



Ministry for the
Environment
Manatū Mō Te Taiao

Submissions report and recommendations on proposed amendments to the National Policy Statement for Freshwater Management 2014

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Introduction

This report provides recommendations to the Minister for the Environment and Minister for Primary Industries on proposed amendments to the National Policy Statement for Freshwater Management 2014 (the Freshwater NPS). Each section of the report provides:

- an explanation of the proposed amendment, as set out in the consultation document, *Clean Water – 90% of rivers and lakes swimmable by 2040 (Clean Water)*
- a summary and analysis of submissions
- recommendations to the Minister for the Environment and Minister for Primary Industries.

The *Clean Water* package proposed a range of changes to New Zealand's freshwater management framework, including introducing a national swimming target, stock exclusion regulations, establishing the Freshwater Improvement Fund, and proposed amendments to the Freshwater NPS. This document only addresses the proposed amendments to the Freshwater NPS.

The Freshwater NPS came into force in 2011 and was amended in 2014. It requires regional councils to manage fresh water to provide for the values the community holds for their freshwater bodies. This includes setting limits on resource use to ensure these values are provided for.

The proposals outlined in this document were informed by submissions on the consultation document, *Next steps for fresh water*. In developing these proposals, officials from the Water Directorate¹ have worked with colleagues from the Land and Water Forum, the Iwi Advisors Group, the National Objectives Framework (NOF) Reference Group, a Science Review Panel, and other leading freshwater scientists, and relevant government agencies.

Process for amending a national policy statement

The Resource Management Act 1991 (RMA) sets out the statutory process for amending a national policy statement.² For the proposed amendments to the Freshwater NPS the Minister for the Environment chose to establish a process in accordance with section 46A(1)(b). The process includes:

- public consultation
- written submissions
- a report and recommendations to the Minister for the Environment of the submissions and subject matter of the Freshwater NPS (this report).

The Minister for the Environment is required to consider this report and may then make changes as the Minister sees fit, or withdraw all, or part of the proposed amendments.

If the Minister for the Environment decides to proceed with the amendments, a further evaluation must be undertaken in accordance with section 32AA of the RMA. The Minister for

¹ The Water Directorate is a joint-agency with officials from the Ministry for the Environment and the Ministry for Primary Industries.

² The sections pertaining to the consultation requirements for amending a national policy statement were amended by the Resource Legislation Amendment Act 2017. For the purposes of this amendment, the provisions of the Resource Management Act 1991, as at 1 February 2016, apply.

the Environment must have particular regard to the further evaluation when deciding whether to recommend the Freshwater NPS amendments to the Governor-General. If approved by the Governor-General, the amended Freshwater NPS will be issued by notice in the Gazette, provided to the House of Representatives and publicly notified.

In addition, submitters will be provided with a summary of the recommendations from this report and the Minister's decisions on the recommendations, including the reasons for not adopting a recommendation as required by section 52(3)(c) of the RMA.

Submissions

The proposed amendments to the Freshwater NPS were publicly notified on 23 February 2017 and submissions were sought through to 28 April 2017. Following the delayed publication of relevant information, on 11 May 2017 consultation on the proposals related to swimming was extended through to 25 May 2017.

A total of 684 unique submissions were received, including a summary report from ActionStation representing the views of 1787 individuals. A breakdown of the submitters by sector group is shown in the following table 1.

Table 1: Number of submissions by sector group

Sector group	Number of submissions
Individual	513
Māori/iwi	21
Environmental/Community group	56
Primary sector	17
Business/Industry	19
Regional council	19
City or district council	8
District health board	7
University/Research organisation	8
Other organisation	11
Total	679

A total of 6586 form submissions were received, based on three campaigns by the Green Party of Aotearoa New Zealand, the Royal Forest and Bird Protection Society of New Zealand, and Greenpeace New Zealand. A breakdown of form submissions received is shown in the table 2.

Table 2: Number of form submissions by sector group

Sector group	Number of submissions
Green Party of Aotearoa New Zealand	1137
Forest & Bird	3617
Greenpeace	1837
Total	6591

Summary of recommendations

Following analysis of the submissions, some changes to the proposals set out in *Clean Water* are recommended.

Below is a summary of the substantive recommendations or options for the Ministers to consider in this report. The recommendations or options are analysed further in the following chapters of this report.

Unless otherwise stated, the recommendation is to proceed with the proposal as set out in *Clean Water*.

Table 3: Summary of recommendations or options

Summary of recommendations or options
Te Mana o te Wai <ul style="list-style-type: none">Amend the Freshwater NPS to emphasise that all national values must be considered as part of the national objectives framework.Amend the heading “extractive uses” under the Additional National Values of Appendix 1 to “productive values” OR “use values” OR Amend proposed changes to Appendix 1 (values) of the Freshwater NPS so all values listed under the heading “extractive uses” are listed under Te Hauora o te Tāngata OR Amend proposed changes to Appendix 1 (values) of the Freshwater NPS to remove all headings categorising national values.Amend proposed Policy CA2 as follows: <i>“By every regional council, <u>through</u> discussion with communities, including tāngata whenua, applying the following process in developing freshwater objectives for all freshwater management units”.</i>
Maintain or improve overall water quality <ul style="list-style-type: none">No changes recommended to proposals.
Economic wellbeing <ul style="list-style-type: none">EITHER Remove proposed amendments related to providing for economic wellbeing. This includes the proposed changes to Objective A2, B1 and Policy CA2 (f)(iaaab) OR Remove proposed amendments to Objective A2 and B1 but retain amendment to Policy CA2 (f)(iaaab) OR Move proposed amendments into standalone objectives, and optionally, policies.AND Amend Policy CA2(f)(iaab) to remove reference to within “the context of environmental” limits, so it just says “within limits” – to reflect the objectives and policies.

