

**Proposed amendments to the
National Policy Statement for Freshwater
Management 2011**

Submission to the
Ministry for the Environment

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Introduction

Over recent years, public concern has grown about the state of the water in the country's rivers and streams, lakes, estuaries, and aquifers. That concern has two dimensions – the quality of the water and the way in which it is allocated for irrigation and other economic uses.¹

In response to that concern, and following reports from a Board of Inquiry and the Land and Water Forum, the Government issued a National Policy Statement for Freshwater Management in 2011. The Resource Management Act requires councils to give effect to the national objectives and policies in an NPS (as it is known) in their local policies and plans.

In November 2013, the Government released a discussion document introducing a framework that specifies how councils will implement the NPS. The framework, which is based in part on the second report of the Land and Water Forum, is called the National Objectives Framework (NOF). The discussion document also contains other proposed amendments to the 2011 NPS.

A major feature of the NOF is the setting of 'bottom lines' for water quality. A number of submitters on the discussion document are reportedly focusing on these bottom lines and on the 'values' for which water bodies are to be managed. Their concerns include:

- The proposed bottom line for nitrate toxicity is a high concentration of nitrate – about ten times the median concentration in the lower reaches of the Waikato River.
- A macroinvertebrate index (MCI) is not listed as one of the attributes for measuring ecosystem health, although many councils already measure it as an index of ecosystem health.
- Water quality that is safe for swimming is not a 'compulsory value'.
- Estuaries are omitted from the framework, although many are already in a poor state.
- Salt intrusion is the only attribute for managing groundwater, despite the concern about increasing nitrate levels in groundwater in parts of the country.

These are valid concerns, but I have chosen to focus this submission on the framework itself. The discussion document describes the framework as 'partly populated' – for instance, bottom lines have not yet been set for some attributes. But there is more than this lacking in the framework because there are major elements that are unclear or absent.

Without much greater clarity, there is a real danger that the NOF will be counter-productive. For example, as it stands the amended NPS states, in effect, that any level of water quality is acceptable from a national perspective provided it is above the bottom line. This could create pressure on councils to unwind some of the hard-won gains and community agreements that have been made over recent years to improve water quality.²

This submission has five sections, each focused on a key element of the framework and with an accompanying recommendation. The appendix contains a simplified description of the NOF.

Maintaining or improving the overall quality of fresh water

The 2011 National Policy Statement (NPS) set a laudable goal for regional councils to maintain or improve the overall quality of fresh water in their regions.³

The proposed amendments to the NPS, and in particular the insertion of a National Objectives Framework (NOF), provide an opportunity to clarify the meaning of this goal. However, the discussion paper does not define it clearly.

This need for a definition was identified by submitters to the Board of Inquiry into the original NPS. In its 2010 report, the Board acknowledged that ‘*overall quality*’ could mean that some waterways “*be allowed to degrade while that of others are improved, in order that overall quality is enhanced.*”⁴

It seems that this is the intended meaning here. The discussion document states that “*A region may choose to manage an attribute to state A, B, or C depending on community aspirations*”.⁵ In other words, a community can choose to set a water quality objective for a water body that is lower than its current state, provided it remains above the bottom line.⁶

For example, an *E. coli* objective for a lake currently with a “*very low risk*” of infecting waders or boaters could be set at the “*moderate risk*” level.⁷ The NPS would only prevent the objective from being set at a “*high risk*” – below the national bottom line.

Such a situation would need to be offset by an improvement elsewhere in order to at least maintain the ‘overall’ water quality in a region. The adding up of gains and losses in water quality across a region would require a complex accounting system laden with arbitrary weightings.⁸

For instance:

- How is a decrease in total nitrogen in a lake to be compared with an increase in planktonic cyanobacteria in a river?
- How is an increase in dissolved oxygen in the Avon River in Christchurch to be compared with a decrease in dissolved oxygen in the Rakaia River?

Moreover, allowing for significant degradation under the guise of “*maintained or improved*” water quality could be considered misleading to the public.⁹

The Land and Water Forum suggested that “*maintained or improved*” be defined so that:

“Maintaining” means keeping water quality in the same state – A, B, or C.

“Improving” means raising water quality to a higher state – from C to B, for instance.^{10,11}

It would be much clearer, practical and effective if objectives set in council policies and plans aimed at keeping the water quality in different water bodies, at least, in their current states. There is some flexibility within the bands, along with the provision for exceptional circumstances.¹²

I recommend that:

1. ‘Maintaining or improving’ is defined in a way that requires councils to set objectives for water quality attributes in FMUs that are no lower than those currently.

