfairly condemn a large portion of rural New Zealand to failure or substantial cost – without achieving any predictably significant net environmental gain.

Statements by the Prime Minister’s former Chief Science Advisor, Sir Peter Gluckman, provide an important context in considering whether limits are justified, and if so, at what level they should be pitched: ‘All consumptive uses of water have some impact on the freshwater environment, even where water recycling is involved\textsuperscript{17} ... Even where restoration has occurred, this is generally not to the original state, nor can it be, given the fact that humans and terrestrial mammals are only recent arrivals\textsuperscript{18} ...it is inevitable that fresh water quality has changed since humans arrived in New Zealand...This knowledge should help support realistic expectations about what can be done, given the context of a country that has a very different human, animal, and land-use profile to what existed 200 years ago\textsuperscript{19}.

The cautionary note expressed by the UKTAG in 2014 should be given full effect:

‘...This approach is designed to take account of the natural variation of nutrient concentrations along rivers and site-to-site differences in the ecological response to elevated concentrations....the proposed standards represent a major step forward in matching nutrient concentrations to ecological change. However, it is also clear that factors other than those taken into account in the method for setting the standards can affect the extent to which water plants at any individual sites respond to a given nutrient concentration...the proposal is not to seek costly action to reduce phosphorus concentrations at individual sites without appropriate ecological evidence of nutrient-related impacts.’\textsuperscript{20}

\textsuperscript{15} Nitrogen and phosphorus in New Zealand streams and rivers: control and impact of eutrophication and the influence of land management, New Zealand Journal of Marine and Freshwater research 2009 Vol 43 pp 985-995, RW McDowell, S Larned, and DJ Houlbrooke. Available at https://www.tandfonline.com/doi/pdf/10.1080/00288330909510055
\textsuperscript{16} Water Framework Directive implementation in England and Wales: new and updated standards to protect the water environment May 2014, DEFRA pp18-19
\textsuperscript{17} New Zealand’s fresh waters: Values, state, trends and human impacts, Summary report, Office of the Prime Minister’s Chief Science Advisor, April 2017, pg xix
\textsuperscript{18} Ibid, pg xxxv
\textsuperscript{19} New Zealand’s fresh waters: Values, state, trends and human impacts, Technical report, Office of the Prime Minister’s Chief Science Advisor, April 2017, pp 2-3
\textsuperscript{20} WFD, Pp18-19
58) It is understood that the Government’s intention is to improve ecosystem health. However, as is proven by Taranaki’s example, lower DRP limits do not correlate with better ecosystem health measures - for most measures of ecosystem health the affected catchments already have A or B ratings.

59) The Council notes and supports Section 3.23 of Subpart 4 of the proposed NPS-FM allowing for exemptions from having to meet national bottom lines when a council is setting target attribute states for a water body or part thereof, and the effect of naturally occurring processes is to make even the national bottom line unattainable. Exemptions may be appropriate for Taranaki, noting that the volcanic rock and soils of Mount Taranaki and the surrounding ring plain have naturally high concentrations of phosphate, which by virtue of natural cycling of forms of phosphate will continually release DRP into interstitial (pore) water within the soil structure, and by subsequent transport into waterways. Even in very close proximity to the boundary of the Egmont National Park, DRP concentrations are close to or above the proposed national bottom line for DRP. Therefore it is eminently sensible to apply an exemption.

60) The Council supports having exemptions, in principle, but would first seek that DRP limits be removed from the NPS-FM. As a matter of principle, the onus should be on the Government to prove the necessity and justification of a universally imposed intervention, rather than on the Council and community to prove (and be burdened with the cost of proving) that an imposed regulation is in fact unwarranted and superfluous.

61) For the record, the Council notes that it continues to pursue measures of proven effectiveness that will reduce loss of DRP to waterways from pastoral areas. Completion of the region’s stock exclusion and planting programmes along all waterways, together with the diversion of substantially all discharges from dairy shed effluent from waterways to land irrigation, is estimated to achieve a 35% reduction in DRP over current loadings. The gross investment cost to the farming community of the entire effluent diversion and riparian management programmes from their commencement more than 25 years ago to completion within a few years, will be in the order of $287 million (current value), with multiple water quality, stream health, biodiversity, and aesthetic benefits.

62) In terms of the simple practicalities of options for reducing DRP further in order to meet the proposed limit, the only obvious choice is to deliberately mine the existing concentrations of DRP within the soil - that is, strip the soil of its fertility and productivity, in order to move a small way towards a limit that requires reductions to one-third of existing levels.

63) Further, the Council has already become aware of a perverse outcome from the NPS-FM proposal for stringent DRP limits: the Council is fielding enquiries from industries that rely on phosphate-based chemicals for anti-corrosion water treatment in cooling tower and boiler systems, such as the region’s power stations. Such chemicals inevitably end up in frequent or continuous discharge to waterways via blow-down discharges. Given the priority given in the NPS-FM on reducing DRP in receiving waters, the companies are considering switching to zinc-based dosing regimes to demonstrate good environmental stewardship and awareness. Given the known acute and chronic toxicity of zinc (or alternatives such as copper-based anti-corrosion matrices) to aquatic life at extremely low levels, and widespread existing low-level zinc contamination of waterways through urban and rural runoff, the NPS-driven incentive for industries to switch away from sources contributing phosphate is blinkered and poorly considered.

64) Appendix 2 of this submission provides further details supporting the Council’s discussion and relief sought in relation to DRP.
Relief sought:

d)  That DRP limits be removed from the NPS-FM;
    OR

e)  That Taranaki be excluded from any requirement to meet DRP national bottom lines;
    OR

f)  That the DRP national bottom line only apply to those regions where there are proven ecological health problems and these have been proven to be caused by DRP.

Waingongoro River (NES – Schedule 1)

65) For the reasons already discussed above the Council questions the Government’s approach of fixating on high N levels when identifying Schedule 1 ‘at risk catchments’ in the NES-FM. There are 23 attributes for freshwater quality and, as previously discussed, DIN is found to be a poor attribute for use as an indicator of ecosystem health within the Taranaki region.

66) The Waingongoro catchment is one of those identified as a ‘schedule 1’ river in the proposed NES and therefore one of 13 catchments flagged for more rapid management changes than the rest of the country. The discussion paper alludes to MfE and DOC’s combined expertise about freshwater biodiversity, ecosystem health, and land use intensification that has resulted in the co-development of a model (page 82) that presumably has resulted in ‘at risk’ catchments being identified. However, this expertise/modelling disregards ‘real’ instream conditions of the actual stream health.

67) It is the Council’s understanding that the “impacts” that the NES and NPS-FM are trying to address are poor macroinvertebrate community index scores, poor periphyton states, poor ammonia and nitrate toxicity states and poor oxygen levels. However, state of the environment monitoring results for the Waingongoro River clearly shows generally good to excellent instream health as measured by macroinvertebrates, periphyton, and chlorophyll-a. Macroinvertebrate community index scores are showing significant improving trends. In fact, the Waingongoro River is one of Taranaki’s fastest improving rivers and this has been achieved through riparian management and a reduction in point source discharges.

68) As an aside, it is observed that in terms of suitability for recreational use during the 2018/2019 bathing season, the Council’s mid-catchment site recorded 100% compliance with the 2003 MfE/MoH guidelines, while the lower site (just above the marine influence) recorded over 90% compliance across all samples. Further, cyanobacteria levels remained below guidelines at all times at both sites.

69) LAWA’s ‘River of the Month’ video below explains the success the Council and the Waingongoro community have had in improving the river.
The Council commissioned Simon Harris from Land Water People to assess the economic impacts of the Government’s DIN proposals. In his report, Assessment of the agricultural economic impacts of DIN limit proposal in Essential Freshwater package in Taranaki, attached as Appendix 3, he noted the following impacts regarding the use of the Option 1 interim N Cap for the Waingongoro catchment:

- The requirement for all farmers to reduce N losses to the 75th percentile of all losses in the Waingongoro catchment will mean that all farms will have to be at or below 58 kilograms of N per hectare.

- The Waingongoro catchment’s land use is largely in dairy farms with most of the land in higher rainfall areas (>1500mm).

- 25 percent of properties in the Waingongoro catchment will be affected and this would result in approximately a 10 percent reduction in N losses for the catchment.

- The total estimated cost of meeting the interim N cap for the catchment is $1.16 million per annum. This is an average of $30,000 per affected property. Some properties will experience costs exceeding $100,000 per annum.