Summary of recommendations or options

Swimming

- Include an additional attribute band, which is equivalent to the existing A attribute band.
- Amend the narrative descriptions of each attribute band so they more clearly describe the actual risk to human health and address submitter concerns.

EITHER

- Amend the proposed Policy CA2(e)(iia) of the Freshwater NPS to require water quality in the lowest attribute band to at least be maintained at current state (rather than a band) if there is no national bottom line

OR

Amend Objective A3 so that it requires improvement in all water bodies.

- Amend the proposed changes to Appendix 2 (attributes) of the Freshwater NPS relating to the *E. coli* attribute to clarify that all four columns (ie, 'tests') must be satisfied to determine attribute state, measuring: exceedances of 540 *E. coli* per 100ml; exceedances of 260 *E. coli* per 100ml; whether the median is above or below 130 *E. coli* per 100ml; and varying 95th percentile concentrations.
- Specify that the 95th percentile test cannot be modelled, and does not apply if there is insufficient monitoring to establish the 95th percentile concentration.
- Add a footnote to the attribute table: "All tests within an attribute band must be satisfied to determine attribute state".
- Amend the footnote to the attribute table so attribute state is established according to 60 samples over 5 years regardless of weather and flow conditions.
- Amend Policy CB1 by adding this monitoring requirement (instead of Policy CB1(aa)(i) as proposed):
"establishes methods for monitoring the extent to which the values identified under Part CA2(b) are being provided for in a freshwater management unit. These methods must at least include:
(i) surveillance monitoring of microbial health risks to people in accordance with the guidance in Appendix 5 (applies in a river or lake in a freshwater management unit used for primary contact)".
- Replace the proposed Appendix 5 and add a new appendix as follows:
"Where a regional plan has identified that a freshwater management unit is used for primary contact the regional council will:
 - a) Identify a sampling site (or sites) in the freshwater management unit that is representative of the site or sites (if any) that are used for primary contact;
 - b) Identify the bathing season that the site or sites will be used for primary contact;
 - c) Undertake weekly sampling for the indicator bacteria *E. coli* at the site or sites that will be used for primary contact during the bathing season
 - d) Investigate potential causes of microbiological contamination if a single sample is greater than 260 *E. coli* per 100ml
 - e) Inform the public that a site is unsuitable for recreation if a sample from the site is greater than 540 *E. coli* per 100ml, and maintain that information until sampling shows results of less than 540 per 100ml (note that if no follow up sampling is undertaken, the public information that the site is unsuitable for recreation must be maintained)
- Directly incorporate the national target as an appendix to the Freshwater NPS, and explicitly refer to this when stating requirements to improve water quality for swimming in Objective A3 and/or Policy A5.
- Amend the Freshwater NPS so regional councils are required to report on their contributions to achieving the national target at regular intervals.
- EITHER
Amend proposals so regional councils must identify sites used for primary contact, and improve these sites – in addition to all lakes and rivers that are fourth order or larger
AND/OR
Amend proposals so that Objective A3, Policy A5 and Policy CA2(f)(iaaa) apply to 3rd order water bodies
OR
Amend proposals so that Objective A3, Policy A5 and Policy CA2(f)(iaaa) apply to all water bodies.
- Amend Objective A3, Policy A5, Policy CA2(f)(iaaa) and related definitions to use the term "primary contact" instead of "immersion" or other references to swimming.

Summary of recommendations or options

- Qualify Objective A3 so it does not require improvement where water quality is already in the highest attribute band (note this issue is tied to the suitability of the A band, discussed in the section above, “Stringency of the proposed attribute table”).

Infrastructure

Remove definition of “benefits of infrastructure” as proposed in *Clean Water* and rely on definition of “benefits” provided in the RMA.

Monitoring requirements

- EITHER

Amend proposed changes to Part CB of the Freshwater NPS, consistent with Land and Water Forum (LAWF) recommendations, to:

- mandate the use of the Macroinvertebrate Community Index (MCI) specifically
- specify that a MCI score of 80, or a declining trend, triggers the already proposed requirement to develop methods (eg, action plans) to respond
- require methods (eg, action plans) to investigate the causes of declining trends of breaches of 80 MCI; seek to halt declining trends; and seek to improve water quality that is below 80 MCI unless this is caused by naturally occurring processes, invasive species, or infrastructure listed in Appendix 3

OR

Amend proposed changes to Policy CB1 of the Freshwater NPS, to:

- require regional councils to set their own numeric thresholds for macroinvertebrate monitoring, which will trigger already proposed requirement to develop methods (eg, action plans) to respond;
- suggest that the MCI may be a suitable index for this purpose; and
- specify that if regional councils use MCI for this purpose, the threshold must be a score of 80 or a declining trend.

Coastal lakes and lagoons

- Add the following text to the attribute tables for phytoplankton, total nitrogen, and total phosphorus (rather than the proposed text):
“For lakes and lagoons that are intermittently open to the sea, monitoring data should be analysed separately for closed periods and open periods.”
- Do not add the text “or additional phytoplankton and macroalgae” as proposed in the narrative description of the “C” state in the attribute table for phytoplankton, total nitrogen and total phosphorus
- Add “(without native macrophyte/seagrass cover)” after “persistent, degraded state” instead of “(without macrophyte/seagrass cover)” as proposed in the narrative description of the “D” state in the attribute tables for phytoplankton, total nitrogen, and total phosphorus.

