

SUBMISSION

To
Ministry for the Environment

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New Zealand

consultation.freshwater@mfe.govt.nz
on

ACTION FOR HEALTHY WATERWAYS

Including feedback on aspects of:

**Draft National Policy Statement for Freshwater Management, and
Draft Proposed National Environmental Standards for Freshwater**

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About Fertiliser Association of New Zealand (FANZ)

- 1 FANZ is a trade association representing the New Zealand manufacturers of superphosphate and nitrogen fertilisers. FANZ member companies, Ballance Agri-Nutrients Limited and Ravensdown Limited, are farmer co-operatives with some 45,000 farmer shareholders, and between them supply over 98% of all fertiliser used in New Zealand.
- 2 The cooperative base of the fertiliser industry means the industry is not driven by maximising sales but by delivering best value to its farmer shareholders. The industry is focussed on fertiliser effectiveness and efficiency, enabling profitable farming to operate within environmental limits.
- 3 FANZ member companies provide products that are critical to New Zealand farming systems with interests and responsibility across all agricultural sectors, including dairy, sheep, beef, arable and horticulture. The fertiliser industry has specialist skills and knowledge in nutrient management for farm systems and an almost unique pan-sector perspective.
- 4 FANZ supports and encourages an environmentally responsible, science-based approach to nutrient management and regulation.
- 5 To promote good management practices, FANZ has funded training programmes, and developed codes of practice, information booklets and fact sheets. FANZ also funds research, partners with government on research and development projects, and works closely with other organisations in the agricultural sector on industry-good issues. Along with AgResearch and the Ministry for Primary Industries, FANZ is a part owner of Overseer. Overseer is an agricultural management tool which assists farmers and their advisers to examine nutrient use and movements within a farm system. Along with DairyNZ, Beef & Lamb NZ, the Fertiliser Association financially supports the Nutrient Management Adviser Certification Programme.

FANZ's philosophy and approach

- 6 The industry supports systems that provide flexibility for land users to achieve desired outcomes from an environmental and production perspective by managing farm system "losses". This allows farmers to choose the most effective way of achieving outcomes for their particular property that reflects the sensitivity of the catchment in which they operate. It helps avoid regulation unintentionally constraining best land uses and allows for flexibility, innovation and transition pathways to achieve both primary production goals and environmental outcomes.
- 7 FANZ supports 'effects' based measures as prescribed under the RMA. Effects in this context result from the losses from the farm system. Many of these losses cannot be easily measured directly. In the absence of direct measurement, modelling approaches can be used for

management of effects. This approach underlies our support for development of the model Overseer, which estimates a farm system's annual average inputs and outputs of nutrients on a per hectare basis.

Executive summary

- 8 The Fertiliser Association supports the aspiration that New Zealanders should be able to swim, fish, gather mahinga kai and enjoy freshwater. We support the Government's three objectives:
- i. **Stop further degradation** of New Zealand's freshwater resources and start making immediate improvements;
 - ii. **Reverse past damage** to bring New Zealand's freshwater resources, waterways and ecosystems to a healthy state within a generation; and
 - iii. **Address water allocation** issues having regard to all interests including Māori and existing and potential new users.
- 9 Healthy waterways are essential for supporting productive, sustainable land use, generating economic wealth and promoting social wellbeing for all New Zealanders.
- 10 In designing an approach to achieve these objectives, it is important to apply the following principles:
- i. **Environmental, social, cultural and economic interests should be aligned wherever possible** – Significant environmental improvements can be achieved while maintaining or even improving economic performance. Opportunities to do this will increase as food consumers continue to become more discerning about environmental impacts. Farmers need high quality advice and support to market their world leading farm practices and data to demonstrate change underway.
 - ii. **We are committed to improving water quality, but it will take time** – Fertiliser companies, have been investing in tools to manage nutrient loss impacts for a number of decades and, along with the wider primary sector, have already taken steps to improve water quality. Building the knowledge and capacity to apply this information to most farms' unique context will take time. If targets do not allow for this transition, there is a risk that farmers will receive incomplete or erroneous advice. To avoid pollution swapping, this advice needs to be integrated across wider environmental issues, not just water.
 - iii. **The Government should maintain flexibility in targets and recognise individual catchment conditions as we build a thorough understanding of environmental,**

social, cultural and economic impacts – Waterways and farms are complex systems. Our current understanding of these systems is incomplete, so it is important that the Government remains flexible about targets for individual catchments while remaining committed to action. We will continue to learn about what is required to preserve and restore waterways and what regulation will achieve, so we need sound mechanisms to develop and update targets and regulatory measures.