- There will be practical difficulties in implementing the required changes in such a short period.

- The reduction in profitability and associated reduction in land values would appear to have the possibility of rendering numerous farms insolvent.

As an aside, it is widely recognised that the Waingongoro catchment contains some of New Zealand’s (and internationally) best ‘dairying’ country. It is the home of New Zealand’s export dairy industry.

It is illogical to deem this catchment as a ‘degraded’ catchment in need of immediate national-level intervention and to require that farmers endure immediate, added significant and unwarranted costs,
to achieve an ecosystem health level that has already been achieved and will be further enhanced through the programmes and measures already underway and of proven effectiveness.

Relief sought

g) That the Waingongoro River be removed from the Schedule 1 of the NES;  
AND

h) That the Government re-visit its approach of identifying ‘at risk’ catchments to focus on evidence-based water quality issues and outcomes.

Nitrogen Cap and use of OVERSEER (NES – Subpart 4 & others)

73) The Council is opposed to the proposal to use nitrogen caps requiring the use of OVERSEER as a regulatory tool. Our concerns exist both for the formulation of nitrogen caps in the Schedule 1 catchments and if nitrogen loss caps were to be more widely imposed.

74) The designation of OVERSEER as the obligatory regulatory tool, (either explicitly in the NES Schedule 1 catchments or implicitly elsewhere in the NES) by which farmers must calculate their diffuse losses of *E coli*, nutrient, and sediment to the wider environment, and by which councils must determine the magnitude of drivers of offsite effects and must regulate farmer practice, is opposed in full. The Council’s analysis shows that OVERSEER use within regulation in the context of the proposed nutrient, sediment, and *E coli* limits will impose high additional individual on farm costs, and hence the community, with little or no demonstrable environmental benefits for our receiving waters, create a sense of inequity and frustration, and bring the credibility and integrity of the proposed NPS-FM into disrepute.

75) The Council’s concerns, and those of many other authorities and experts, including the Parliamentary Commissioner for the Environment, are set out in Appendix 2. It is illogical that at the same time as the Government has announced major funding to review the OVERSEER model, it is simultaneously making its use compulsory in short order – with no certainty that that the plethora of issues relating to OVERSEER’s use in regulatory framework can, or will, be able to be addressed. OVERSEER cannot be acceptable as a tool of regulation under such circumstances.

76) A regulatory tool must be able to be to demonstrate, beyond reasonable doubt, its association with an environmental outcome. OVERSEER, as a model is unable to do this so regardless of how much money is spent upgrading it, OVERSEER will fail to meet the legal burden of proof requirement.
Figure 2  Overseer N losses (Kg/ha/yr) and annual rainfall in Taranaki
The Parliamentary Commissioner for the Environment (PCE) in his report on OVERSEER and regulation noted that for farms with characteristics that are similar to those from which field data has been gathered and used to calibrate the model, the uncertainty for predicted nitrogen losses was 25-30% (excluding errors associated with measurement or uncertainty from data input). For farms that have characteristics that differ from those used for calibration (such as Taranaki farms), higher levels of uncertainty can be expected. It is likely that the uncertainty exceeds 50%, but could be much higher still. The PCE noted, for example, in Canterbury, OVERSEER estimates of nitrogen leaching from dairy farms on light and poorly-drained soils could be anywhere from nearly 40 per cent below to 60 per cent above the actual leaching rate. For one of the management areas in the Waimakariri Zone, the experts were 90% confident that the estimated nitrogen loads were somewhere between 399 tonnes N/year to 910 tonnes N/year. This variation is significant by any standard and it is highly inappropriate to base the viability of people’s livelihood on such an exceedingly inaccurate tool.

The Environment Court has also recently released a decision that found OVERSEER is not fit for purpose as, and should not be used as, a regulatory tool in the absence of fundamental re-development. The Court also found that OVERSEER cannot be meaningfully applied at farm level to determine off-site effects without comprehensive (and thus very expensive) site-specific calibration and validation. This material is set out verbatim in Appendix 3C of Appendix 2 [The status of OVERSEER in the Environment Court]. The finding of the Court that ‘It is important to note that OVERSEER is a long-term prediction model of nitrogen outputs and cannot be used to predict short-term management outcomes or changes that may be required to day-to-day farm operations’ must be given full weight.

Analysis by the Council of a suite of OVERSEER results across the ring plain (see Figure 2) demonstrates unmistakably that OVERSEER modelling is dominated in Taranaki not by poor farm management and operations, but by annual rainfall. Initiatives to drive down DIN in receiving waters (even if they could be justified on the grounds of clear and significant benefits for stream ecological health) will founder if based around OVERSEER-weighted interventions. The inevitable outcome will be the loss of dairying above mid-catchment altitudes across the southern Taranaki landscape.

A NIWA study specifically investigated sources and flows of nitrogen in a catchment on the southern Taranaki ring plain. The study found that calculated rates of nitrogen leaching using OVERSEER were very sensitive to rainfall, far more than to actual on-farm farm practice. Figure 3 below is reproduced from the independent study.

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22 Source and specific yields of nitrogen and phosphorus in the Waiokura catchment, NIWA Client report HAM2015-124, October 2015
The catchments of Taranaki encompass rainfall that varies from below 1200 mm per year at the coast, to over 5000 mm at the Egmont National Park boundary. The farms in higher rainfall zones inevitably have higher leaching loss estimates.

Further to this, the Council’s monitoring data shows that increased rainfall does not correlate with higher levels of nitrates in shallow, oxidised, groundwater in Taranaki (Figure 4). Clearly, while OVERSEER states there are high nitrogen losses in high rainfall areas, it is a false extrapolation to suggest this means high nitrogen concentrations in the receiving waters.
Therefore, while the proposal’s intent is to target farms with poor environmental practices, its design does not appear to distinguish farms in high rainfall zones versus those in lower rainfall zones. The controls to be imposed are just as likely to fall on those with best current management practices, as the lowest adoption.

Finally, there is going to be a significant added cost on ratepayers to enforce NES N-limitation requirements within a compliance regime, especially within the Waingongoro catchment if it is kept within Schedule 1, but equally and in any case across the entire Taranaki ring plain. The Council’s current policy direction of stock exclusion and riparian planting on all waterways, together with diversion of essentially all remaining dairy effluent discharges to land irrigation instead of to surface water, and the promotion of good farm practices, requires the full attention of current policy, land management, consenting, and compliance staff. The NES addition of OVERSEER-based farm plan considerations and an associated second layer of consenting imposes a major increased and costly burden, without evidence of an efficient or effective environmental outcome.

Relief sought:

i) That the use of OVERSEER not be a requirement for any clause in the NPS-FM or NES.

j) That nitrogen caps not be used to manage the ecological health of freshwater.

k) Delete subpart 4 of Part 3 of the NES in full; and

l) Either delete 33(3)(c), 34(3) (c), 35(4)(c), and 36(3)(c), from subpart 2 of Part 3 of the NES (these subparts being those that generally require a consent condition showing the nitrogen, phosphorus, sediment, or microbial pathogen discharges of the farm will not increase as a consequence of the intended land use change), or alternatively, provide that these subparts can be satisfied by documenting equivalent farm practices or other means, and need not be satisfied by use of OVERSEER model.

Sediment (NPS Subpart 2, Subpart 4, Appendix 2A, 2B and 2C)

The Council strongly opposes the use of sediment as an attribute requiring compulsory limits. As with nutrients, there is a demonstrably poor correlation in Taranaki between sediment concentrations and instream ecosystem health (and anticipated instream effects).

In Taranaki, hill country rivers have suspended sediment levels that are up to three times above the proposed new standard, due to the soft and highly erodible nature of the landscape. Given that the sandstone and mudstone soils of Taranaki’s eastern hill country are naturally highly erodible, and that slumping and landslips are routine given the frequently wet weather patterns (with intensive downpours a common occurrence), there are high levels of sediment in waterways.

This is all despite around 70% of the Taranaki hill country already being indigenous vegetation, along with a further 10% exotic forestry with only a relatively small area of viable farm land remaining.

The Council’s focus in the hill country has been on achieving sustainable land management practices, i.e. keep the soil on the slopes and out of the waterways. Sustainable management involves matching soils and slopes with the appropriate land use. This has been achieved via tailored farm plans with recommended interventions that focuses on reducing erosion and associated sediment loss. The challenge however as noted above is that Taranaki has naturally high sediment levels in its hill country
waterways and it is unlikely regardless of the interventions, that the proposed sediment limits could be achieved in Taranaki over any time frame.

