



Established 1968

## New Zealand Freshwater Sciences Society

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Dear Sara,

**FEEDBACK ON THE NPS FRESHWATER MANAGEMENT 2014: DRAFT IMPLEMENTATION  
GUIDE  
NEW ZEALAND FRESHWATER SCIENCES SOCIETY**

### **Introduction**

1. The New Zealand Freshwater Sciences Society (NZFSS) was established in 1968 as the New Zealand Limnological Society. It is a constituent body of the Royal Society of New Zealand and has some 430 members. The Society's membership spans the breadth of academics and researchers to resource managers in the field of freshwater. NZFSS is the key professional society for practitioners in freshwater science and management in New Zealand. The Society aims to "establish effective liaison between all persons interested in any aspect of fresh or brackish water research in New Zealand, and to encourage and promote these interests".
2. The NZFSS welcomes the opportunity to comment on the draft implementation guide for the NPS Freshwater Management (2014) which is designed to assist Regional Councils in implementing the amended NPS-FM.
3. The NZFSS is concerned about the widespread decline in aquatic biodiversity and water quality in New Zealand<sup>1</sup>. A large proportion of the Society's membership is directly involved in resource management as experts at the local government, Environment Court and central government levels and a number of members are accredited as independent hearings commissioners through the *'Making Good*

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<sup>1</sup> <http://freshwater.science.org.nz/index.php/news/media-statement-nzfss-key-closing-messages/>

*Decisions'* programme. These constituents have a wealth of science and resource management expertise to contribute to freshwater management processes. Additionally, many of the Society's members have been involved in the technical work underpinning the development of the National Objectives Framework (NOF), the Land and Water Forum (LAWF) and in the Environmental Monitoring and Reporting (EMaR) Programme in some capacity.

4. The NZFSS has provided feedback on the following matters:
  - a. General comments on the guidance provided in the draft
  - b. Water Conservation Orders and significant values of outstanding freshwater bodies
  - c. Definitions and glossary
  - d. Overall water quality and FMUs; and
  - e. Off-sets and trade-offs

#### **General comments on the draft implementation guide**

5. The NZFSS **supports** the provision of guidance to assist Regional Councils in effective and consistent implementation of the NPS-FM.
6. Members who reviewed the guide found it somewhat repetitive and sought more detail around key areas such as: off-setting with respect to overall water quality across a region, the relationship between limits and objectives, outstanding water bodies and significant freshwater values.

#### **Section 1**

7. 'Context – reforming the way we manage fresh water' provides a useful outline of the ongoing freshwater reform process. However, the final bullet point does not encompass the principles of co-management of freshwater resources with tangata whenua. It needs to be clearly stated within the text that tangata whenua involvement is also at the management and decision making levels, not just interpretation of their values as "*reflected*" at these levels. The NZFSS is strongly supportive of having co-management principles at the heart of freshwater management in New Zealand.

8. The final paragraphs on the context for implementation state that further work beyond the NPS-FM is underway. It would be useful for stakeholders and regulators if the current and future work was clearly spelled out within the implementation guide, i.e., through inclusion of a process/systems diagram or similar tool.

### **Section 2.1 NPS for Renewable Electricity Generation**

9. Comments on the addition of hydro-electric power generation as a national value are ambiguous. The text needs to be clearer that this is not a compulsory national value – only one value amongst others for consideration and within the context of Policy CA2(f) which also references Objective A2.

### **Section 3**

10. More clarity is needed throughout the guide with respect to the use of the NPS-FM and the NOF for consent decision making. For example, is it best practice for the NOF attribute table to be used to assess changes in attribute state between upstream and downstream of a point source discharge? Considerable confusion exists currently for consent decision makers as to the implementation of the NPS-FM and NOF through consenting processes.
11. In particular, more guidance is needed on the use of the NPS-FM as a consideration for notification of consent applications. For example, effects on values, effects on numeric attribute bands or identified over-allocation would be useful considerations. What other ways could the NPS be used to determine effects for notification?
12. Some guidance on expectations around implementation of policies E1(e) and (f) would be useful. Will MfE be auditing the annual reports? Who will be providing oversight of implementation and how? How will stakeholders and the community know if Regional Councils are on track for implementation (either by 2025 or 2030)?
13. References to trade-offs in section 3.2 and off-sets in section 5.5 Part A are inappropriately framed throughout the document. Trade-offs are not implicit in the NOF framework, particularly in conjunction with the A1 and A2 Objectives and the supporting policies. References should be included to the environmental bottom-lines that must be met to achieve objective A1. It should be clear that Regional Councils **do not** have the option to devolve the responsibility for safeguarding LSC to the community.