Managing nitrogen and phosphorus

- Remove the sentence referring to Nitrate Toxicity in the Periphyton ‘Note’ and move it to the Nitrate Toxicity table.
- Redraft the wording of the ‘Note’ to achieve a clearer policy intent.
- Include a decision support tool in the Freshwater NPS, based on advice from LAWF.

Te Mana o te Wai

Background

Te Mana o te Wai is a concept for fresh water that encompasses the integrated and holistic health and wellbeing of a water body. When Te Mana o te Wai is given effect, the water body will sustain the full range of environmental, social, cultural and economic values held by iwi and the community.

Amendments to the Freshwater NPS in 2014 added references to Te Mana o te Wai to the Preamble and in a statement sitting above the objectives and policies. The statement asserts that the purpose of the Freshwater NPS involves “recognising ... Te Mana o te Wai” and that “a range of community and tāngata whenua values ... may collectively recognise ... Te Mana o te Wai”.

Following that amendment, the Iwi Leaders Group noted the lack of clarity around interpretation and implementation. Similarly, regional councils asked for more direction and explanation about the meaning of Te Mana o te Wai and what they should do to give effect to this concept in water management.

Proposed amendments

Officials engaged with the Iwi Advisors Group, who advise the Iwi Leaders Group, to develop a package of potential amendments to better recognise Te Mana o te Wai. The proposed amendments would:

- include a description of Te Mana o te Wai as part of the statement of national significance of fresh water and Te Mana o te Wai
- add a new objective requiring councils to consider and recognise Te Mana o te Wai in the management of fresh water
- add a new policy directing councils to ensure planning documents consider and recognise Te Mana o te Wai, while noting the connection between fresh water and the broader environment and the need to inform the setting of freshwater objectives and limits through engagement with the community, including tāngata whenua
- amend the names and order of the national values in Appendix 1 of the Freshwater NPS so they can more easily be linked to Te Mana o te Wai
- amend the description of the compulsory value “human health for recreation” so that it removes the emphasis on boating and wading and provides a more positive explanation of what a healthy water body means for human health
- amend the description of the additional value “natural form and character” so it provides clearer links to Te Mana o te Wai
- clarify within Policy CA2 how councils are to consider and recognise Te Mana o te Wai in the objective setting process
- add a requirement to recognise the interactions, ki uta ki tai (from the mountains to the sea) between fresh water, land, associated ecosystems, and the coastal environment
- amend Policy CB1(ba) to include mātauranga Māori as an established monitoring method that is appropriate for monitoring progress towards, and the achievement of, freshwater objectives that are set in line with the concept of Te Mana o te Wai.

Submissions

There was unanimous support for adding clarity to Te Mana o te Wai. There was strong support for the amendments as drafted, with the exception of some hydro-electric power generators and some in the primary sector. The inclusion of mātauranga Māori in Policy CB1(aa)(v) and the reference to ki uta ki tai in Policy C1(b) were supported.

The Iwi Leaders Group were “particularly pleased that the national significance of Te Mana o te Wai has been recognised”³. All council submissions were strongly supportive of the proposed Te Mana o te Wai amendments and indicated that they were useful in directing the implementation of Te Mana o te Wai.

Submissions in opposition were concerned that changes to the order of the national values, in combination with the new objective, prioritises those values associated with Te Mana o te Wai (Te Hauora o te Wai (the health of the water), Te Hauora o te Tangata (the health of the people) and Te Hauora o te Taiao (the health of the environment)) over those listed as “extractive uses.” Their view was that this creates a hierarchy not envisaged from earlier consultation.

Two less substantial concerns were:

- Objective AAA1 and Policy AAA1: “consider and recognise” should be changed to “recognise and provide for”; and
- The proposed amendments to Policy CA2 imply that the objective setting process comes after discussion with communities instead of throughout this discussion.

The proposals create a hierarchy of values

Some members of the primary sector, some hydro-electric power generators, and district health boards raised concerns that aligning the instream values described in Appendix 1 with the three healths of Te Mana o te Wai (Te Hauora o te Wai, Te Hauora o te Tangata and Te Hauora o te Taiao) creates a hierarchy of values because:

- associating some values with the three healths provides greater weight to those values because of the direction provided in Policy AAA1
- “extractive uses” are no longer “values” in terms of the Freshwater NPS.

Associating some values with the three healths provides greater weight to those values

The intent of the Te Mana o te Wai policy is to put the health and wellbeing of water first in all water management. The prioritisation provided to the health and wellbeing of the freshwater body is consistent with the priority provided in the sustainable management purpose of the Resource Management Act.

Submitters who raised this concern stated the combined effect of aligning some values with Te Mana o te Wai and then requiring that they are “considered and recognised”, rather than “considered” (as for the values not aligned with Te Mana o te Wai) will disadvantage those extractive use values when councils set objectives and limits in their regional plans.

The strongest submission on the place of “extractive uses” came from Horticulture NZ, who made the point that “the values of fresh water for cultivation are national values important to all New Zealanders.”

³ February 2017 Iwi Chairs Forum report.

These submissions wanted the values associated with “extractive uses” grouped with the values under Te Hauora o te Tangata, while some district health boards sought to have the value “water supply” made a compulsory value.

If “extractive uses” are added to Te Hauora o te Tāngata (health of the people) then all national values will be associated with Te Mana o te Wai and there would be no clear direction about what is meant by putting “the health and wellbeing of the water at the forefront of all discussion and decisions about freshwater” (as proposed in the statement of national significance).