89) Council monitoring shows that currently 82% of the most erosion prone land has a farm plan and 90% of farm plan recommendations to improve sustainable land use have been implemented in whole or part. With these plans being progressively implemented they are expected to deliver reductions in river sediment levels over time according to the New Zealand Empirical Erosion Model figures in Council’s latest State of the Environment Report. However, the informed belief of the Council is that an unbridgeable gulf between achievable in-stream sediment concentrations and the NPS limits would remain.

90) Despite hill country waterways having relatively high levels of sediment, Council monitoring shows that ecosystem health is good and generally improving and that Taranaki’s rivers do not generally aggrade. State of the environment monitoring also shows that 87% of the hill country is being sustainably managed.

91) The Council is therefore concerned that the Government is proposing universally compulsory new bottom-line standard for suspended sediment that impose significant compliance costs on land owners and the region when local evidence shows an uncertain correlation between sediment levels and ecosystem health (while there may be an impact from high sediment levels on MCI scores this is not a linear relationship).

92) The compulsory new bottom-line standard for suspended sediment, if adopted will be highly problematic for sheep and beef farmers in the eastern hill country. The sheep and beef sector contributes approximately $112 million GDP per annum to the regional economy. This proposal will add significant cost for limited benefit over and above current initiatives and in some cases farming businesses are likely to not be viable into the future. With the time available the Council has not been able to undertake an economic impact assessment to quantify impacts of this proposed bottom-line on hill country farming businesses, but recommend that the Government should do so to fully understand the likely serious implications of such a proposal.

93) Based on the above, it is the Council’s view that the proposed sediment limits are not the appropriate or necessary outcome measurement for the Taranaki hill country with its high sediment levels. The Council strongly urges the Government to focus on more appropriate intervention measures, notably ecosystem health and land use sustainability.

94) The Council notes that Section 3.23 of Subpart 4 of the proposed NPS-FM allows for exemptions from having to meet national bottom lines when a council is setting target attribute states for a water body or part thereof, and the effect of naturally occurring processes is to make even the national bottom line unattainable. The Council supports this in principle.

95) Given the above, it is apparent that the attributes of suspended and deposited sediment are too uncertain in their validity and effectiveness to justify inclusion at this time as compulsory attributes within a national regulatory instrument.

Relief sought:

m) That for the Taranaki hill country, sediment limits are not an appropriate measure and should not be used; and
n) That Table 10 (suspended sediment limits) be removed from the NPS-FM; and

o) Outcome monitoring of ecosystem health and sustainable land use should be the primary measures for water quality in the Taranaki hill country;

OR

p) That Table 10 be transferred to Appendix 2B [Action plan rather than national limits]; and suspend Table 10 for 5 years while pilot studies into its application can be undertaken for ‘proof of concept’, validation, and cost-benefit analysis. (Note: this was the approach endorsed by the regional councils’ representative working group with which MfE consulted during the 2018/2019 period); and

q) That suspended sediment levels be required to show improvement but not to achieve national bottom lines, as is the case in Table 11 for E.coli; and

r) That should the suspended sediment national bottom lines remain, it not be required to be met when the Ecosystem Health [Aquatic Life] attributes are above the national bottom line; and

s) That the provision for exemption from national bottom lines through ‘naturally occurring processes’ should be extended to include exemptions that can be applied where councils are dealing with the environmental consequences of current and past Government policies and incentives. These past policies could be identified explicitly within the NPS-FM, or recorded upon submission.

Freshwater Module of Farm Plans (NES Subpart 3)

96) The Council supports the use of non-regulatory farm plans which are bespoke and focused on the interventions that will achieve the outcomes sought at specific locations. Indeed this approach has been implemented by the Council and Taranaki landowners for a long time with significant improvements in water quality.

97) Most Taranaki farms have a farm plan already and have made significant progress implementing them. Within the intensively farmed area of the region 99.9% of farmers have a riparian management plan (refer Figure 5), and in the hill country 67% have comprehensive LUC based farm plans (refer Figure 6), with this figure rising to 82% of the area considered at risk of erosion.

98) In addition to the above tailored farm plans the Council encourages farmers to adopt good farm management practices. Council has worked with industry to support land owners to implement these.

99) With current programmes covering almost all farms in the region and achieving good results the Council does not see the need or value of mandatorily requiring additional freshwater farm plans (FW-FP). The merits (or otherwise) of a regulatory approach are best considered through local planning processes.

100) The proposal around FW-FPs in regard to what they would contain, how they would be developed and the auditing of them adds a layer of bureaucracy and cost which is unlikely in the Taranaki context to achieve any significant improvements for water quality over and above current initiatives. In particular, the proposed systems will result in large compliance costs for both land owners and Council. This will have knock-on effects to ratepayers.
Streambank Protection Key Facts:
- 99.9% of dairy farms have a riparian management plan
- Plans cover 15,916 km of streambank
- 87.1% of dairy farm streambanks protected by fencing
- 75.2% of dairy farm streambanks protected by vegetation

Figure 5  Streambank protection status of Taranaki streams (as at October 2019)
Figure 6  Farm plan coverage of Taranaki hill country farms (as at October 2019)
101) The Council would support FW-FPs as we do now as a non-regulatory tool implemented by industry and individual landowners with support from the Council to assist with integration of our current targeted farm plans focusing on riparian management and sustainable land use practices to reduce erosion and sediment.

102) Taranaki farmers are already achieving impressive results and undertaking vast amounts of work under the Council’s voluntary farm plan regime. For example, Roger Pearce, is one of many Taranaki hill country farmers that have won environmental awards for their protection and enhancement of land, water and biodiversity on their properties. Roger’s property is featured in the video below:

103) In addition to the above issues around costs and benefits of compulsory FW-FPs in Taranaki there would also be significant issues with available capacity to deliver FW-FPs if the Government’s proposal is implemented as suggested.

104) For further information on the farm plans prepared by the Council that already cover the length and breathe of Taranaki please refer to https://extranet.trc.govt.nz/pydio/data/public/4e0535.

Relief sought:

1) That the requirement for FW-FPs to be implemented in Taranaki be removed with recognition that most of Taranaki is covered under existing farm plans which are being implemented effectively.
Intensification (NES Part 3, Subpart 2)

105) Whilst Council understands there may be a need to curb intensification with urgency in some areas of New Zealand, Taranaki is not one of those places as evidenced by our monitoring, low level of intensification over the last two decades and limited opportunity for it within the region.

106) In addition, if the purpose of this proposal is to 'halt further decline' in water quality, then that purpose is already being met or bettered across the region with only rare and often naturally induced minor exceptions.

107) Therefore this proposal for Taranaki would add additional regulatory requirements and associated costs for very limited benefits to the environment.

108) We are concerned that if implemented as proposed, low-risk land use will be the most impacted, effectively in some cases grand parenting current land uses for a period of time. This does not seem logical when on one hand these farms are likely to be required to reduce sediment outputs and therefore retire steep erosion prone land but on the other will be limited in their ability to intensify better land, without costly regulatory requirements.

109) This is a particular issue in the extensively farmed hill country of Taranaki. As noted earlier, much of this area is currently indigenous vegetation with only a small area in pasture. However in many cases the farm land is steep and has portions of the property that are susceptible to erosion. These areas are often better to be retired or in some cases planted in rotation forestry with the farmer concentrating on increasing productivity from the flatter areas of the property. Indeed the Council recommends such actions via its farm plans that cover much of the erosion prone hill country farm land.

110) The basis of farm plans in the Taranaki hill country focus on detailed Land Use Capability mapping, this identifies the limiting factors for differing land types such as erosion susceptibility. Council officers working with the landowner then match land type noting its limitations with appropriate land uses. This is the basis of sustainable land management, a farm-specific tailored intervention approach to problems and issues at the farm scale. Internationally this is considered best practice.

111) It is the Council’s view that this approach is the best way of managing intensification in the Taranaki hill country. Most hill country farms have an existing Council farm plan and these are being implemented well. Monitoring also indicates that 87% of the hill country is currently being sustainably managed. The Council would therefore support the continuation of existing farm plan implementation which is focused on ensuring sustainable land use practices.

112) The Council also questions how practical the implementation of components of this policy would be. Matters such as the regulator knowing when a farmer has changed from beef farming to dairy support or increased the size of their crop paddock suggest a lack of reality and naivety in the proposals.