11 Figure 1 includes a diagrammatic summary of the key submission principles.

Feedback on Action for Healthy Waterways

The Fertiliser Association agrees that healthy waterways are essential for supporting productive, sustainable land use, generating economic wealth and promoting wellbeing for all New Zealanders.

Key messages

Align environmental, social, cultural, and economic interests



- Position farm plans at the heart of decision making for farmers and growers
- Align regulatory schemes with existing assurance programmes
- Kickstart progress on FEPs with 10 hours of free advice to each farmer and grower
- Avoid inadvertently locking in existing land uses due to desire to restrict further intensification

Build on existing industry actions and be phased appropriately



- Phase in requirements for FEPs so quality plans can be delivered
- Establish thresholds for requirements to develop FEPs
- Build adviser capability to match regional long term needs
- Ensure that water and greenhouse gases are considered side-by-side when providing advice

Maintain regional flexibility to set water quality targets by catchment to balance environmental, social, cultural and economic impacts



- Support te Mana o te Wai as a holistic approach to water management rather than as a hierarchy for decision making
- Give councils flexibility to set locally derived nutrient limits for each catchment
- Identify priority catchments based on ecosystem health, not just nitrogen
- Drive continuous improvement through adoption of GMPs and audited FEPs

Figure 1: Summary of Feedback on Action for Healthy Waterways, Fertiliser Association of New Zealand

Environmental, social, cultural and economic interests should be aligned wherever possible

- 12 We welcome the Government's commitment to work with and support farmers and growers. Together, we think that it is possible to build a future where New Zealand has healthy rivers, thriving rural communities and a flourishing agriculture sector.
- 13 To do this, farmers and growers will need high quality and consistent advice to give them the confidence to invest and adopt new practices. It is essential that all farmers and growers develop farm environment plans that consider the context of their farm and identify good management practices tailored to their circumstances. Farm environment plans need to be strategic documents that inform farm practices and deliver assurance. They need to be more than just a compliance exercise.
- 14 Advice needs to start with verified Good Management Practices (GMPs), but advice should also consider whole farm management and drivers such as optimising pasture production and stock management on a whole farm system basis. This would show farmers not only how to minimise their environmental impact, but also how to maintain or improve their economic performance. Advisors will need to work collaboratively with farmers and the plans will need to set out timeframes for implementation.
- 15 Both Lincoln University Dairy Farm and Owl Farm have managed to reduce their nitrogen loss by ~25% while maintaining or increasing profit by looking at their whole farm system. This is not to say that every farm will be able to achieve this level of reduction, but it does show the potential of what can be achieved by following a structured and documented approach to the farming system. The transition for most farms will require good extension and advisory services. We believe that the Government should consider paying for 10 hours of advice from certified advisors to help them to identify win-win changes to farm practices by addressing farm system losses. Farmers with existing Farm Environment Plans (FEPs) should still be able to access this funding to get additional advice, potentially focused on integrated farm planning.
- 16 Minimising farmers impact on waterways will mean New Zealand farmers will need to establish world leading environmental practices. The Government should ensure that the regulatory scheme it creates utilises the investment and expertise already specifically designed and implemented for assurance by the primary industry. These have been developed in line with good stewardship of the land and resources and are consistent with market expectations. If the regulatory system aligns with the existing tools, it will make it significantly easier for farmers to earn an economic reward for their environmental performance.

- 17 There is a critical need for Government and industry to work together to ensure that research spending is targeted at national priority outcomes. The industry needs tools and practical solutions for nutrient loss. Councils require support and funding to undertake water quality monitoring and make critical management decisions. Central government will need sound data to properly evaluate the impacts of its policies.
- 18 Where the Government has committed funds, it needs to ensure that these funds are invested as soon as is practicable, especially given the timelines it has set for improving waterways.
- 19 One of the cheapest ways the Government can support the development of a low environmental footprint, but highly profitable primary industry is by improving access to data. By sharing non-sensitive data in a consistent format, they can encourage researchers and agritech companies to develop precision agriculture solutions for New Zealand farmers. This could unlock tools for pasture management, crop selection, etc, which would enhance New Zealand agriculture's international technological advantage.

In summary, we propose that:

- 20 There is a large and rapid transition required to deliver Farm Environment Plans (FEPs) for most farms, within the timeframes required.
- 21 The Government provides extension services and supports farmers to identify and implement farm system changes and good management practices that will improve both environmental and economic performance, for example, by paying for 10 hours of advice to each farmer from a certified advisor.