Freshwater Management Units

The proposed framework requires councils to divide or group water bodies in their region into freshwater management units. These so-called FMUs will then become the basis for measuring water quality and for choosing objectives and setting limits.

The proposed definition of an FMU is very broad, and this does allow water quality to be measured and objectives set at the best scale.

“Freshwater management unit is defined to allow councils to set management units as large or as small as they consider appropriate. For example, a freshwater management unit could be a single catchment, multiple catchments, or part of a catchment.”¹³

But the lack of guidance about how FMUs are to be selected carries some risks.

This is particularly so where an FMU is large and diverse.

For instance, if a whole river catchment is selected as an FMU, then there would be one limit set for ammonia toxicity for the entire catchment. If levels of ammonia toxicity range from low in the headwaters through medium levels to high levels in its lower reaches, the average will be used for comparison with the limit. But deterioration in water quality is most likely to occur in the lower reaches and depending on the number of measurements that are taken and where and when they are taken, the average may be insensitive to this.¹⁴

The NPS should be amended to specify principles or criteria for the selection of FMUs. Both the Land and Water Forum and an officials' Reference Group have proposed such criteria.¹⁵

Different interests will have different views on what would be an 'appropriate' (or inappropriate) unit, and the current broad definition may lead to contentious debates, expensive court battles and poor outcomes. Including criteria in the NPS will assist regional councils in selecting effective FMUs.

I recommend that:

2. Criteria for selecting 'appropriate' freshwater management units should be developed and included in the NPS.

Exceptions to the national bottom lines

The framework allows for a freshwater objective for an FMU to be set below the national bottom line under certain exceptional circumstances. What constitutes 'exceptional' must be carefully specified in order to avoid misinterpretation and overuse. The second and third types of exceptions require further definition to ensure their intended use is clear.¹⁶

The second type of exception applies when the FMU has been degraded by "*historical activities*" and reversal of the impacts is not "*reasonably practicable*". The third applies when water quality is affected by "*significant existing infrastructure*".¹⁷ But at what point in time is an activity 'historical', or infrastructure 'existing'? And further what 'existing infrastructure' will be significant?

What is classed as 'historical' and 'existing' needs a date associated with it because they can be interpreted in many different ways. What is historical, or existing, could be interpreted relative to 2011 (the commencement date of the original NPS), or 2014 (the commencement date of the amendments), or 2030 (the deadline for the objectives and policies in the NPS to be incorporated into the policies and plans of councils).

If the policy were to be interpreted relative to the 2030 deadline, then activities undertaken or infrastructure developed over the next 16 years could become eligible for exception from national bottom lines, contrary to the intention of the policy. For example, new infrastructure could be built on the basis it will be existing by 2030.

According to MfE officials the policy intention is that the base date is when the amendments come into effect – expected to be 2014. A 'historical activity' must have stopped before 2014 and 'existing infrastructure' would need to be in place by 2014.¹⁸

The FMUs that are to be excepted because of 'significant existing infrastructure' are to be listed in Appendix 3 of the amended NPS. The list will be prepared following further consultation. However, before this list is drafted, there are details that need to be clarified, including the following:

- Will the exception be for all national bottom lines or just those affected by the particular infrastructural installation? For example, a hydro dam may alter the water temperature and sediment levels in the river, but should not affect levels of heavy metal or pathogens.
- Will the exception be for the entire FMU, or just the parts of the FMU directly affected by the infrastructural installation? For example, a dam may affect downstream water quality and flow, but should not affect upstream quality or flow.
- Will the exception cover waterways affected indirectly by infrastructure? For example, a storage dam in one catchment that facilitates irrigation in other catchments.

I recommend that:

3. Exceptions are clarified by ensuring that:

- a) 'Historical' and 'existing' are defined in the NPS so their meaning is clear
- b) Further detail on how FMUs will be chosen as eligible for exceptions due to 'significant existing infrastructure' be developed and made public before Appendix 3 is drafted and released for consultation.

Taking a more strategic approach

It is not until 2030 that the objectives for all FMUs must be set, and action to meet many of those objectives may not begin until after that. Collaborative processes and the traditional regulatory process both take time, and come at considerable cost to councils and stakeholders.¹⁹

It is therefore critically important that councils be able to prioritise their water quality efforts and expenditure so immediate problems and pressure points can be tackled. Not every water body in the country is in need of management. And where water quality is under pressure, not every attribute is important.

Taking a strategic approach would entail focusing efforts on catchments and water bodies that are, for example, 'outstanding', particularly vulnerable, or under particular pressure.