113) Similarly, the Council notes with concern that the NES proposal for “High-risk land use changes” will inadvertently capture a farm’s scrub clearance cycle. Due to Taranaki’s wet and temperate climate, natural scrub growth and clearance is a regular occurrence (gorse, broom etc.). In the absence of a definition for “wood vegetation,” scrub clearance could be deemed land-use change. The Council supports keeping class 6 land clear for a sustainable land use in many cases. We also note that 10 hectares of scrub would not be deemed significant in the eastern hill country and should not require a discretionary resource consent to clear. Further to this, if farmers feared that they would not be able to
re-clear scrub if left to grow then this could have flow-on implications for the Manuka honey industry as less Manuka may be available. Similarly, there is a risk that forestry will not be planted on erosion prone land if there is a penalty to revert to pasture.

Relief sought:

u) That intensification regulations be targeted to those regions where intensification is occurring; OR
v) That intensification regulations be shifted to the NPS-FM to be dealt with through regional planning provisions.

Stock Exclusion (Draft Stock Exclusion Section 260 Regulations)

114) The Council supports the proposal’s intent to exclude stock from waterways and has considerable operational experience.

115) The Council already has a well-established riparian management programme which is yielding good results for the improvement of water quality in Taranaki. Currently 99.9% of Taranaki dairy farms have a riparian plan, 87.1% of streambanks covered by these plans have been fenced and 75.2% of streambanks protected by vegetation. This has cost the Taranaki community $128 million of which more than 70% of works is funded by farmers. Because of this work, alongside Council’s move to require effluent disposal to land where practicable, 47% of freshwater ecology monitoring sites in Taranaki shows trends of improvement, and the remaining 53% show no evidence of a change in condition. No sites show significant deterioration.

116) The Council has publicly stated that its riparian management programme will become regulated through its Freshwater Plan review. This is intended to ensure that farmers that do not already have a completed riparian management plan will be required to do so.

117) The biggest difference between the Council’s approach and the Stock Exclusion 360 Regulations is that the Council walks along each streambank and decides on a case-by-case basis what an appropriate setback is. This may or may not meet the Regulations requirement for a five metre average setback. Where it does not, it is because it is not necessary nor practical to do so. Please note that the Council requires that all waterways on a property are fenced and importantly planted – not just those over one metre wide, this equates to approximately 30% more waterways being protected to a higher standard in Taranaki than the Government’s proposal.

118) The video below describes the success of the Taranaki Riparian Management Programme.
The Council also requires planting of riparian margins, which the SER do not. The Council argues that the planting aspect is of even more benefit to river health than the fencing setback due to the inception of runoff and the uptake of nutrients by the riparian plants, plus the shading benefits they provide. The Council believes that its Riparian Management Programme, involving property-specific setback distances and coverage of every waterway of any size and whether permanent or ephemeral, plus planting, provides a greater environmental benefit than the Government’s insistence upon an average five metre setback proposal.

The Council is concerned that the SER will undermine the integrity and credibility of the Taranaki Riparian Management Programme with farmers being required to move their fences and no obligation to maintain planting. The SER, if not amended, has the potential to undermine the goodwill established by Council with farmers who have already heavily invested in protecting their streams – while producing lesser environmental benefits (because there is no planting component and no obligation to exclude stock from headwaters) and impacting farm economics.

Relief sought:

w) That properties with rivers and wetlands which are subject to Taranaki Regional Council’s Riparian Management Programme be exempt from the Stock Exclusion Section 360 Regulations as they already have appropriate fencing, the additional protection of planting and are improving ecosystem health.

Wetlands (NPS 3.15, NES Part 2, Subpart 1)

The Council is already actively promoting and thus supports enhancing protection for wetlands. Through the riparian planting programme the Council requires that wetlands on dairy farms be fenced and margins planted. The Council also has a wetland enhancement programme and the Key Native Ecosystems programme that works with land owners and others to promote the voluntary protection and active management of wetlands.
However, the NES and NPS-FM provisions are overly onerous in relation to the imposition of excessive and unnecessary monitoring obligations. Taranaki has approximately 3,000 natural wetlands. Many are already mapped through state of the environment monitoring programmes, riparian plans, farm plans, biodiversity plans etc. Council is looking at options for mapping the remaining wetlands. However, the NES requirement to ground truth all wetlands, particularly those in the hill country, would be difficult given access difficulties across rugged terrain as well as expensive and potentially dangerous.

123) The Council does not support the requirement to monitor every wetland, every year. We note that the Taranaki region has in excess of 3,000 wetlands to monitor and therefore the requirement to monitor their extent, vegetation, hydrology and nutrients (soil and water) will be is unjustified and unrealistic.

Relief sought:

x) That councils only be required to monitor representative samples from each freshwater management unit of wetlands for their extent, vegetation, hydrology and nutrients – as is required for rivers and lakes.

E. coli (NPS-FM Subpart 2, Subpart 4, Appendix 2A & 2B)

124) The Council challenges the inclusion of Table 11 for E. coli, which is set out in Appendix 2A [Attributes requiring limits] of the NPS-FM. The limits set out in Table 11 are irrelevant within the Taranaki region, where rivers are too cold, shallow, dangerous, and/or too fast-flowing to be widely used for contact recreation outside the bathing season. There is incongruity in still requiring compulsory monitoring of risk to public health at the times when the activity of swimming is itself dangerous.

125) The Council supports the inclusion of the second, new E. coli attribute [NPS-FM, Table 23], which is based on contact recreation at times and places when this activity is undertaken.

126) Notwithstanding that support, the Council seeks minor amendments to Table 23. Firstly, Clause 3.13 specifies that weekly sampling is required at primary recreational sites between 1 November and 31 March each year. These dates do not reflect the bathing season in Taranaki, which more realistically begins in mid-December and may continue into early April. The Council further notes that NPS-FM actually contains an internal contradiction: 3.18 (3) refers to a calendar period (1 November-31 March); on the other hand, Table 23 refers to a ‘bathing season’, with no mention of calendar dates.

127) The requirement that the regional council must take all reasonable steps to notify the public when a site is unsuitable for primary contact contradicts the 2003 guidelines, which assign the responsibility for public notification of health risk to the Medical Officer of Health (MoH). There is obvious potential for conflicting public advice, especially during a change of status when time delays between council notifications (the council inevitably being the holder of the monitoring data) and MoH notifications may occur. A regional council has no power or authority to direct the MoH to take steps of any nature. The NPS needs to clarify authority and responsibility in this matter.

128) The Council notes that Section 3.23 of Subpart 4 of the proposed NPS-FM allows for exemptions from having to meet national bottom lines when a council is setting target attribute states for a water body or part thereof, and the effect of naturally occurring processes is to make even the national
bottom line unattainable. The Council supports this in principle but submits that the exemptions provisions need to be widened.

129) The Council notes that there is an ever-increasing body of evidence for naturalised E. coli to be found in waterways across New Zealand. The option of identifying such colonisation where it is occurring, and applying the exemption provision, would be a common-sense approach. The Council further notes that the worst bacteriological contamination of recreational waters in Taranaki is associated with large populations of waterfowl, both introduced and native—seagulls, ducks, and pukekos, for example. The interpretation of ‘could have occurred before the arrival of humans in New Zealand’ becomes problematic in the case of introduced species of ducks and geese, for instance.

130) The Council believes that further exemptions should apply in the case of introduced species such as ducks. There is Government support in legislation and in financial provisions for the proliferation of aquatic game birds across New Zealand. This is in direct and obvious conflict with the Government’s stated intention of requiring improvement of the recreational qualities of fresh water. Why should regional councils and communities have to bear the cost of the consequences of Government support for pollution of waterways by introduced aquatic species?

**Relief sought:**

y) That Table 11 is deleted from the NPS-FM, and that Table 23 is retained subject to minor amendments.

z) That each regional council be able to specify within its regional plan or other documentation, the recognised bathing season for that region (or parts thereof); and that the contradiction in responsibility for notifications of public health risk be resolved.

aa) Retain the provision for an exemption for processes beyond the Council’s control – such as Taranaki’s E. coli concern with native and introduced waterfowl be provided in the NPS.

bb) That the provision for exemption from national bottom lines through ‘naturally occurring processes’ should be extended to include exemptions that can be applied where councils are dealing with the environmental consequences of current and past Government policies and incentives. These past policies could be identified explicitly within the NPS-FM, or recorded upon submission.