The solution must be pragmatic, build on existing industry actions and be phased appropriately

- 22 The agriculture industry has already started to work on improving water quality. As the consultation document recognises, many farmers have already started to take steps to address their environmental impact. The rural landscape is changing as they invest in:
- i. fencing and riparian planting;
 - ii. voluntary covenanting of biodiversity assets;
 - iii. upgrading and improved management of effluent systems;
 - iv. development of formal nutrient planning documents;
 - v. preventing stock routinely crossing streams;

- vi. adopting new crops into farm systems with a lower nitrogen footprint; and
 - vii. applying urease inhibitors coated on to urea fertiliser thus reducing volatilisation losses and indirectly nitrous oxide emissions.
- 23 We have supported farmers to take these steps. The Fertiliser Association has invested millions of dollars into the development of Overseer, a tool for assisting farmers choices in nutrient management.
- 24 We have also supported and worked closely with local government in development of a proposed approach to certification of farm environmental planners.
- 25 In partnership with DairyNZ and Beef and Lamb, we are investing in building capability in certified nutrient management advisers. Currently there are 204 advisers certified to provide nutrient management advice, 50 of whom are also endorsed for greenhouse gases. The industry has also invested in its own staff, requiring all advisory staff to undertake post-graduate level training in nutrient management, and requiring them to pursue certification.
- 26 Ravensdown and Ballance have invested in the largest farm environmental teams in the country. These teams are focused on providing a service to their farmer shareholders, helping them adapt to the new regulatory world. In recent years the fertiliser industry has invested about \$10m per year in research and development. For example, the fertiliser companies have invested in smart fertiliser products with reduced environmental impact, and tools such as Mitigator and HawkeEye which support precision application of nutrients. We have also worked with the wider sector to develop assurance schemes for fertiliser quality and for both groundspread and aerial application of fertiliser.

In summary, we propose that:

- 27 The government focuses on enhancing and building upon existing industry stewardship and certification schemes. It is important to avoid duplicate or conflicting quality assurance and certification systems.

The scale of the change is huge, and it will take time to develop capacity

- 28 The Government has proposed that by the end of 2025, all farms covered by the NES will be required to undertake an FEP. We believe this means at least 28,000 farms will need an FEP. Hundreds of new farm advisers will have to be certified in order to deliver them. This is exacerbated by the fact that there will also be a demand for qualified advisers to provide audit services, greenhouse gas advice, consent applications and environmental due diligence to support the sale of farms. What is more, local and central governments will also need to build their capability, so they are able to assess FEPs.

- 29 Given the significant increase in demand for certified farm advisors to provide this work, there will be pressure to reduce the quality requirements of these plans. This would be a mistake. It is critical that farmers decisions are robust and create the right path for a transition to both productive farms and high environmental performance. Rushing the implementation process and thereby reducing the quality of plans risks delaying the effective transition to farming within limits, with the potential to fail to deliver on water quality expectations. Poorly considered farm plans could also result in mandating insufficient action, unnecessary impact on farm productivity, or hurting farm capital values.
- 30 We agree that the Government should mandate the requirement for FEPs that are provided by a certified advisor. The scope and quality of these plans is critical to their success. We think that it is important that these plans include nutrient budgets so that the nutrient loss can be better understood and so farmers can understand the potential impact of their practices in their local circumstance.
- 31 However, we think that the Government should build on existing certification regimes to create a farm plan audit and certification regime. The combined primary sector groups working with Regional Council have already made significant inroads into a Farm Adviser Certification Scheme, and this should be built upon rather than replaced or replicated.
- 32 The coverage of FEPs will necessarily be broad so certified advisors will need skills in nutrient management, contaminant loss risk and associated farm management systems. There is a need for an integrated approach to certification. We need to extend the skills of existing advisors to encompass the full suite of issues that will need to be addressed in FEPs.
- 33 It is not necessary for the Minister to approve certified advisors or auditors. Instead, we believe that it makes more sense for the Minister to approve the certification scheme that certifies farm advisers.
- 34 Although we would expect supply of certified advisors to increase in response to demand, aspirants need to undertake significant study and have three years of industry experience to become a certified advisor. The total costs (including opportunity costs) can be as high as \$30,000. Advisors will only be motivated to achieve certification if it will provide an opportunity to earn a return on this investment with a consistent and stable career path.
- 35 Historically, the stop-start nature of regional council water regulatory processes has created significant costs both for farm consultancy firms and for those employed as farm advisors. The proposed timelines will likely create two peaks in demand, centred around the two regulatory deadlines, as it is natural for farmers and growers to wait until the deadline is pressing before seeking to commission a FEP. In the intervening periods, there may be a considerable lull in demand. Consultancies will not want to invest in creating capability until the demand for that capability is assured and imminent.