## Section 5.5 Part A

14. The explanation of Objective A1 contains a reference to the 'National Objectives Framework Reference Group'. A footnote outlining the make-up of this group would provide clarity around who is responsible for recommendations such as the secondary contact level for human health. It has been stated often throughout material put into the public arena by the former Minister and Ministry officials that '60 scientists' made decisions around the amendments to the NPS-FM and the NOF. The NZFSS requests that more clarity is provided around where responsibility rests concerning policy and values within the NPS-FM amendments. We believe it is misleading to infer that these decisions *were made* by the panel of 60 scientists involved in the technical foundation work.
15. The NZFSS strongly **supports** statements that attributes, in addition to those listed in Appendix 2 of the NOF, will be needed to achieve Objective A1. More guidance of this nature is needed throughout the implementation guide in relation to meeting Objectives A1 and A2 over time.
16. Guidance to use the macroinvertebrate community index ("MCI") as a method to monitor progress towards achieving A1 over time requires more detail. It is difficult to see how the MCI will be applied in this way without a direct link between MCI and definitions of LSC, ecosystem health or environmental bottom-lines.
17. Prioritisation tools are mentioned in the section on making and changing regional plans. Please provide a clear reference for users to access these tools.
18. References to Policy CA2(f) should also include guidance on ensuring this is still within the Objective and Policy A1 framework to safeguard LSC as an environmental bottom-line.
19. Guidance on setting freshwater quality limits should include consideration of the contaminant in question in relation to changes in concentration resulting from flow and/or seasonal effects. Guidance on setting limits for *E. coli* in relation to stream fencing and/or stock access will be very difficult to monitor effectively over time. Thus it may be difficult to achieve the *E.coli* objective and to validate effectiveness of the relevant policy. Limits expressed as numeric instream concentrations in some cases may better reflect the objective directly.

20. The example relating to periphyton growth limits should also include reference to nitrogen as a key soluble nutrient driving periphyton growth.

### **Water Conservation Orders and significant values of outstanding freshwater bodies**

21. The first paragraph of section 2.4 only refers to the s199 (1) RMA Water Conservation Order (“WCO”) provisions. Reference is also needed to "outstanding(ness) in relation to significance to Māori as well as recreational, cultural, ecological, fisheries, scientific and habitat characteristics" or similar.
22. The values and characteristics in a WCO are nationally outstanding; this is the initial threshold test for a WCO. This threshold should not be merely considered “other values”. An explanation of the linkages between WCO and objective A2(a) needs to be clearly defined and included in the definition of ‘Outstanding freshwater bodies’ as well as throughout the document where WCOs and outstanding freshwater bodies are mentioned.
23. Natural-state water bodies or limits within a WCO must also be considered with relevance to the NOF attributes and bands.
24. WCO waters should not be able to be used as trade-offs in the "overall" process of determining water quality across an FMU, nor should their quality be used as leverage to degrade other water bodies. Ideally, WCO waters can be defined as separate FMUs and excluded from any determination of “overall” water quality – this is the type of guidance that would be useful to implementing the NPS-FM in relation to other national instruments such as WCOs. Section 2.4 needs to be entirely rewritten; as it stands this guidance potentially allows for Regional Councils to subvert WCO processes and values.

### **Definitions - glossary**

25. Guidance would be useful on the definition of Life-Supporting Capacity (“LSC”) in the context of freshwater management. As safeguarding of LSC is a primary objective of the NPS-FM, a definition is key to consistent and effective implementation nationally. The “safeguarding” threshold for LSC denotes active protection. The aspects of LSC to be protected could include preservation of indigenous species (particularly recognition of threatened species), indigenous biodiversity; and ecological structure, function and resilience.

26. Without a clear definition of what aspects of LSC should be safeguarded, it will be difficult to measure the effectiveness of the NPS-FM to achieve objective A1 over time. Leaving the process of defining the important characteristics of LSC to Regional Councils may mean uncertain and inconsistent outcomes and ineffective policy implementation at the national level.
27. "Accounting" definitions include unauthorised takes. How will unauthorised takes be accounted for and why? Unauthorised takes should require enforcement action and should cease, therefore not requiring any accounting. Amounts of contaminants discharging *from* an FMU should also be included.
28. "Allocation": Methods to determine over-allocation are needed, particularly with reference to meeting or exceeding limits over time and degrees of (non-)compliance with limits.
29. "Attribute" definitions should also refer to values that are not included in Appendix 2.
30. "Attribute state" references to Band C as a minimum safe level for ecological health do not include consideration of ecological tipping points and thresholds that are dependent on the particular values of each FMU and the current state of water quality. The banding approach in the NOF allows for management down to a minimum safe level regardless of the starting point or ecological sensitivity/significance within the FMU. In some cases, even the Band A attribute state will not provide a minimum safe level. More guidance is needed to avoid 'managing down to a minimum state of water quality'.
31. "Environmental flows/limits": the NZFSS strongly supports guidance for the cessation of takes once minimum flows are reached.
32. Guidance that directs Regional Councils to consider catchment load limits as the primary method to meet instream objectives fails to take into account that loads are inherently driven by flow and thus highly variable from year to year. In order to determine whether the load over a particular time frame is compliant with a 'load limit' instream there is a requirement for long-term data. Total Maximum Daily Loads (TMDLs) used in the U.S. have been found to have a variability of +/- at least 30% in any given year. For some catchments in the Manawatu-Whanganui Region

Roygard et al. (2012)<sup>2</sup> found the load varied by as much as 50% in any given year when compared to the 15-year load average. Generally, only over long time frames is it possible to identify trends that can be distinguished from “noise” of the data (i.e., background environmental variation). Guidance on dealing with long-term and flow-driven variability is needed if loads are to be used as limits.