**Monitoring (NPS-FM – 3.13 and Appendices 2A and 2B)**

131) The Council strongly believes that the health of waterways is of great importance. It therefore questions why, given the NPS-FM also focusses on ecosystem health, that direct measures of ecosystem health (i.e. macroinvertebrate community measures) are attributes requiring action plans rather than limits. Conversely, the Council questions why measures of possible drivers of health (e.g. nutrient species) are attributes requiring limits, even though their presence may not affect ecosystem health.

132) The Council notes that generating data on QMCI and ASPM will impose additional analytical and calculation costs without necessarily providing a greater understanding of ecosystem macroinvertebrate health in the region’s waterways.

133) The use of more quantitative methodology, as proposed in the draft NPS-FM, has the flavour of being driven by more ‘research-minded’ scientists, not those associated with ongoing environmental management through Regional Council programmes where the ratepayers of the region carry the costs.
of state of the environment monitoring and costs versus value of data and information are critical considerations. It is fundamental to these programmes that data is collected for both representative baseline health and for evaluation of effects and consequences of management interventions to improve or maintain health [through temporal and spatial trending analysis]. The MCI provides the ability to perform these functions and only requires that a representative sample be collected (usually a kick-net) with taxon presence-absence identification (or semi-quantitative coded abundances) sufficient for processing purposes. Restricting methodology to this level, rather than introducing more fully quantitative procedures with consequent resourcing impositions, would enable wider coverage of regional sites and allow for more uniform reporting of data for national comparative purposes such as that currently available on the LAWA website.

134) Sampling for fish is to be undertaken using existing standard methods- trapping, spotlighting, or electric fishing. Problems with these methods are well-known, for example difficulties in physically determining presence and species; fish flight at the commencement of sampling; limited and/or non-representative sampling zones. These highly prescribed methodologies do not recognise emerging alternatives e.g. eDNA, which is being actively developed within the NZ context. Prescription of methods within the NPS-FM will restrict what appears to be a very powerful and relatively cheap new technique for fish management. It is more than likely that within the timeframe of regional plan revision/development (2023), this methodology will be proven and available. The Council seeks that the NPS-FM not preclude the option of adopting better techniques, to the same end, from being utilised.

135) To identify the numeric attribute state of the condition of native submerged plants, a survey at least once every three years is required, but to assess invasive submerged plants, a survey is required at least annually. There seems to be no rationale for either the frequency or inconsistency. The proposed NPS methodology is contrary to the findings of the Science and Technical Advisory Group, who specifically commented ‘Monitoring every five years may be suitable for picking up changes in the extent of macrophyte communities, but a three-year cycle of monitoring may be valuable if combined with a surveillance programme for invasive species and if sites vulnerable to invasion were included in the monitoring programme (ie boat ramps).’

136) The recommended approach to use LakeSPI has been criticised by the regional councils’ Lake Special Interest Group (SIG) as unsuitable for the intended purpose. The Lake Special Interest Group (SIG) has found the LakeSPI to be unable to robustly estimate vegetation cover, especially in shallow lakes, and is actively seeking investment in and development of an alternative vegetation assessment method. Given that NIWA are currently the only providers of robust vegetation surveys in NZ, requiring them to use only the somewhat outdated (2006) LakeSPI would serve as a disincentive to investment in developing and implementing a more fit for purpose methodology, as well as encouraging a monopoly provider position.

137) Initial resourcing costs for the Council’s Science Services team, covering the increase in regular regional environmental monitoring that is proposed within the draft NPS-FM and NES have been carefully estimated. The Council will be required to establish 13 new monitoring programmes and monitor numerous new sites to meet the requirements of the NPS. The estimated additional staff costs

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23 Cawthron Institute, funded through Envirolink and Biological Heritage National Science Challenge. Contact: Joanne Clapcott

24 freshwater Science and Technical Advisory Group Report to the Minister for the Environment June 2019, Pg 35.

25 The regional sector Lake Special Interest Group advise that details will be incorporated within the LGNZ submission
for this are $630,000 each year, together with $406,000 of capital expenditure progressively resourced over the first 5 years. This additional regional environment monitoring represents approximately an average 9% annual general rate increase. This is in addition to current state of the environment monitoring cost in excess of $2.35 million.

138) The costs of monitoring the proposed attributes within the regional environment can be calculated reasonably accurately. The costs of monitoring for compliance with the suite of proposed environmental standards must of necessity be less certain, as the extent to which farmers and land owners (including the Department of Conservation) would wish to undertake activities in respect of wetland management and farm operations that are now to require consents remains unclear. Assuming that the intent of the proposed NPS and NES is to constraint current activities within the ambit of the proposals, so that there is only a limited application of the NPS/NES controls, then a conservative estimate of additional monitoring and enforcement staff across land management and inspectorate staff, together with a minimal increase in policy and consenting staff, is for a further 11-19 FTE staff members.

139) To resource this increase in staff numbers (including Science Services staff as discussed earlier) would mean a general rates increase of between 25% and 45%.

140) The Council is clear that this very significant burden (which will fall in part on those undertaking specific activities and in part on the general ratepayer, but in either case represents an adverse impact upon the region’s economy) would offer at best a marginal improvement in farmer commitment to good practice and to the state of the receiving environment. The Council reiterates that given the absence of a robust evaluation of costs, necessity, efficiency, effectiveness, or certainty over the significance of additional outcomes and benefits, that would justify the multiple interventions and new attributes set out in the proposed NPS, NES, and SER, then MfE should urgently undertake a review of all proposed measures with a view to their withdrawal.

141) These costings also do not make any allowance for any obligations or functions that may arise from the Government’s 3-Waters Programme (still to be announced).

Relief sought:

cc) That Table 13 and 14 of the NPS-FM be shifted into Appendix 2A [Attributes requiring limits].

dd) That Table 15 of the NPS-FM be amended to allow for emerging equivalent techniques.

ee) That the survey frequency for invasive submerged plants be amended to at least once every three years, instead of annually.

ff) That Table 16 of the NPS-FM be suspended for 5 years while an alternative submerged plant assessment tool is researched and developed.

gg) That the number of attributes requiring monitoring in the NPS-FM be reassessed in light of the significant cost burden on Councils and their ratepayers, because of the lack of clear and significant added value for resource management purposes.

Te Mana o te Wai (NPS Part 1: 1.5 Fundamental Concept)

142) The proposed NPS-FM introduces Te Mana o te Wai as a ‘fundamental concept’. The authority and significance of a ‘fundamental concept’ within a RMA planning framework or as an instrument of regulation is not further defined, and further, is novel. The meaning of Te Mana o te Wai is explored in general and vague metaphysical terms, as equivalent to the ‘health and wellbeing of water’. This is now
to be prioritised above all other matters, including any provision for human health ‘needs’ (second priority) and then all other purposes, characterised as ‘wants’ (third priority). The Council notes that Te Mana o te Wai is already a key objective of the 2017 amended NPS-FM 2014.

143) The purpose of an NPS-FM is to set out objectives and policies in relation to freshwater management, and to specify what local authorities must do to achieve those objectives and policies. But the vagueness of the proposed NPS-FM in respect of what Te Mana o te Wai means and how it is to be understood and applied can bring only frustration and uncertainty to councils and communities alike. Attainment will of necessity remain ambiguous and illusive. To quote the NPS-FM itself: [the features of the framework Te Mana o te Wai] "...may be interpreted differently by different people in different contexts...features are relevant to this NPS...may include other things as determined locally...". Such vagueness as to how Te Mana o te Wai is to be interpreted, and how its meaning (and therefore its application) are subject to moment by moment re-interpretation and are highly contextual, mean that councils, communities, and the Environment Court can never definitively and with finality establish how the concept is to be given effect to, but instead must be constantly second-guessing its status and who makes the final adjudication.

144) Further, the hierarchy of prioritisation described within the proposed NPS-FM is potentially conflicting and definitely confusing when embedded into the framework of the purpose statement [S5(1)] of the RMA itself. ‘Upholding the mauri of the water’ is obviously different from managing its ‘use, development and protection’, or ‘avoiding, remedying, or mitigating any adverse effects of activities’ on water. It is anticipated this confusion (if not contradiction) will need extensive testing and clarification through statutory and/or judicial processes, before its interpretation is settled.

145) The expression within clause 2.1(c) that social, economic and cultural wellbeing is somehow separate from and of lesser importance than human health (2.1 (b) is a false and dangerous dichotomy. The need to provide for the social, economic, and cultural wellbeing, security, and resilience of each individual and community are widely recognised as integral components of and contributors to health.