- 36 The Government can help build capacity by better phasing the work. We suggest a clear signal that FEPs will be required everywhere but phased in to manage the workload and allow for the creation of more robust plans. When phasing this work, it is important for the Government to consider balancing the work on a geographical basis as well as prioritising areas where action is needed to meet the environmental objectives.
- 37 The Government can also help to manage the workload by excluding farms under a certain threshold of size, revenue, or impact. This would also avoid imposing costs that will not create a significant environmental benefit.
- 38 We would be happy to share our learnings, from managing the Certified Nutrient Management Adviser Programme over the last six years.

In summary, we propose that:

- 39 The Government ensures clear signals and a phased implementation of regulation which provides for consistency and certainty in approach and supports confidence in business investments into farm systems and resources for farming within environmental limits.

Making FEPs drive change

- 40 FEPs need to be positioned as strategic documents to inform actions for farmers. They should not be solely compliance focussed. They should have multiple purposes, informing farm aspirations, supporting industry assurance processes, as well as meeting regulatory requirements. It is important that FEPs drive change rather than simply act as a compliance exercise. The consultation documents indicate that all farms will need an FEP and gives some indications as to what the FEP will cover. However, they do not explain:
- i. the type and number of actions that must be taken or how they are identified;
 - ii. How quickly these actions need to be taken;
 - iii. When an FEP needs to be updated;
 - iv. Whether the audit will assess the information used in compiling the farm plan, the similarity between information used in the farm plan and the farm's actual data, or actions on the farm plan;
 - v. The consequences of a failed audit.
- 41 The Government needs to think about the rules that will apply to determine what actions a FEP identifies. In the first instance, it is more appropriate to require farms implement

freshwater good farm practice including the amount and timing of fertiliser inputs to meet plant requirements, minimise losses to the environment.¹ Additional N and P reductions should only be introduced if achieving GMP is not sufficient to achieve the desired environmental outcomes.

- 42 The Government will also need to consider what timeframes should be allowed for farmers to deliver on the actions identified in their FEP. It makes sense to allow some degree of flexibility as each farm is different and each catchment has different issues but without some guidance, there is a risk that action happens too slowly. Regional councils should have flexibility to set appropriate locally derived limits for each catchment or sub-catchment and a realistic and meaningful timeframe in which to achieve them.
- 43 Compiling a FEP requires information about a farm system. A range of factors like environmental conditions and commodity pricing can mean that in any given year, a farm may not be operating at its long-term stable farm system. Therefore, it may not make sense to use the most recent year's data to determine the farm's system. Instead, it may be better to allow a farmer to identify the kind of farm system they run or use 5-year averages. A 5-year farm system programme aligns well with the proposed 5 year national GHG emission budgets. There will need to be enough flexibility to allow for unmanageable situations, such as a disease outbreak, or extensive drought conditions.
- 44 This raises the question of who should be responsible for each component of the farm environment plan. We consider that the farmer should be responsible for the quality of the data and the certified advisor should be responsible for ensuring that the actions identified are consistent with the Government's requirements based on the information the farmer provides.
- 45 As farm systems can change over time, it is important to identify when an FEP should be required to be updated. We propose an FEP is updated every five years as a matter of course, or sooner if there has been a material change to the farm system. We suggest that a farm should be deemed to have changed systems when key input data (e.g. stocking rate, nitrogen application) is 20% less or greater than the numbers used to develop the FEP for two years in a five-year period.
- 46 The content, scale and detail of FEPs will be variable and risk based. The FEP should be of a sufficient scale and detail for the FEP to be fit for purpose to manage the identified risks.
- 47 We believe that it is important that the auditor reviews whether:
- i. the data used to develop the plan matches the actual farm data;

¹ At this time, we believe that the Good Management Practices identified in [Industry-agreed Good Management Practices relating to water quality](#) and guided by [Good Farming Practice: Action plan for water quality 2018](#) should be considered the GMPs but it will be important to update these GMPs over time.

- ii. the actions and timeframes for delivering these actions are consistent with what is required by regional councils and the Government; and
- iii. the actions identified have been delivered on time.