Where a problem is clear and immediate, waiting for a decade or more for the introduction of a comprehensive accounting system does not make sense. For example, in Gisborne District the primary problem is erosion and sediment, not nutrient loss and periphyton growth, so water quality will be maintained or improved most effectively by ensuring the District Council can focus its attention there.

The NPS and the proposed amendments provide some direction on what these priorities are from a national perspective. Objective A2 requires that 'outstanding freshwater bodies' and wetlands are protected, which in effect prioritises efforts to eliminate threats to some water bodies. The Objective also requires degraded water quality is improved, which in effect will mean immediate intervention for any water body that has poor (or band D) quality under the NOF, unless an exceptional circumstance applies.

A strategic approach, however, needs to go further. It is important that the comprehensiveness of the NOF does not undermine its effectiveness.

I recommend that:

4. The NPS be amended to provide criteria for how councils should prioritise their efforts and expenditure on water quality.

Dealing with rapid land use change and declining water quality

The NOF does not go far enough to address the most widespread, pervasive and immediate pressure – rapidly increasing nutrient loads from land use change. Leaving this pressure unaddressed will result in a worsening of water quality in the short to medium term and make the job of maintaining or improving water quality much harder in the longer term. The NPS should require regional councils to adopt interim measures to deal with this pressure.

In November 2013, I released a report following an investigation into the relationship between changing land use and nutrient pollution.²⁰ Over the last twenty years or so, there has been a significant reduction in the area of land used for sheep and beef farming and a concomitant increase in the area of land used for dairy farming and for forestry. In my report, I present modelling results looking into the future, specifically the year 2020. The results show that, without intervention, this trend is set to continue for years to come.²¹

Unfortunately, despite the significant and growing effort being put into mitigation, this land use change, left unchecked, will put increasing stress on water quality in much of the country. In particular, because of its sources and solubility, nitrate runoff is a huge challenge for maintaining and improving water quality in New Zealand.²²

There is nothing in the NPS amendments to prevent the scenario modelled in my report from becoming a reality in 2020. Land use change is a very big challenge. There are no easy answers, but it cannot be ignored.

It is unfair and costly to everyone to allow land use change only to have to find a way to claw it back (which may require compensation) in future. The Land and Water Forum anticipated this situation in its third and final report: *“In some catchments land use change can mean that there is a rapid acceleration toward the limit. ... It can be difficult and costly to manage an over-allocated catchment back down to a limit – over-allocation is best avoided.”*²³

The NPS should be amended to require regional councils to adopt interim measures to at least maintain water quality until objectives and limits can be set. Again, the Land and Water Forum anticipated this need.

“Catchments are under different states of pressure, and prioritisation will be required to target the ones at high-risk. In some cases steps (such as the establishment of targets and interim limits) will need to be taken to prevent further degradation or to avoid over-allocation prior to the development of catchment-specific objectives, limits and water quality management frameworks.”²⁴

I recommend that:

5. The NPS be amended to require regional councils to put in place interim measures to prevent significant degradation of water quality prior to objectives being set.

Appendix: A simplified description of the National Objectives Framework

- Each regional council must first classify the rivers, lakes and wetlands into a set of freshwater management units (FMUs).
- An FMU is to be managed for two compulsory national *values*, and potentially a number of other national or local values.²⁵
- The existing quality of the water in an FMU is measured using a set of *attributes* that are relevant for those values.