The new objective and policy require councils to “consider and recognise Te Mana o te Wai in the management of fresh water,” which gives Te Mana o te Wai more weight than the current drafting. However, this does not mean that the values associated the three healths of Te Mana o te Wai are to be considered to the exclusion of other values. The proposed new policy goes on to say “local and regional values identified through engagement and discussion with the community, including tāngata whenua, must inform the setting of freshwater objectives and policies”. Once a value is identified, it has the same status as any other identified value in terms of objective and limit setting.

While Te Mana o te Wai places the health and wellbeing of fresh water first, all values must be considered. This means that “extractive uses” will be provided for in a freshwater management unit where the regional council considers this is appropriate. The national objectives framework requires councils to develop freshwater objectives by: “considering all national values and how they apply”. Policy CA2 requires all listed national values (including those under the three healths and “extractive uses”) to be considered when identifying values and setting objectives and limits in regional plans by directing councils to (a) “consider all national values and how they apply” and (b) (ii) to develop objectives by identifying the values for each freshwater management unit that “may include any other national values”.

It is difficult to see how the Freshwater NPS could be clearer in its direction that all values must be considered, and where and how they apply to local and regional circumstances. Policy CA2 is clear that if a value associated with Te Mana o te Wai does not apply in a particular water body then specific objectives need not be set for that value. Further, of the five extractive uses, three have specific national direction that will provide extra weight in decision-making: water supply (National Environmental Standard for Sources of Human Drinking Water), animal drinking water (RMA, s14), and hydro-electric power generation (National Policy Statement Renewable Electricity Generation and RMA, s7).

Recommendation

Amend the Freshwater NPS to emphasise that all national values must be considered as part of the national objectives framework.

See also recommendations under section titled “Extractive uses are no longer ‘values’ in terms of the Freshwater NPS”.

Extractive uses are no longer ‘values’ in terms of the Freshwater NPS

Submitters with this concern misunderstood the proposal because the extractive uses are clearly part of the table of “additional national values” in Appendix 1 and “value” is defined in the interpretation of the Freshwater NPS as including “any use value”.

Renaming “extractive uses” as “productive values” or “use values” could clarify their status as national values to address some of the concerns and misunderstandings of the weight that needs to be accorded to these values during the objective-setting process. This could be

supported by amending policy CA2 so it is clearer that the objective setting process relies on identifying all values that apply through discussions with communities.

Additionally, some hydro-generators noted the term “extractive use” is inaccurate in respect of hydro-generation, as the process does not involve “extraction” of the water.

This heading was intended to distinguish between instream values that are aligned with Te Mana o te Wai and do not require modification of the water body, and those that are not aligned with Te Mana o te Wai and sometimes do cause changes to the water body. A different heading could retain that meaning without being incorrect. Any change should retain the meaning that the values currently listed under “extractive uses” are still values under Appendix 1 and must be considered alongside the three healths under the value identification process.

Recommendations

Amend the heading “extractive uses” under the Additional National Values of Appendix 1 to “productive values” OR “use values”

OR

Amend proposed changes to Appendix 1 (values) of the Freshwater NPS, so all values listed under the heading “extractive uses” are listed under Te Hauora o te Tāngata

OR

Amend proposed changes to Appendix 1 (values) of the Freshwater NPS to remove all headings categorising national values.

“Consider and recognise” should be amended to “recognise and provide for”

A substantial number of submitters expressed concern at the direction to “consider and recognise” Te Mana o te Wai in Objective AAA1 and Policy AAA1. It was generally asserted that the direction of “consider and recognise” is vague, open to interpretation and litigation, and may have little effect on regional freshwater planning.

Most submitters wanted this wording to align with the RMA language “recognise and provide for”. Submitters stated that RMA language may provide more clarity because it is associated with direct actions that are well understood and with meaning supported by case law. The Iwi Advisors Group had strongly advocated for using the term “recognise and provide for” during policy development.

The term “recognise and provide for” in AAA1 was not proposed because:

- the term “consider and recognise” provides a clear link to the direction in Policy CA2 (a) which requires councils to “consider” all national values when developing freshwater objectives in their regional plans
- the term “recognise and provide for” is used in section 6 of the RMA in relation to matters of national significance but Te Mana o te Wai is not listed in section 6
- national policy statements should add value to the Resource Management Act and provide specific direction to councils about what is needed when they “give effect to” national policy statements in their regional plans.

These reasons still apply.

Recommendation

Retain “consider and recognise” in Objective AAA1 and Policy AAA1 as proposed.

Implication that discussions about Te Mana o te Wai precede the objective-setting process

Some submitters raised concerns with the proposed amendment to Policy CA2 that directs regional councils to identify values and set objectives and limits “following discussion with communities, including tāngata whenua”. These submissions asserted that the word “following” indicated that discussions come before the objective-setting process instead of throughout.

The policy intent of the proposed amendment to Policies AAA1(b) and CA2 is to ensure that through the engagement envisaged under Te Mana o te Wai, the community, including tāngata whenua, is involved in the process of identifying values and setting of objectives and limits. This intent will be lost if the use of the word “following” implies a two-step process where councils first talk to the community but then undergo the objective setting process in isolation from the community.

Replacing “following” with “through” (as requested in submissions) will provide clearer direction for councils to involve communities, including tāngata whenua, throughout the process steps listed in Policy CA2. This will clarify that the discussions under Te Mana o te Wai should be integrated into the objective setting process, instead of representing a framework distinct from it.

Additionally, replacing “following” in Policy CA2 will be more consistent with the proposed wording of Policy AAA1 (b) which directs regional councils to make or change regional planning documents “*through engagement and discussion with the community, including tāngata whenua*”.