- 48 We suggest that if an audit is failed, the farmer is required to procure a revised FEP to correct this failure and identify any remedial action that is required. Where the failure was the fault of the certifier, the certifier should bear the cost of the provision of a new FEP.
- 49 It is also important that any advice given to farmers on managing impacts on freshwater is aligned with advice provided on greenhouse gas emissions. There is a risk that if freshwater farm plans are developed without considering the impact on greenhouse gas emissions, these plans might advise actions that are not optimal for greenhouse gases. For example, they may advise farmers will switch fertiliser use to use of palm kernel excreta (PKE) increasing whole of life cycle greenhouse gas emissions. Similarly, they may recommend setting up wetlands that have a significant water quality benefit but release a significant amount of nitrous oxide. Assessing actions with only one of these issues in mind could lead farmers to receive conflicting advice in the future or to swap one pollution type for the other. To avoid this, we recommend that farm environment plans are integrated for both water and greenhouse gases.
- 50 The constraints on land use identified in the NES may impact farmers ability to respond to mitigation of greenhouse gases. While the intent of the proposals is to prevent intensification, there is a significant risk that it will lock in existing land uses. Some farmers may need to consider shifting land use to reduce their greenhouse gas emissions. The proposals in Action for Healthy Waterways may constrain this change. Under the current proposals, if they wish to change land use, they will need to demonstrate that their new land use will not negatively impact sediment, nitrogen, phosphorus or microbial pathogen discharge. This will be difficult because it is hard to find land uses that have no negative impact on all of these measures even though they might improve the overall ecosystem health.
- 51 Requiring farmers and growers to demonstrate that a land use change will have no negative impact on all of these variables will introduce uncertainty, costs and will stretch regional councils' resources. As a result, these changes may have the unintended consequence of delaying necessary land use change.
- 52 We believe that the Government must review what types of land use change are likely to, on balance, improve ecosystem health. In these cases, we believe land use change should be a permitted activity provided the land owner achieves GMP for the new land use. For land use changes that do present a risk, we believe that the test should be that the change can be managed so that it is not detrimental to ecosystem health overall.

In summary, we propose that:

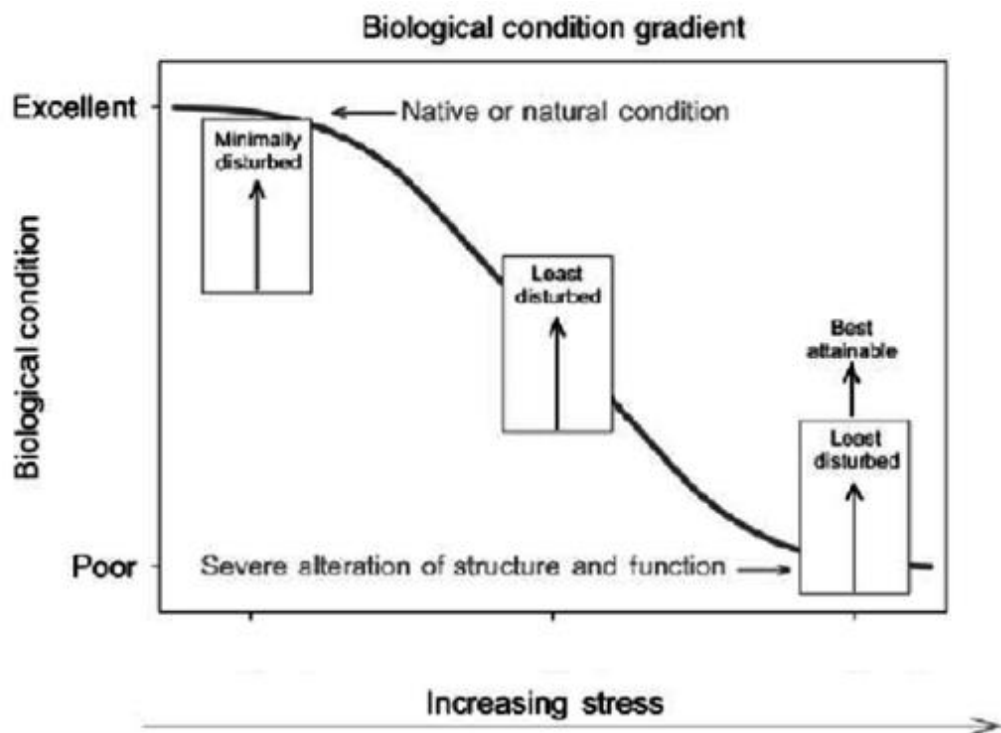
- 53 All farm environment plans to be signed off by a certified consultant who has achieved the relevant qualifications and has a least three years of experience in the industry.
- 54 The requirement for FEPs is phased to better spread demand across the whole period. Geographical demand is considered alongside environmental impact in phasing this work.
- 55 Establish thresholds for the requirement to develop a FEP.
- 56 Where a farmer is required to develop an FEP either because of water regulations or greenhouse gas regulations, the FEP considers both water and greenhouse gases.
- 57 FEPs have a 5 year life (unless there is a significant farm system change) and are aligned to the 5 year national GHG emissions budgets.
- 58 Audits of FEP fit within the time frames applied on a risk-based approach, and that FEPs are fit for purpose with appropriate scale and detail relative to the identified risks.
- 59 Land use change that is likely to improve ecosystem health remains a permitted activity, provided farmers achieve GMP for this new land use.
- 60 For other land use change, land use activities are managed to so that the change will not harm overall ecosystem health.