33. Another important consideration is that loads are tools to manage inputs and to move towards objectives and limits that are often set as instream concentrations, particularly objectives to manage toxic effects. In the same way as annual or daily allocation limits in rivers still need to relate to the instantaneous flows, catchment load limits need to be directly related to instream concentrations. There are difficulties in this approach due to the broad envelope that needs to be applied around any load limit, in order to account for variability. Loads are also calculated retrospectively, so Regional Councils won't know whether they will hit or miss an instream concentration threshold until well after the fact.
34. There are many papers on load limits and biases - see references in Roygard et al. (2012). Recent work by Dr Snelder also discusses biases and load variability. All of these factors will need careful consideration and guidance before they are used as regulatory tools to implement the NPS-FM.
35. The glossary definition of ‘relevant contaminants’ should include reference to environmental bottom lines and relevant contaminants to safeguard LSC. This should be a key consideration for Regional Councils to determine which contaminants are relevant in each FMU.
36. The definition of secondary contact and references to national bottom-lines for *E. coli* is incorrect when it states that the risk of infection is calculated at less than 5%. Because the attribute state is measured using the annual median of results this does not actually equate to a 5% risk of infection. The NZFSS submitted substantial advice on this issue in our feedback on the draft amendments to the NPS-FM – the risks should be clearly defined in the implementation guidance, particularly to non-technical users of the guide. We reiterate the advice we provided in our feedback on the amendments:

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<sup>2</sup> Roygard J.K.F., McArthur, K.J., Clark, M.E. 2012. Diffuse contributions dominate over point sources of soluble nutrients in two sub-catchments of the Manawatu River, New Zealand. *New Zealand Journal of Marine and Freshwater Research* 49(1): 1-23.

*“Using an annual median sample statistic to assess the state of a water body for secondary contact recreation means that there can be a high chance (up to 50%) that the risk stated in the document has been exceeded. For example, for a river that is just compliant with the national bottom line, there is up to 50% likelihood that real risk of infection is greater than the stated 5%. In contrast the bathing water guidelines are applied using a 95 percentile statistic; this means that there is a low chance that in such cases the real risk is greater than the nominal 5%. To put it another way, there is a lot less risk to your health to swim in a river that just meets the NZ bathing water guidelines for primary recreation than there is to fish a river that just meets the proposed secondary contact recreation bottom line.”*

37. We request the implementation guide is amended accordingly.

### **Overall water quality and FMUs**

38. Some guidance is needed to ensure consideration is given to the variability in water quality between waterbodies that may be grouped into one FMU. If waterbodies of similar quality and with similar quality issue are grouped together rather than waterbodies with disparate quality this will reduce the risk of significant ‘overs and unders’ in the "overall" determination and will mean more effective implementation of Objective A2.

39. Section 5.5 Part A discusses maintaining or improving freshwater quality. In practice what will ‘overall’ look like and how will an improvement on balance be achieved or measured? For example: will a catchment with high concentrations of nitrogen at one site (perhaps with an increasing trend over time) be off-set by a decreasing trend over time elsewhere? How will natural variability over time and lag effects be accounted for this way? What sort of statistical test will be required?

### **Off-sets and trade-offs**

40. How will the significance of values be traded off against each other and yet still meet Objective A1? It needs to be clearly stated that an "off-set" must still be within the safeguarding bottom lines of Objective and Policy A1 and the purpose and principles of the RMA. Otherwise the "overall" water quality will become a mechanism by which Regional Councils continue to allow the LSC of many freshwater bodies to degrade. There should also be some guidance for councils and communities to be cautious where little is known about the LSC of a water body (e.g. stygofauna in aquifer systems), to ensure key ecological values are not "off-set" unknowingly.



41. Off-setting should be a last resort where effects on LSC and human and ecological health objectives cannot be avoided, remedied or mitigated. As such there are key principles of off-setting that need to be applied. Users of the guide should be referred to the key best practice principles of off-setting such as those provided in McKenney and Kiesecker (2010)<sup>3</sup>.

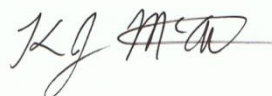
## Conclusion

42. The NZFSS recommends amending the implementation guide to include our feedback.

43. The NZFSS wishes to be engaged in any future process in respect of the NPS-FM implementation and be given the opportunity to be represented and heard in any discussion forum relating to freshwater management generally.



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<sup>3</sup> McKenney, BA and Kiesecker, JM 2010. Policy Development for Biodiversity Offsets: A Review of Offset Frameworks. *Environmental Management* 45:165–176.