Recommendation

Amend proposed Policy CA2 as follows:

“By every regional council, through discussion with communities, including tāngata whenua, applying the following processes in developing freshwater objectives for all freshwater management units”.

Maintain or improve overall water quality

Background

The Freshwater NPS currently requires regional councils to at least maintain overall water quality within their region. Under the existing provisions, it is unclear how regional councils can demonstrate that overall water quality is at least maintained.

Moreover, the scale at which overall water quality must be maintained – across the region – is not the scale at which regional councils are asked to establish freshwater objectives (the desired state of water bodies, defined using measurable attributes, eg, nitrogen levels), which is at the freshwater management unit scale.

Proposed amendments

The proposals amended the scale at which regional councils are required maintain or improve water quality, from across the entire region to within a freshwater management unit only.

The proposals also provided clarity as to how regional councils could demonstrate water quality is at least maintained, by either:

- establishing freshwater objectives in the same band as current water quality ('the bands test'), or
- in circumstances where the Freshwater NPS does not have defined attributes, by ensuring freshwater values are provided for in no worse manner than currently ('the values test').

Submissions

Twenty-one submissions, including six regional councils, Federated Farmers, Fish & Game, and the Environmental Defence Society, supported the proposals as they stood.

As well as these submissions, a significant number of submitters supported the proposed amendment limiting the requirement to at least maintain water quality to the freshwater management unit.

Submissions raised the following issues:

- the 'bands test' would enable degradation of water quality within an attribute band
- freshwater management units are not being set in a consistent manner
- temporal, spatial and seasonal variations should be taken into account when assessing maintenance of water quality
- regional councils should not be required to maintain all values, only some.

Opposition to degradation within a band

Nineteen submissions opposed the 'bands test', on the basis that degradation within a band could have significant impacts on water quality. For example, as noted by NIWA, a lake with a chlorophyll median of 5.1 mg/m³ (top of the C band) could more than double its chlorophyll to a median of 12 mg/m³ (bottom of the C band) and yet still be regarded as being 'maintained' when the colour, clarity and amenity value of that lake could noticeably change.

It is worthwhile noting the Resource Management Lawyers Association consider the proposed approach to be consistent with the decision of the Environment Court in *Ngati Kahangununu Iwi Inc v Hawke's Bay Regional Council* [2015] NZEnvC ENV-2013-WLG-000050, which considered the issue of maintaining water quality. The 'bands test' was also proposed and consulted on in the *Next steps for fresh water* consultation and was supported at the time by the Parliamentary Commissioner for the Environment based on the recommendation made by the Land and Water Forum in its second report.

The 'bands test' is a pragmatic approach designed to better relate to the conditions of rivers and lakes, where attribute states vary regularly, depending on factors such as flow/level or climate. In reality, the water quality of many water bodies will vary from day to day, creating practical difficulties for regional councils to give effect to the requirement to at least maintain water quality.

The original intention of the bands was to provide regional councils flexibility when they establish freshwater objectives, that is, they would not be required to manage to a specific number value but would instead manage their water bodies to remain, or improve through the bands. The 'bands test' is a logical extension of this requirement. There was significant stakeholder and scientific input into the development of the bands.

Concerns from scientists and some regional councils about the breadth of the bands are valid. NIWA suggests developing a proportional approach, whereby regional councils can demonstrate they are at least maintaining water quality if water quality does not degrade more than a certain percentage of the freshwater objective, that is, if the periphyton objective is a chlorophyll median of 4 mg/m³ and the percentage applied to the periphyton attribute is 10% then the water quality is 'maintained' if the median is between 3.6-4 mg/m³.

It should be noted that the 'bands test' is a minimum for compliance. Regional councils are free to establish their freshwater objectives in a way that would not permit degradation within the bands.

To address these concerns, the 'bands test' could be removed and regional councils instead be held to the 'values test'. Regional councils would be able to demonstrate water quality is at least maintained if the identified values in the freshwater management unit are being provided for in no worse manner than when the freshwater objectives were set.

The question of how regional councils would demonstrate this would remain unresolved in the Freshwater NPS and could perhaps lead to inconsistent approaches and judicial consideration of how regional councils 'measure' values as diverse as ecosystem health, mahinga kai or cultivation. The bands test, on the other hand, gives certainty to regional councils to the extent of the attributes that are specified in the Freshwater NPS.

On balance, given the support of the Land and Water Forum and the Parliamentary Commissioner for the Environment, we consider it would be pragmatic to continue as proposed with the bands test. In future, the Minister may wish to seek a review of the attributes and the breadth of the bands.

Recommendation

Proceed with the 'bands test' as proposed but keep a watching brief on whether its implementation is causing water quality degradation.

Inconsistent approaches to establishing freshwater management units

Thirteen submissions commented on the issue of establishing freshwater management units (FMUs). The general tenor of the comments was that giving regional councils discretion as to

how they establish FMUs provides an opportunity to ‘game the system’, which in relation to the requirement to at least maintain water quality could make for some significant trade-offs in water quality.

We published a guidance document on identifying FMUs in June 2016. Further, the implementation team of the Water Directorate ensures central government is informed of the approach regional councils are taking to establishing their FMUs. The implementation team are in a position to offer advice and guidance if there are concerns with the approach a council is taking. To date, we are comfortable with the approach regional councils have taken to establishing their FMUs but will continue to monitor future developments.

Recommendation

Keep a watching brief on regional council approaches to establishing freshwater management units.

Temporal, spatial and lag effects should be taken into account

Eight submissions sought to have temporal, spatial or seasonal variations taken into account when establishing freshwater objectives to maintain or improve overall water quality. Many of these submitters raised concerns about the lag effect of nutrients entering waterways, suggesting that water quality could continue to trend down for decades after land management practices are improved.