The Government should maintain regional flexibility to set targets on a catchment or sub-catchment basis until they have a thorough understanding of targets environmental, social and economic impacts

- 61 We recognise the need to act now and use a holistic approach to improving water quality. We welcome and support the holistic approach to managing ecosystem health under Te Mana o te Wai and the national direction to support improvements in ecosystem health. At the same time, we consider it critical to recognise that each catchment will have unique characteristics that will need a tailored management plan to achieve improvements.
- 62 Waterways are complex systems, so it is important that the Government balances national direction and standardised in-stream limits with flexibility to understand the critical aspects of ecosystem health and community aspirations for individual catchments. It is also critical to maintain a degree of flexibility with national targets so that they can be informed by the developing science.

- 63 The RMA provides for consideration of environmental, social, cultural and economic outcomes and recognises that there are trade-offs between them, that need to be carefully weighed up. These are long term decisions that will have lasting impacts, so the Government needs to have confidence that the information that supports its decisions is sufficiently robust to be used in regulation, and that it supports the balanced decision making prescribed by the RMA, before it locks in long term targets. Appendix 1A of the draft NPS sets water quality targets that relate to conditions that would be found *in a minimally disturbed condition*. Minimally disturbed condition reflects *natural state*. (Figure 2)
- 64 This means that the National Policy Statement is being built around a premise that the water quality we seek to achieve for New Zealand relates to the condition that waterways would be in pre-human times, before land clearance, establishment of towns and cities, or conversion to a modern agricultural economy. This aim appears to be inconsistent with Part 2 of the RMA.

Figure 2: Representation of minimally disturbed water quality conditions



Minimally disturbed and least disturbed reference conditions shown as a conceptual relationship between human disturbance and biological condition.

Adapted From Stoddard et al . 2006.

Objectives of the National Policy Statement

- 65 We support Te Mana o te Wai, as a holistic approach to managing water quality, being an objective of the NPSFM.
- 66 We have concern at how it is proposed to be implemented by creating a hierarchy of obligations. This is inconsistent with the concept of Te Mana o te Wai previously articulated by MfE as follows:

Each community will decide what Te Mana o te Wai means to them at a freshwater management unit scale, based on their unique relationship with fresh water in their area or rohe. The Statement of National Significance in the Freshwater NPS describes the concept of Te Mana o te Wai as the integrated and holistic well-being of the water. It is up to communities and councils to consider and recognise Te Mana o te Wai in their regions.

- 67 We are concerned by a hierarchy that places the health and well-being of waterbodies and freshwater ecosystems above that of the health needs of people, and above the ability of the people and communities to provide for their social, economic and cultural well-being. We think this is inconsistent with Part 2 of the RMA, which requires these objectives to be balanced.
- 68 This may have unintended consequences. For example, in addition to rural streams, how would the first priority of restoring the health and ecosystems of freshwater bodies take effect in central Christchurch, Henderson Creek, West Auckland, Karori Dam Wellington or Hamilton's Lake Rotoroa be given effect, if restoration takes precedence over providing for the communities social, economic and cultural wellbeing?

We propose that:

- 69 Te Mana o te Wai is introduced as an objective based on the integrated and holistic well-being of the water but do not support it being adopted as a hierarchy.

Identifying priority catchments

- 70 We support taking rapid action on prioritised catchments where water quality is a concern. However, waterways are complex systems so a holistic view is required to determine which catchments should be prioritised. Similarly, it is important that a range of catchment specific actions are introduced alongside any on-farm action to ensure that these waterways are returned to an acceptable quality as quickly as possible. Many of the catchments identified have issues beyond intensive land use that are contributing to their poor ecosystem health. We will need to take an integrated response to restore them.