Figure 1: The elements of the framework illustrated as simply as possible.²⁶

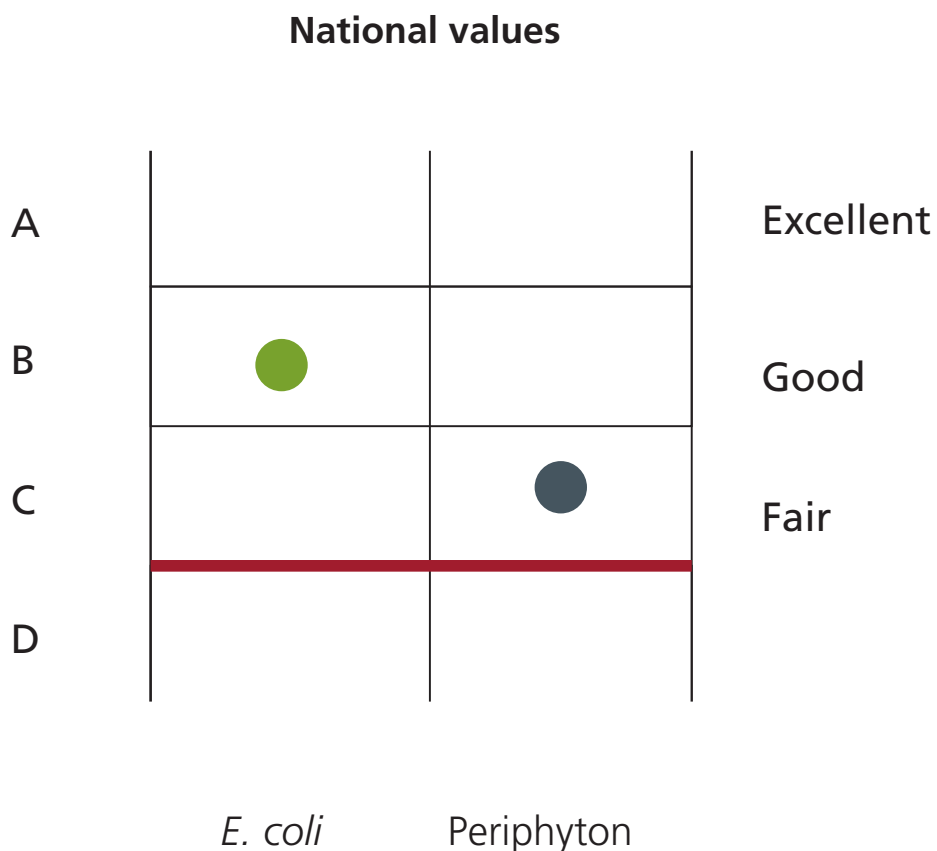


Figure 1 shows how the framework would apply to one FMU – in this case, a river or part of a river. It shows two water quality attributes that may be chosen, namely the concentration of *E. coli* and the level of periphyton cover. Different levels of the two attributes are depicted in bands, with the red line representing the bottom line for each. It is unacceptable for an attribute to be below the C band.²⁷

In Figure 1, the first attribute – *E. coli* – is shown as currently being in the Good or B band, and the second attribute – periphyton is shown as currently being in the Fair or C band.

This banding framework is to be used to set objectives and then numerical limits for each attribute for each FMU. For example, if state B is set as the objective for *E. coli*, the annual median must lie between 260 and 540 *E. coli*/100ml. Councils then set targets, methods and timeframes for achieving these limits.

Notes

- 1 This submission only addresses the first dimension – water quality.
- 2 For instance, objectives already set for the Rotorua Lakes aim to improve water quality to what it was in the 1960s. The NOF sets national bottom lines for lakes at far lower levels.
- 3 The NPS sets two high-level objectives for water quality. The first of these specifies national values for fresh water. These values are to be safeguarded by the second objective, that *“The overall quality of fresh water within a region is maintained or improved...”*. Ministry for the Environment, 2013, Proposed amendments to the National Policy Statement for Freshwater Management: A discussion document (MfE discussion document), p.53.
- 4 Report and Recommendations of the Board of Inquiry into the Proposed National Policy Statement for Freshwater Management (Board of Inquiry report), 2010, paragraph 190, p.35. Emphasis in original. The Land and Water Forum reached a similar view, recommending that *“the meaning of “maintained or improved” should be further defined”*; Second Report of the Land and Water Forum, 2012, p.22.
- 5 MfE discussion document, p.16.
- 6 State D is below the bottom line.
- 7 MfE discussion document, p.72. A *“very low risk of infection”* from *E. coli* from wading or boating in a lake or river is state band ‘A’, and a *“moderate risk of infection”* is state band ‘C’.
- 8 A reference group of representatives from iwi, regional councils and ‘key stakeholders’ formed to advise officials in the development of the NOF also recommended further definition of ‘maintain or improve’. They proposed an alternative approach where ‘overall quality’ is determined at the scale of a management unit rather than a region. Like the Board of Inquiry and Land and Water Forum, ‘maintain or improve’ would then require objectives for the management unit as a whole be set no lower than the current band. However, they also proposed to allow sub-unit objectives lower than current state, provided the degradation of a sub-unit was offset by improvement of another sub-unit in the same management unit. The group then proposed a set of principles similar to those used for biodiversity offsetting in other contexts. See Report of the National Objectives Framework Reference Group (Reference Group report), 2012, pp.2-3, 9-10.
- 9 The definition is also important to ensure consistency with the purpose and principles (Part 2) of the RMA, which requires that all environmental effects be mitigated, remedied or avoided, and that particular regard be given to *“the maintenance and enhancement of the quality of the environment”*.