146) The lack of a section 32 analysis of implications of the adoption of the concept of Te Mana o te Wai, and the absence of any well-considered legal analysis undertaken from within the context of existing case law re the interpretation and application of the RMA, around the potential use of Te Mana o te Wai within the NPS, make the emphasis upon the concept appear precipitate and premature. There is no evidence that its proposed introduction as a ‘fundamental concept’ reflects the outcome of a considered choice.

147) Indeed, taken simply at face value, the concept of Te Mana o te Wai and safeguarding the mauri of wai taken in conjunction with the Minister’s stated intention to stop all further degradation of waterways would appear to immediately deem all waterways in New Zealand to be fully allocated as of now. Even giving effect to either the second or third priorities within the new objective (Part 2.1) would at first glance involve a conflict with the primary obligation to uphold the health and wellbeing of waterbodies, as they would of necessity require diminution through abstraction or degradation through discharge of contaminants into the waterbody (even at the most local and limited of scales). Is it the intention of the NPS that New Zealand is forthwith closed to any new ‘business’ (e.g. flow appropriation for municipal services to supply growing populations, with consequent increases in wastewater discharges; new industries and energy utilities needing cooling, washdown, and boiler water supplies or as raw material for products; or greater local, regional and national self-sufficiency in arable and horticultural production and market gardening)? Clarification in its interpretation and
application and reassurance around the robustness of its incorporation into the NPS are urgently needed.

Relief sought

hh) That clear and comprehensive expert advice be sought, publicised and consulted on as to the application of Te Mana o te Wai within the framework of existing RMA definitions and case law, prior to furthering its adoption;
AND
i) that any compulsion around Te Mana o te Wai be withdrawn, and Te Mana o te Wai be made a value that must be considered (Clause 3.7 (1) (b) and Appendix 1B);
OR
jj) That Te Mana o te Wai remains as it is in the 2017 amended NPS-FM 2014 – a key objective of the NPS but without a hierarchy.

New Planning Process for Freshwater (Resource Management Amendment Bill)

148) The Council strongly supports proposals to amend the RMA to introduce a new planning process for regional plan involving hearings by composite national/regional/ tangata whenua panels and only allowing appeals to proposed plans in circumstances where councils depart from hearing recommendations. The Council supports this proposal as it will promote plan agility. It will help councils to move more swiftly through RMA schedule 1 processes to address community concerns regarding freshwater management, thereby reducing overall costs for all parties involved in plan reviews. If anything, this concept merits being applied to all RMA plan development and review processes rather than just being confined to freshwater plan reviews.

149) Notwithstanding that support, there are matters of detail that need to be addressed. Given the limited number of qualified hearing commissioners experienced in water management, and the likely occurrence of concurrent plan review processes for many of the 16 regional councils, there would obviously be constraints in the availability of independent panel members.

150) The notion that the hearings panel may make recommendations on matters that are beyond scope of the proposed freshwater planning instrument and/or submissions is alarming and contradictory to principles of natural justice.

151) The 20 working day time frame for councils to consider whether to accept or reject the panel’s recommendations is not practicable taking into account meeting schedules, agenda production, notice of meetings, etc. Especially if councils need to give due consideration to recommendations from the Panel that are beyond the scope of submissions.

Relief sought

kk) Retain proposals to introduce a new RMA planning process for regional freshwater plan reviews subject to addressing the following qualifiers:
− that the new planning process be available to all RMA plan development and review processes, rather than just being confined to freshwater plan reviews
− that the hearings panel only make recommendations on matters that are in scope of the proposed freshwater plan and/or submissions
– that the 20 working day time frame for councils to consider whether to accept or reject the panel's recommendations be amended to 60 working days (assuming the Council is only considering panel recommendations in scope of submissions).
Further submission points

152) Notwithstanding Government decisions on the relief sought on the larger issues of concern discussed above, a detailed reading of the draft provisions of the NES and NPS-FM identifies a large number of drafting issues that need to be addressed to effectively implement the NES and NPS-FM and/or avoid perverse outcomes.

153) At the Resource Managers Group (RMG) meeting with MfE staff the many drafting issues were highlighted. In particular, the RMG members noted that there was a significant lack of operational and compliance knowledge missing from the NES and NPS-FM. Rather than all councils submitting on them a working group should be formed to provide feedback. Whilst some examples have been raised below, the Council supports establishing a working party to address the numerous additional issues.

<table>
<thead>
<tr>
<th>National Environmental Standard (NES) for Fresh Water</th>
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<tbody>
<tr>
<td><strong>Reference</strong></td>
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<tr>
<td>Wetlands [NES 7]</td>
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<td>Wetlands [NES 9, 10,12, 12, 13, 14]</td>
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<tr>
<td>Environmental gain. The Council suggests that if the activity causes adverse effects (such as those described in clauses 11(a) and 13(b)) then the distance it occurred from the wetland is irrelevant in any case.</td>
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</table>

Wetlands [NES 10(2)(a), 12(3)(b)(i), 16]

- The Council seeks that clauses 10(2)(a) and 12(3)(b)(i) be deleted.

- If the effects described in 10(2)(b) or 12(3)(b)(ii) are occurring then it should not matter if the water level change is >0.1 m or not.

- The Council is also concerned that monitoring whether an activity has caused a change in the natural wetland annual median water level will be unfeasible.

- Wetland water levels can be highly variable between days, seasons, and year to year. Monitoring these to the detail specified will be problematic and require long periods of time to determine if changes are due to an activity. The Council is unsure if detecting a 0.1 m change will be a reliable measure of an effect.

Microbial pathogens: [NES 33(3)(c), 34(3)(c), 35(4)(c), 36(3)(c)]

- The Council seeks that NES obligations to impose through resource consents, estimations (whether through modelling or monitoring) by farmers of either pathogenic microbes or E. coli in discharges be removed.

- The term ‘microbial pathogens’ is used in NES provisions (e.g. that farmers have to know their average discharges of these microbes before and after any land use change). However, standard scientific practice is that microbial pathogens are not and cannot be practically accounted for.

- In general practice faecal indicator bacteria (FIB) known as E. coli are determined through analysis. E. coli are present in very high numbers in fresh faecal matter and in receiving environments of any such discharge. Most E coli strains are harmless (with the exception of a few particular strains of E. coli which produce illness-inducing toxins). Die-off of E. coli can be rapid, depending on temperature, sunlight, or exposure to antibiotics and disinfectants (e.g. in dairy sheds), while attenuation is affected by (amongst other factors) soil geochemistry, soil porosity and permeability, soil moisture content, overland flow volumes and velocities, and vegetation and surface roughness filtering.

- Accounting for FIB in a meaningful or accurate manner is impractical. The concept that farmers having to track comparative quantities of pathogens that might leave a property under varying land management practices defies credulity.

Base year of measurement: [NES 33(3)(c), 34(3)(c), 35(4)(c), 36(3)(c)]

- The Council seeks that the obligation to require, through resource consents, estimations (whether modelling or monitoring) by farmers of nitrogen, phosphorus, sediment, and pathogenic microbe discharges from the farm compared with a base year of 2017/2018 be
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<th><strong>National Environmental Standard (NES) for Fresh Water</strong></th>
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<tr>
<td>Sediment: [NES 33 (3) (c), 34(3) (c), 35(4) (c), 36(3) (c), etc.]</td>
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26 *Action for healthy waterways*, pg67.
<table>
<thead>
<tr>
<th>Reference</th>
<th>Discussion</th>
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<tbody>
<tr>
<td>National Environmental Standard (NES) for Fresh Water</td>
<td>The NES refers to ‘sediment’, while the NOF tables refer to ‘suspended sediment’ (expressed as turbidity) and ‘deposited sediment’ (measured via a particular methodology). In clause 38(2)(h) of the NES, and elsewhere, the term used is ‘soil loss’.</td>
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<td>As with ‘nutrients’, the lack of specificity leads to confusion as to what information a consent is to require and a farmer is to supply. Is erosion of stream and river banks within, or on the boundary of, a farm to be part of the measurement/modelling?</td>
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**Nitrogen:** [NES 33(3)(c), 34(3)(c), 35(4)(c), 36(3)(c), 38(1)(j), 43]. See comments and relief sought above

**Phosphorus:** [NES 33 (3) (c), 34(3) (c), 35(4) (c), 36(3) (c), etc]. See comments and relief sought above

**The Council seeks alignment across the NES and NPS-FM with respect to references to ‘nutrients’ and that references to ‘nitrogen’ and to ‘phosphorus’ be explicit as to what chemical elements and what form(s) of elements are intended, singly or by grouping**

In clause 5(10)(a) of the NES and clause3.15(9)(a) of the NPS-FM the term ‘nutrients’ is used. Elsewhere, the terms ‘nitrogen, phosphorus, …’ (e.g. clauses 33, 34, 35, 36, 38(2)(h)) of the NES are used to describe two particular chemical elements that are plant and animal nutrients, but are not the only nutrients that are essential for either plant life or animal life to survive and flourish. There is presumably a difference in intention between clauses where ‘nutrients’ are referenced generically, and those where specific identifiers are used, otherwise why use two different terms; or else there is confusion and lack of specificity by the authors. ‘Nutrients’ would normally be taken to include not only nitrogen and phosphorus, but iron, copper, magnesium, sulphur, potassium, calcium, oxygen, and so on.