A related issue was raised by the New Zealand Forest Growers Association, who noted that forestry owners could not prevent declines in water quality in the years immediately following harvest, which typically occurs every 30 years.

Attribute states are already defined in such a way to take into account temporal factors, that is, most are annual medians or permitted exceedances. Spatial variation should be addressed through the establishment of appropriately sized FMUs. If freshwater quality varies significantly through a FMU it might be more appropriate to divide the FMU.

It is important to note the requirement to maintain or improve water quality relates to freshwater objectives. Freshwater objectives are the desired state of a freshwater body to be achieved by a certain time. It is not unexpected that water quality might worsen before it starts to get better and the timeframes for achieving freshwater objectives can be set to reflect this outcome.

We do not consider the outcomes of permitting regional councils to set freshwater objectives at levels they expect to see due to the lag effect of nutrients passing through the system are desirable. Freshwater objectives drive the management of fresh water in the freshwater management unit in which they are set. If regional councils are permitted to set freshwater objectives below existing state to take into account expected future state, management decisions could be driven by objectives that are lower than the current state.

We accept that requiring freshwater objectives to be established to at least maintain current state could mean that regional councils are not able to meet freshwater objectives as nutrients pass through the system, causing lag effects. However, regional councils are able to reassess the current state of water when they review their regional plans every 10 years. These reassessments could inform the development of new freshwater objectives in this review process.

Recommendation

Do not amend the Freshwater NPS to further take into temporal, spatial or lag effects.

Regional councils should be required to maintain some values, not all values

The Land and Water Forum suggested that regional councils should not be required to maintain all the values identified in an FMU but instead should only have to maintain some of the values, including at least the compulsory values. The Forum did not state which values, other than the compulsory values, should be given precedence. On a related point, Greater Wellington Regional Council recognised that providing for values would necessarily require trade-offs.

We acknowledge that ‘trade-offs’ between values is a likely outcome of implementing the Freshwater NPS, as few freshwater management units (FMU) will have communities that have uniform aspirations for their waterways. ‘Trading off’ is a necessary element of the implementation process outlined in Part CA of the Freshwater NPS – the National Objectives Framework, which envisages the community interests in an FMU coming together to develop a plan for freshwater management that is palatable for all. In many cases, this will require some ‘give and take’ between communities, which will inform the development of freshwater objectives.

By including two compulsory values, the Government has indicated what freshwater values have universal importance but it is at the regional level where considerations between the impacts of different values are best considered. Aside from the compulsion associated with the values of ecosystem health and human health, officials do not think it appropriate for the Freshwater NPS to create a hierarchy of freshwater values as that is properly the decision of regional councils and their communities.

Recommendation

Proceed with the ‘values test’ as proposed.

Economic wellbeing

Background

The Freshwater NPS as it currently exists requires councils to consider economic implications when identifying community values for freshwater bodies, establishing freshwater objectives to provide for those values, and setting limits to ensure freshwater objectives are met.

There is perceived risk that there may be insufficient consideration of a community's economic wellbeing when limits and freshwater objectives are set, resulting in constraints on future economic uses of fresh water. There is a limited evidence base showing this risk playing out but the potential impacts, such as lost regional economic activity, if the risk does eventuate could be high.

Proposed amendments

The proposals in the *Clean Water* consultation document seek to strengthen the requirement to consider economic impacts by amending Objectives A2 and B1 and introducing a new policy, CA2(f)(iaaab).

Specifically, the *Clean Water* package proposes amendments to the Freshwater NPS to make it clear that regional councils must:

- consider people's economic wellbeing and opportunity before making decisions about where water quality will be improved and sustainably managing water quantity
- consider economic wellbeing when setting freshwater objectives.

Submissions

Two hundred and twenty-six unique submissions, 3612 form submissions, and the Actionstation submission summarising the views of 1787 individuals were received on the proposals related to economic wellbeing. Only 28 showed any measure of support, though most of these also suggested changes to the proposed amendments.

The vast majority of submissions, capturing the views of 5597 individuals and organisations, either rejected the proposed amendments outright or sought significant changes to directly prioritise environmental wellbeing over economic wellbeing.

Submissions raised the following issues:

- existing RMA provisions already provide sufficiently for economic wellbeing
- the relative prioritisation of environmental or economic wellbeing
- the legal ambiguity surrounding weighing the environment and economy against each other, and the challenge that it would present for setting precautionary environmental limits and the pace for meeting the new water quality targets
- the potential for litigation as economic wellbeing is not defined in the RMA or Freshwater NPS.

Existing RMA provisions already provide sufficiently for economic wellbeing

The vast majority of individual submissions and all environmental NGO submissions advocated for rejecting the proposed amendments outright. Many cited an opinion commissioned by the NZ Fish and Game Council and written by Geoffrey Palmer QC. At least 36 unique submissions explicitly questioned the added value of these amendments over and above the existing provisions in s5 of the RMA to:

“...[sustainably manage] the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural wellbeing...”

Six out of 13 councils rejected or strongly questioned the proposed amendments, citing how the measures appeared redundant to existing RMA provisions. Two councils approved the proposals as initially drafted. The remaining council submissions either supported the amendments or simply sought clarification around the actions they would be expected to take to meet the proposed requirements.

Iwi also raised issues around the need for these amendments, arguing almost unanimously that if two of the RMA's wellbeings (economic and environmental) are explicitly mentioned in these sections, then the amendments should logically also include social and cultural wellbeing. In general they favoured simply rejecting the proposed amendments, rather than amending them.