- 71 The Action for Healthy Waterways document identifies 13 river catchments where interim measures are recommended to reduce diffuse nitrate loss to water. The provisions in the proposed NES have a strong focus on nitrogen mitigation. This is driven by a concern about the impact of intensive agriculture on the health of our rivers.
- 72 There are several unique factors that are affecting the waterways of the identified catchments:
- i. Some are dammed, one has multiple dams, which reduce flow and therefore increase nitrogen concentrations.
 - ii. Some have large industrial discharges.
 - iii. Some are part of drainage network schemes.
 - iv. The issues are long term. One was identified in the 2007 National State of Environment Report as the most nutrient enriched river in the country.
 - v. One, while still high in nitrogen, has received a National River Award for showing an improving trend in N showing that the river is already on track to improve.
 - vi. One has problems with willows.
 - vii. One has reduced flow due to water abstraction which increases nitrogen concentrations.
 - viii. One receives direct discharge of farm effluent from multiple farms (consented).
 - ix. On the positive side, at least two are important trout fisheries suggesting a degree of ecosystem health which suggests that the metric may not be appropriate.
- 73 The proposals are based around an assumption that intensification is continuing to add additional nitrogen load to these rivers. Current nitrogen concentrations in rivers are generally the results of cumulative land management practices over the last decade. This suggests that dealing to these issues will need a long term, considered and holistic approach. The nitrogen concentration in many of these catchments has been high for over a decade, and so are not evidence of urgent recent degradation.
- 74 We recognise that there is a trend of increasing nitrate in some New Zealand river catchments that needs to be managed. However, we are concerned about how these high nitrogen catchments have been identified as the priority and the risk of focussing on a single attribute resulting in failure to deliver ecosystem health where it is most needed. Nitrogen alone is not a measure of ecosystem health.

- 75 The proposals on immediate short-term action for nitrogen management are in sharp contrast to the intent of the proposed NPS to place a long term, holistic perspective on managing water quality for ecosystem health.
- 76 We are particularly concerned that almost the entire area of agricultural land in Southland would be affected by the proposals. This suggests that an alternative approach for Southland may be required. The Southland Land and Water Plan is currently under appeal at the Environment Court. Environment Southland's expectation is that the Plan will stop further intensification in Southland. The Government may want to consider how it could assist the Council with getting farm plans in place in Southland over a realistic period.
- 77 With respect to the approach taken to limit nitrogen in high priority catchments, we support an output (effects) based management of nutrient loss and support a nutrient management planning and farm environmental planning approach.
- 78 A universal input cap does not consider the nature of the local receiving environment and does not encourage innovation in farm systems to reduce system losses.
- 79 For pastoral applications, nitrogen fertiliser is applied to support pasture growth during periods of feed gaps. If nitrogen fertiliser is capped, there is every likelihood that the nitrogen deficit created by restriction in nitrogen fertiliser could be replaced by imported supplements; thus, negating any potential reductions in nitrogen loss.
- 80 An output-based control would consider all sources of nutrient and the potential for adverse effects. An input control would not.
- 81 Tackling these issues in the most cost-effective way possible will require all farmers to reduce emissions where they can, by ensuring that all farms are at GMP. Therefore, we think it is more appropriate to require all farmers in high priority catchments to first undertake an FEP to identify and implement GMPs.
- 82 If more action is needed, then the Regional Councils should either require all farmers to go an equal amount below their GMP level or the highest polluters to adjust their emissions to a lower threshold. However, in so doing a thorough and robust assessment of the economic and social impact of proposed controls must be undertaken so that the cost: benefit of the proposed regulations is well understood.
- 83 It is important that each farm's environmental factors, such as rain fall, and soil type are considered in determining catchment wide reductions.

We propose that:

- 84 A holistic approach to identifying high priority catchments is taken rather than focusing on nitrate concentrations alone to identify priority catchments.
- 85 Rules that will drive sustained effort rather than short term action are introduced.
- 86 All farmers in high priority catchments first implement GMPs. If more action is needed, then the Regional Councils should either require all farmers to go an equal amount beyond GMPs or the highest polluters to adjust their emissions to a lower threshold.
- 87 A thorough and robust assessment of the economic and social impacts of proposed controls must be undertaken.

New attribute for nitrogen

- 88 When looking at reversing damage over a generation, it is more appropriate to give the relevant decision-making body the ability to select the DIN and DRP numbers which are appropriate for each catchment or sub-catchment rather than to set them based on a simple metric in the NPS. Using a national nutrient concentration number to manage all rivers, will mean that regulations will tend to be overly permissive for certain areas such as an alpine stream, and overly restrictive for low lying waterways. The scientific basis of these numbers is evolving and there are significant interactions between these and other catchment specific attributes.
- 89 The Land and Water Forum considered proposals to establish nutrient criteria in New Zealand rivers and introduce an in-stream limit for nitrogen. In August 2016 the Forum recommended:
- a. *that the NPS-FM should have a requirement to set in-stream concentrations for dissolved inorganic nitrogen (DIN) and dissolved reactive phosphorus (DRP), as objectives in regional plans, to support the existing periphyton attribute in Appendix 2 of the NPS-FM.*
 - b. *the development of a mandatory decision support tool councils would have to use to derive and set the DIN and DRP concentrations.*
 - c. *that there would be benefit in a multi-variate lookup table for DIN and DRP concentrations, which should be provided in guidance to give councils and communities a broad idea of what nutrient concentration ranges were appropriate in a variety of conditions.*