Further, several of the dissolved forms and total forms of nitrogen and phosphorus are used in Schedules 2A and 2B of the NPS with explicit and particular meaning, adding to the confusion as to what is intended within the NES.

**NES Drafting**

Where a discretionary activity rule requires specific consent conditions, the Council seeks that the following wording or equivalent be adopted ”...must include consent conditions to ensure that:“ (rather than the current NES wording, i.e. ”... must include the following consent conditions:“).

This revised wording would allow councils flexibility in the drafting of the conditions. If the actual wording of the condition is to be prescribed in the NES (which appears to be the intention as it is currently drafted) then much further work is required to ensure the drafting meets the requirements of a proper consent condition.

**River bed infilling [NES 18]**

The Council seek clarity on the term “no net loss” and in relation to what it relates to, e.g. riverbed, habitat, biodiversity? On the face it the mandatory condition requires new riverbed to be created somewhere
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<tr>
<td>River bed infilling [NES 18]</td>
<td>The Council notes that the condition to monitor an infilled river is impractical. What would be the accepted methodology and the premise that any decline in ecological condition over the duration of a consent must result from the infilling would be wrong.</td>
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<td>Fish passage [NES 19]</td>
<td>The Council questions why dams, fords, and non-passive flap gates have no fish passage conditions.</td>
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<td>The key issue being addressed is to ensure fish passage. There is no need to have different clauses for individual types of structures. It is the Council’s view that all structures need to allow fish passage. However, the detailed information required to be provided by the NES about each type of structure is not necessary. It makes the NES unnecessarily cumbersome to administer and does not aid in ensuring fish passage.</td>
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<td>Fish passage [NES 20]</td>
<td>The Council suggests that the definition of “culvert” requires further work. As currently drafted the definition would include a reticulated stormwater system and any kind of constructed channel.</td>
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<td>The Council suggests that the key characteristics of a culvert are: it’s on a river or lake bed, includes a pipe or similar structure as a conduit for a river</td>
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<tr>
<td>River bed infilling [NES 18] and structures [NES 22, 23, 24]</td>
<td>The Council seeks that relevant NES provisions for structures refer to erecting (that is the term used in S13 RMA, i.e. not ‘constructing’) and using a structure. Including the use of the structure in the rule ensures that the structure continues to be captured by the NES.</td>
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<td>Activities such as infilling a river bed and constructing a culvert are specific actions of limited duration. Once the infilling or construction is completed there is no further need for a consent so consents are often issued for only as long as it takes to place the structure and to check that it is completed in accordance with the consent conditions.</td>
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<td>Structures [NES 21, 22, 23]</td>
<td>The Council seeks amendment to relevant NES requirements relating to the notification of permitted activities</td>
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<td>Requiring the notification and provision of a significant amount of information as a standard for a permitted activity is not good practice and is very difficult to ensure compliance. For example, clause 21(3)(b) of the NES requires a significant amount of information to be provided to the Council within 20 days of a culvert construction being completed.</td>
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### National Environmental Standard (NES) for Fresh Water

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<td>Firstly the council does not know and cannot ascertain the completion date. Advising the Council before commencing construction is far more practical. Also if the 20 day deadline is missed or the information provided is not complete the structure is non-compliant. There will be a lot of non-compliance and retrospective consenting of structures.</td>
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| **High-risk land use change** [NES 35] | The Council notes with concern that the NES proposal for ‘high-risk land use changes’ are likely to inadvertently capture a farm’s scrub clearance cycle.  
  
  Due to Taranaki’s wet and temperate climate, natural scrub growth and clearance is a regular occurrence (gorse, broom etc). In the absence of a definition for “wood vegetation,” scrub clearance could be deemed a land-use change. The Council supports keeping class 6 land clear for a sustainable land use in many cases.  
  
  The Council further notes that 10 ha of scrub would not be deemed significant in the eastern hill country and should not require a discretionary resource consent to clear. The Council is concerned that the proposals will have perverse outcomes whereby farmers would not be able to re-clear scrub (if left to grow) with flow-on implications for the Manuka honey industry. Similarly, there is a risk that forestry will not be planted on erosion prone land if there is a penalty to revert to pasture |
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<tr>
<td>Setting attribute states [NPS-FM 3.9(2)a]</td>
<td>The Council seeks amendment to the NPS-FM so that the target requirements for each FMU not to be set below its current state and that overall the target states of monitoring sites are to be set above their current collective state (with the exception of monitoring site already in the ‘A’ band). The draft NPS requires that for attributes relating to human health (ie, E. coli-regional; cyanobacteria, and E.coli-primary contact sites) the target attribute state must be above the current state. However, this should not be necessary where sites are already in the ‘A’ band. Furthermore, this means that good sites receive equal priority to poorer sites with no differentiation in effort or importance.</td>
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<td>Visual clarity [NPS-FM 3.18(1)(b)]:</td>
<td>The Council seeks Relief sought: that MfE confirm whether ‘visual clarity’ or ‘turbidity’ is the measure intended for sites being assessed for suitability for primary contact recreation. ‘Visual clarity’ is a different measure in water quality science from ‘turbidity’. The NPS requires that turbidity be recognised as a compulsory attribute (Table 10), but refers above to a different measure.</td>
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<tr>
<td>Streams [NPS-FM 3.16]</td>
<td>The Council seeks clarification on what the policy intention is in relation to clause 3.16 [Streams] of the NPS-FM and how stream loss/gain would be quantified. General questioning of the ‘effects management hierarchy’ and relative prioritisation therein. It is not clear on the ‘no net loss of habitat’ definition and whether that is measured at the specific location of the activity, i.e. where a culvert is installed or the wider river/stream environment. Council notes that it is not possible to have no loss of habitat when installing culvert for instance, but it could be offset by habitat improvements in the vicinity of the installation site, offsetting the loss, and resulting in no net loss of habitat.</td>
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<tr>
<td>Fish passage [NPS-FM 3.17]</td>
<td>The Council notes it must establish and implement a work programme to improve the extent to which existing structures achieve aquatic life objectives for fish. The programme must include identifying all structures within the region (‘all’ suggests consented and permitted) and assessing the risk each poses to fish passage, prioritising structures for remediation applying criteria in Table 5.1 of the NZ Fish Passage Guidelines, documenting prioritisation remediation required and how and when this will be achieved, documenting which structures have been remediated since commencement date and how ongoing performance of the remediated structure will be monitoring and evaluated. This is a significant piece of work of work in Taranaki noting Council could be looking at 10,000+ structures. Inspection of these will likely result in large volumes of follow-up monitoring, consenting and enforcement work as well.</td>
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<td>Reference</td>
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<td>NPS-FM</td>
<td>The most practical approach for this in relation to existing structures would be for these locations to be identified through riparian plan audits or when developing FEPs, although a requirement to do so is not a specific requirement of FEPs as set out in Clause 38. Under the proposed NES we will be able to charge for monitoring of permitted culverts built after the NES comes into effect, that leaves a lot of pre-existing permitted activity culverts for which charging will not be possible. Requiring the ID and assessment of structures through the FEPs would put the costs back on the landowner. There will also be significant costs in remediating orphan structures and I suggest the government should create some funding for such works.</td>
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<td>Accounting systems [NPS-FM 3.2]</td>
<td>In terms of water quality accounting, this is a significant challenge and a massive volume of work for potentially very little gain given uncertainties in calculating contaminant loads and source apportioning. The Council notes massive uncertainties in any approach currently available to apportion contaminant inputs from diffuse sources. Long-term trend monitoring as part of SEM work has been demonstrated to be more valuable, with targeted mitigations implemented where trends indicate deterioration in water quality.</td>
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| Identifying and setting target attribute states; (NPS-FM 3.8 and 3.9); | The Council seeks that the obligation (explicit or implicit) to include current and target attribute states within notified regional policy statements or regional plans by 2023 be deleted; and instead, that regional councils be required to include within the relevant policy statements and/or plan a timeframe by which these attribute states will be identified and notified. Every regional council is obliged to identify the current state of each water quality attribute, and the target state for each attribute, at each monitoring site. The implication is that these must be recorded within a regional policy statement or plan, after determination through a consultative process involving the regional community although this is not clear upon a reading of the proposals. New/revised RPSs and regional water plans must be in effect by 31 December 2025 (NPS Part 4). The advice from MfE officials is that therefore RPSs and regional plans must be prepared for submission to the new water panel by 2023. That is, RPSs and plans must be prepared within the next three years at most. But:-
  • to identify the current trophic state of periphyton attribute, the NPS-FM specifies that five years’ worth of monitoring data is required (Table 2);
  • to identify the numeric attribute state of DIN, 5 years’ worth of monitoring data is required (Table 5);
  • to identify the numeric attribute state of DRP, 5 years’ worth of monitoring data is required (Table 6); |
NPS-FM