Given the strong arguments presented against these proposals, the value of progressing these amendments should be carefully questioned. At best, submitters considered these amendments redundant. At worst, submitters considered they could cause confusion because of the perceived inconsistencies with the purpose of the RMA. This could have serious implications, including the risk of increased litigation if the final amendments do ultimately prioritise one wellbeing over others or put them in contest. While social and cultural wellbeing are intended to be met through the provisions around Te Mana o te Wai, we agree there is a risk in not listing them alongside the other wellbeings in the amendments to Objective A2 and B1.

The most conservative option would be to remove the proposed amendments entirely. This policy decision would remove all legal risks related to the perceived conflicts between the amendments and the RMA.

A second option would be to retain the changes to Policy CA2 but remove the changes to Objective A2 and B1. This option would serve the original policy intent by requiring councils to consider economic wellbeing when making decisions on freshwater management, while not presenting the legal risks associated with inserting economic wellbeing into the objectives.

Officials have also considered, and do not recommend, redrafting changes to Objective A2 and B1 to ensure they are consistent with the RMA. We consider this option carries the greatest risk because submitters had strong conflicting views about the changes required, and alternative drafting is unlikely to reduce the risk of litigation and delays to council decision-making processes, or deliver on the policy intent of proposals. This is explored in more detail below.

A third option would be to move proposed amendments into standalone objectives and policies within Parts A and B. This option would also serve the original policy intent by requiring councils to consider economic wellbeing when making decisions on freshwater management, while not presenting the legal risks associated with inserting economic wellbeing into existing objectives.

Recommendations

EITHER

Remove proposed amendments related to providing for economic wellbeing. This includes the proposed changes to Objective A2, B1 and Policy CA2 (f)(iaaab)

OR

Remove proposed amendments to Objective A2 and B1 but retain amendment to Policy CA2 (f)(iaaab)

OR

Move proposed amendments into standalone objectives, and optionally, policies.

Prioritisation of economic or environmental wellbeing

Nearly all of the relevant submissions commented in some way on the relative priority given to environmental and economic considerations. A high proportion of submissions, including the submissions from most councils and the Land and Water Forum expressed confusion over the differences in drafting of amendments to Objective A2 and B1, respectively.

Objective A2 requires of regional councils that ‘overall quality of freshwater [is maintained]... then providing for economic wellbeing’ while Objective B1 requires councils to ‘sustainably manage the taking [of water]...while providing for economic wellbeing.’ This creates confusion as the use of ‘then’ sets up a clear hierarchy between the wellbeings, while the use of ‘while’ gives them equal priority. Virtually all submissions asked that the use of ‘then’ or ‘while’ be consistent between these two amendments at the very least.

Palmer suggests the use of ‘while’ in the proposed amendments “...[undermines] the level of environmental protection that the Freshwater NPS currently provides”. The 12 iwi that provided comment unanimously argued that the health of freshwater ecosystems should be prioritised and that creating frameworks where economic benefits were traded off against environmental wellbeing was inappropriate.

All of the 13 submissions from regional councils detailed concerns around the relative priority given to environmental and economic wellbeing, with nearly all councils arguing that the drafting of A2 – prioritising environmental wellbeing – should be adopted for Objective B1 as well. Several councils, however, did appreciate the way the amendments sought to balance environmental and economic considerations.

Some submissions, primarily from primary industries, argued that the new amendments go too far in subordinating economic uses to environmental ones and that the conjunction ‘while’ should be used consistently in the amendments.

Some of the primary sector submissions argued that elevating the importance of the environment over economic wellbeing in the proposed amendment to A2 is *ultra vires*. We note the Supreme Court in *Environmental Defence Society Inc v The New Zealand King Salmon Co Ltd* [2014] NZSC 38 stated that a national policy statement that directs decision-makers to give primacy to environmental protections is consistent with the meaning of ‘sustainable management’ in the RMA.

While not reflecting the policy intent, we agree proposed amendments in Objective B1 and CA2(f) could be misinterpreted to mean regional councils must:

- provide for economic wellbeing at the expense of environmental protection
- focus on economic wellbeing considerations at the expense of other matters, including environmental protection.

The concerns raised about the inconsistent drafting of Objectives A2 and B1 indicate that the proposals could be confusing to implement and create litigation risks.

Recommendations

See recommendations above, in section titled “Existing RMA provisions already provide sufficiently for economic wellbeing”.

AND

Amend Policy CA2(f)(iaab) reference to within “the context of environmental” limits, so it just says “within limits” – to reflect the objectives and policies.

Challenges to regional council implementation

Submissions generally raised the concern that the amendments will increase the ambiguity of the Freshwater NPS, leading to increased variability in interpretation by regional councils. Many also highlighted that this may hinder or delay the achievement of the targets for swimmability and could result in increased litigation.

A few councils suggested the amendments could affect the pace or level of ambition adopted by councils related to achieving the *Clean Water* targets. Several argued that they might not be able to justify setting limits higher than the national bottom lines. For most this was a concern, while several councils concerned about the impact of the Freshwater NPS on economic development welcomed the direction of the proposals.

Some individuals and NGOs raised concerns that we would be leaving decisions of ‘balancing’ the two wellbeings – environmental and economic – up to regional councils who may have significant pressure on them to support regional economic growth.

The concerns raised highlight a potentially perverse outcome that could work against some of the other objectives of the *Clean Water* package. This provides further rationale for removing the proposed amendments.

Recommendation

IF AMENDMENTS ARE PROGRESSED:

Keep a watching brief on the impact of the amendments on regional plans and progress towards national swimming targets.