- 90 The Government accepted this recommendation in the 2017 revision due to the limited science to establish national level thresholds. The STAG group has included some information on nutrient criteria to manage periphyton in their report. However, this information appears to have been ignored in proposing a single DIN number. The main intent of introducing a DIN number appears to be focussed on introducing nitrogen restrictions for soft bottom streams that do not grow periphyton. However, the growth of macrophytes in these catchments is substantially driven by the sediment load in these catchments.
- 91 Establishing a single national DIN target will result in councils having no flexibility to consider what approaches will be effective to manage ecosystem health in specific catchments and will mean that they will no longer be able to meet their obligations under the RMA to consider approaches that will be most socially and economically viable for individual catchments.
- 92 The proposed nitrogen limit may introduce an unnecessary restriction on rivers that do not grow periphyton. In the Taranaki ring plain, periphyton growth is limited by the high rate of river flushing. Growth of periphyton is limited in Southland because of cooler temperatures and regular flushing river flows associated with high rainfall. This means that in these areas higher levels of nitrogen may be compatible with maintaining ecosystem health.

We propose that:

- 93 The nutrient criteria to manage for ecosystem health developed by the STAG be made available as information rather than as regulatory direction to councils to consider in setting objectives for ecosystem health as an interim measure.
- 94 Ensure that work is in place to develop nutrient criteria to support the development of bottom lines specific to different river types over the next four years.

New attribute for phosphorus

- 95 The proposed dissolved reactive phosphate (DRP) limit of 0.018 mg P/l effectively seeks to return all rivers to close to an undisturbed natural condition. The value of 0.18 is close to the reference state for many catchments. If this change goes through, New Zealand would be the only country in the world to use regulatory controls to set an objective of natural state for all rivers.
- 96 The relationship between the DRP and ecosystem health in many streams is poorly understood. The STAG report suggests that DRP limits of 0.012-0.289 mg P/l would be required as a bottom line to control periphyton growth. The number of 0.018 mg P/l is also more restrictive than currently included in the NPS for total P as a bottom line for lake

catchments (0.05 mg P/ml).² Lakes are extremely sensitive to phosphate and the bottom line was set at a level intended to be very restrictive because of the sensitivity of these waterbodies. The proposed limit is very much on the restrictive end of what is required. While tight controls may be required in some catchments to achieve ecosystem health, the ecosystem health benefits of setting restrictive controls in all catchments are unclear.

- 97 We are concerned that the proposed DRP sets a target that will have significant impacts on economic outcomes without a demonstrated benefit for the environment. Approximately 30% of monitored river sites are in excess of this threshold. Further, the data suggests DRP concentrations are showing an improving trend in most rivers suggesting that existing actions are having a positive impact.
- 98 The draft RIS suggests that most of the North Island rivers would be covered under the exemptions policy included in the draft NPS because they have high natural phosphate levels. The wording in the NPS says exceptions can be made based on natural state but does not include a process by which natural state can be identified. This creates significant uncertainty.
- 99 We believe that a better approach would be to include a classification system in the NPS that varies the limit for phosphate by accounting for high background levels rather than apply an exemption regime. We acknowledge that significant science would be required to develop a classification system to support such an approach.
- 100 If the Government wishes to improve water quality in the short run, we suggest it considers the ecosystem health benefits that will result from the proposed sediment limits, as managing sediment is likely to have a co-benefit in terms of stream phosphorus reductions.

We propose that the Government:

- 101 Invests in further research so that the benefits and costs of setting a DRP at a specific level can be assessed
- 102 Develop a classification system to reflect variation in stream types rather than requiring an exemption in cases of naturally high phosphate.
- 103 Consider the DRP alongside the sediment attribute, as controlling DRP is unlikely to influence ecosystem health unless sediment is also managed.

² The DRP and total P are different measures, but it is reasonable to assume that the DRP would equal about half of total P.

Concluding comment

104 Thank you for the opportunity to present this feedback and comment on the nutrient management components of:

‘Action for Healthy Waterways’,

‘Proposed National Environmental Standard for Freshwater’ and

‘Proposed National Policy Statement for Freshwater Management’.

END.

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