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<td>• to identify the numeric attribute state of suspended fine sediment, at least 24 samples gathered monthly over at least 2 years is required (Table 10); • to identify the numeric attribute state of E coli, at least 60 samples gathered over a maximum of 5 years’ worth of monitoring data is required (Table 11); • to identify the numeric attribute state of cyanobacteria, 3 years’ worth of monitoring data gathered monthly is required (Table 12); • to identify the numeric attribute state of MCI, QMCI, and ASPM, 5 years’ worth of monitoring data is required (Tables 13-14); • to identify the numeric attribute state of deposited fine sediment, at least 2 years’ worth of monitoring data is required, but if flow conditions do not permit monthly sampling, then sampling must be undertaken over a longer period (Table 18).</td>
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The contradiction between the determination of current and target states, and the timeframes allowed for preparation of statutory instruments, is obvious and impossible to reconcile.

Phytoplankton [NPS Table 1]

The Council seeks that Table 1 sets or allows a sampling frequency of quarterly sampling, and calculation of state over five years.

No sampling frequency is specified in the NPS-FM. Numeric state is based on median and maximum values. The Council monitors Lake Rotorangi quarterly and can generate these data from that data set. Phytoplankton is subject to the same periodic fluctuations as periphyton (eg a warm, windless year vs a cloudy, cooler, more windy year), and for meaningful classification of the state of a lake, it is submitted that the calculation of state is based on a five-year rolling median rather than the median re-calculated for every individual year.

Periphyton (rivers) [NPS-FM Table 2]

The Council seeks that Table 2 in the NPS-FM be amended to clarify its intent and interpretation.

The stated methodology for determining state is ambiguous. Table 2 requires no more than 8% of samples above the numerics given within each category in the columns of Table 2, but the footnote specifies the calculation of a rolling median across 5 years. The association between the median so generated, the discounted 8%, and the numeric in the table columns is not identified. Such ambiguity within a regulatory document is unacceptable.

Table 2 seems to imply that both the median, AND ALSO at least 92% of all results, must lie below the threshold, for the river to be within any particular category. For example, if the rolling five year median and at least 92% of all results over the five years are below 50 mg chl-a/m2, then the river is in the A attribute state, but if the median was below 50 mg chl-a/m2 and 20% of results were between 50 and 120 mg chl-a/m2, then (it is assumed) the river drops into the B attribute state.
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<td><strong>Total nitrogen [NPS Table 3] and total phosphorus [NPS Table 4]</strong></td>
<td>The Council seeks that Table 3 and 4 set or allow a sampling frequency of quarterly sampling, and calculation of state over five years. No sampling frequency is specified in the NPS-FM. Numeric state is based on median and maximum values. The Council monitors Lake Rotorangi quarterly and can generate these data from that data set. Phytoplankton is subject to the same periodic fluctuations as periphyton (e.g., a warm, windless year vs a cloudy, cooler, more windy year), and for meaningful classification of the state of a lake, it is submitted that the calculation of state is based on a five-year rolling median rather than the median re-calculated for every individual year.</td>
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| **Sediment (NPS-FM Table 10),** | The Council seeks that Table 10 (suspended sediment limits) be removed from the NPS-FM to focus more on outcome monitoring of ecosystem health and sustainable land use as the primary measures for water quality in the hill country. If that relief is not acceptable, the Council seeks that Table 10 be transferred to Appendix 2B [Action plan rather than national limits]; and suspend Table 10 for 5 years while pilot studies into its application can be undertaken for ‘proof of concept’, validation, and cost-benefit analysis. It is noted that this was the approach endorsed by the regional councils’ representative working group with which MfE consulted during the 2018/2019 period. Table 10 in Appendix 2A of the NPS-FM sets out a series of bands that apply to specific REC classes of catchments, recognising that natural sources of turbidity have a significant and highly differentiated effect upon water quality. There are a number of issues with this attribute:  
- There is no statement as to whether the median, the mean, or the maximum result is intended for use in grading purposes;  
- The bands are extremely narrow. In some cases, a variation of only 0.2-0.3 FNU is enough to change a state from the A band to the C band (or vice versa). Such a narrow range fails to recognise variability inherent in grab sampling (at a single point in time and space) to represent a continuously flowing water body throughout an entire catchment; uncertainty and bias within laboratory analyses; and natural variations within water quality itself. While these fluctuations and uncertainties are intrinsic to any sampling regime, the extremely constrained bands developed for this attribute mean the effects are far more pronounced, with the consequence their application becomes unreliable if indeed not meaningless altogether. The Council’s consulting laboratory advises that the uncertainty in any one measurement is +/- 0.05 FTU: effectively this means that the laboratory uncertainty spans half the entire band for some classes.  
- The proposed attributes are complex. On one level this has some attraction; i.e., the 12 level classification allows a degree of differentiation that reflects natural variability in geology and hydrology. However, the consequence for a compulsory attribute is that this translates into real challenges in terms of the resource needed to measure and monitor in stream, especially within first and second order streams as was flagged by MfE staff to regional council representatives during discussion of the proposed attribute. |
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<td>Councils will be faced with moving monitoring networks and/or creating new monitoring sites from scratch, the cost of which is substantial, and will need to be secured through long term planning or annual budget reprioritisation.</td>
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<td>• The attributes potentially move us away from an FMU / catchment planning approach which is the foundation of NPS-FM implementation and discussions with communities and iwi, to small headwaters and disparate streams. This will add unhelpful complexity to the resource management consultation, policy development, and target state framework.</td>
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<td>• Sediment is a new attribute in terms of the protocols within the NPS-FM. Existing datasets will not easily or widely apply. It will take time before monitoring data is available to support development and implementation of policy.</td>
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<td>• The level of complexity makes it difficult for communities faced with taking action on sediment to understand what they are trying to address. Conversation with communities and iwi are often in terms of ‘total load’ of sediment – the 12-band classification will need to be converted to land types and land use source loads to make it intelligible to the lay person.</td>
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<td>• There are some potential challenges in linking land use management to changes in attribute bands. This may be further complicated by the rapid changes in land use in some catchments (e.g. those subject to urban growth) which occur well within the two years/ minimum sampling period before the state of an attribute can be determined.</td>
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<td>• Compulsory attributes lock in a cycle of council planning and monitoring potentially at the expense of resourcing that addresses the root causes of sediment loss i.e. in many cases lack of policy is less of an issue than the scale of the on the ground challenge.</td>
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<td>• The proposal does not deal with conflicting national policy drivers e.g. urban development vs freshwater quality.</td>
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<td>• The link to the coastal / marine receiving environment is yet to be developed and this is an important aspect of community values.</td>
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Conclusions

154) The Taranaki Regional Council again thanks the Ministry for the Environment for the opportunity to comment on the Action for healthy waterways proposal.

155) In many areas, the relief sought has been deliberately high level due to the need to focus on the major areas for concern. The Council notes that it could have sought relief for a large number issues particularly relating to drafting and practicalities. The Council recommends that the proposal be workshopped with experts in writing and implementing regional resource management plans and monitoring.

156) The Council requests a hearing from the review panel.

Yours faithfully

[Personal details removed]

[Personal details removed]

[Personal]

Chief Executive