- 10 *“‘Maintained’ could be defined to mean that, within the national banded framework, a freshwater state objective for any parameter cannot be set in a band lower than that of its current state unless by way of an exception. ‘Improved’ means setting a state objective higher than the existing state, and setting a limit based on that objective.”* Second report of the Land and Water Forum, 2012, p.22.
- 11 One of the objectives set for the Waikato River is: *“The restoration of water quality within the Waikato River so that it is safe for people to swim in and take food from over its entire length”*; Restoring and protecting the health and wellbeing of the Waikato River, 2009, p.7. This is clearly an ambitious objective, but surely it is better to aim high even if the achievement takes decades, than to aim low.
- 12 This is consistent with one of the changes to the NPS recommended by the Board of Inquiry; Board of Inquiry report, p.35. The word *“overall”* in Objective A2 would still be required because of the exceptions and the flexibility within bands.
- 13 MfE discussion document, p.14. The proposed amendments to the NPS include this additional definition in the Interpretation section.
- 14 Another potential problem is that attributes are to be measured as annual medians. If an entire river is defined as an FMU, medians by their nature will tend to mask any declines in water quality in the lower reaches of rivers as long as the water quality in the middle and upper river stays the same. Additionally, in many water bodies, poor water quality is mainly a concern in summer when pollutant concentrations are highest because water levels are lowest. And it is in summer that *E. coli* counts, periphyton growth, and cyanobacteria blooms most affect public enjoyment and use of rivers and lakes. But measuring the attribute as an annual median could again be very insensitive to water quality tipping into a very poor state in summer.
- 15 The Land and Water Forum considered that management units should constitute *“waterbodies that can be considered in the same way based on their values..., physical character and response to resource use, and their existing state”*; Report of the Land and Water Forum: A Fresh Start for Fresh Water, 2010, p.19. The Reference Group stated that an FMU *“should be hydrologically and ecologically coherent, and also be relevant to the way that communities of interest are geographically located (e.g. iwi and hapu boundaries)”* Reference Group report, p.8.
- 16 MfE discussion document, pp.27-28. The first type of exception applies when the FMU is contaminated from *“natural processes”*, and is obviously sensible.
- 17 The first two types of exception (natural processes and historical activities) are to be determined by regional councils according to Policy CA2. FMUs that qualify for the third type of exception (significant existing infrastructure) are to be decided on by the Government at some future time (*“possibly in 2016 – 2017”*) and the affected FMUs listed in an appendix of the NPS.

- 18 Email correspondence between PCE and MfE officials, 24 and 27 January 2014.
- 19 One major cost will be the comprehensive scientific measurement required to measure the different attributes of all the FMUs.
- 20 Parliamentary Commissioner for the Environment, 2013, Water quality in New Zealand: Land use and nutrient pollution.
- 21 The amount of 'headroom' or 'under-allocation' of the capacity of water bodies in different parts of the country to maintain different levels of water quality has been modelled in an unpublished report by NIWA titled "*National capacity study: implications of water quality minimum states for changes in loading from land use*".
- The report was commissioned by the Ministry for the Environment "*to inform policy processes around the NOF and objective and limit setting under the NPS, particularly in regard to water quality limits and land development.*" Using indicators such as periphyton growth and nitrate toxicity, the study showed that if bottom lines are set at the A-B boundary, then there is no scope in developed catchments for further increases in nutrient loads entering waterways. If water quality limits are set at the C-D boundary (as proposed in the discussion document), then there is scope for further increases in nutrient loads entering waterways in these catchments, and consequently scope for further land use change to more intensive farming.
- 22 In contrast, point sources of pollutants are well understood and relatively amenable to regulation under the Resource Management Act. They can be costly to mitigate and, in some instances, locally important. For example, point sources of phosphorus significantly affect the water quality of the Manawatu River in summer. (See Parliamentary Commissioner for the Environment, 2012, Understanding the science of water quality, Chapter 8). But when it comes to nutrient pollution, less than 5% of the nutrients that get into water originate in point sources. The focus should now be on diffuse sources of pollutants.
- 23 Third Report of the Land and Water Forum: Managing Water Quality and Allocating Water, 2012, p.24
- 24 Third Report of the Land and Water Forum, p.vii.
- 25 The compulsory national values are ecosystem health and human health (secondary contact recreation). Examples of other national values that can also be selected include natural form and character, mahinga kai, contact recreation (e.g. swimming), drinking water, irrigation, and hydroelectric power generation.
- 26 The figure is a simplified version of Figure 1 on page 19 of the Second report of the Land and Water Forum.