Definition of economic wellbeing

A small number of the relevant submissions commented on the ambiguity created by the proposals due to the fact that the term ‘economic wellbeing’ is not defined in either the RMA or the Freshwater NPS. Submitters argued that this would cause confusion in implementation. Several mentioned that confusion over these amendments would create an opportunity for significant litigation, potentially questioning the RMA meaning of sustainable management and the decisions of councils during implementation.

The Ministry has not considered definitions for this term previously. Establishing a definition—either in the Freshwater NPS or in related guidance—as the submitters have suggested would not be advisable as defining such a broadly used term would not be good legal practice.

However, we could consider other forms of guidance to mitigate the risks raised around ambiguity and implementation challenges. This guidance, providing greater detail on how councils should provide for economic wellbeing, would likely take some time to develop and

would likely require some form of additional consultation. Using natural capital accounting methods to inform this guidance is advisable.

Recommendation

IF AMENDMENTS ARE PROGRESSED:

Officials should produce guidance on the interpretation of economic wellbeing to aid council implementation.

Swimming

Background

Consultation on the *Next steps for freshwater* consultation document in 2016 attracted a large number of submissions on the issue of swimming. This indicated:

- the public had a low level of confidence fresh water would be managed in a way that improves quality to a swimmable standard – generally citing references to secondary contact and the national bottom line for *E. coli*
- swimmability was seen as a binary issue – that a river or lake is either suitable for swimming or not.

Proposed amendments

The *Clean Water* proposals aimed to clarify that regional councils are required to safeguard human health – as affected by any level of contact, and not just secondary contact.

Proposals also sought to clarify that most rivers and lakes are safe to swim in some proportion of the time, and their ‘swimmability’ depends on how often contaminants harmful to human health exceed safe levels. Proposals were intended to give regional councils a clear direction to improve how often rivers and lakes are suitable for swimming.

The *Clean Water* proposals:

- remove references to secondary contact recreation
- add a new direction to improve water quality for swimming in Objective A3, Policies A5 and CA2(f)(iaaa), and a definition of large rivers and lakes for this purpose
- introduce new monitoring requirements under Policy CB1(aa)(i) and Appendix 5
- replace the existing attribute table for *E. coli* with a new one based on the amount of time water quality exceeds a given threshold.

The swimming proposals were accompanied by a non-regulatory national target to make 90% of New Zealand’s rivers and lakes swimmable by 2040. While some elements of this target are part of proposals to amend the Freshwater NPS (ie, the *E. coli* attribute table defines the relevant standard), the target itself is non-regulatory. Submissions on the target are still being considered as part of ongoing work, but are not summarised in this report which focusses on proposals to amend the Freshwater NPS.

Submissions

Submissions raised issues with the proposed:

- *E. coli* attribute table, including concerns that it effectively lowers the standards and/or allows for increased risk to human health
- monitoring requirements
- objectives and policies relating to the swimming proposals.

Proposed *E. coli* attribute table and ‘swimming standards’

Many submissions commented on the proposed *E. coli* attribute table – often referred to as the proposed ‘swimming standards’.

Submissions from key stakeholders, including LAWF and NIWA, the majority of regional councils, research organisations, and primary sector expressed support in principle for the proposed *E. coli* attribute table. That is, managing towards primary contact recreation (rather than secondary) according to how often *E. coli* exceeds a given threshold (time-based management of *E. coli*).

Overall these submissions considered the proposals were positive steps that should lead to improvement and reflect the dynamic nature of *E. coli* concentrations over time. However, this support was qualified and submissions also raised a range of concerns which are explored in more detail below.

Submissions from individuals and iwi/Māori were generally opposed to the proposed *E. coli* attribute table. They considered it a lowering of the ‘swimming standards’.

Stringency of the proposed *E. coli* attribute table

A large number of submitters were concerned that the proposed attribute table and bands would allow for increased risk to human health, and constituted an insufficient measure. These concerns were shared by the vast majority of individuals and iwi/Māori submissions, most environmental groups, and district health boards, and smaller portions of all other submitter types.

Overall, submissions considered that the proposed attribute table means water quality will be allowed to exceed a threshold that is too permissive, too often, while still being described as ‘excellent’. Some submissions, including from the Freshwater Sciences Society, recommended aligning the proposed attribute bands with the Ministry of Health/Ministry of Health guidelines according to the overall risk of getting infected when swimming.

Comparing the proposed attribute table with existing standards is difficult. It takes a fundamentally different approach by measuring how often water quality exceeds a threshold (rather than just medians or other fixed percentiles). This was intended to reflect the dynamic nature of *E. coli* concentrations, which vary over time. Most water bodies are suitable for swimming some portion of the time, and the proposed attribute table is intended to focus freshwater management on how often this is the case. The Freshwater Sciences Society acknowledged this is a “major shift”, and communicating the differences is clearly both challenging and important.

The threshold of 540 *E. coli* per 100ml is proposed because it is the existing minimum acceptable state for primary contact recreation in the Freshwater NPS. That is, the proposed attribute measures how often water quality exceeds that minimum acceptable state. The proposed attribute also includes three other measures or ‘tests’, including how often water quality exceeds 260 *E. coli* per 100ml. This measure also focuses on how often that threshold is exceeded rather than using a 95th percentile as in the Ministry of Health / Ministry for the Environment guidelines.

Submissions have identified a risk with the proposed attribute table – it is focussed on minimum standards. This indicates freshwater objectives set using the proposed attribute might not be able to reflect public aspirations for high water quality. Similarly, submissions indicate the proposed A band is not ambitious enough – being roughly equivalent to the existing B band.

This lack of granularity at the upper end of the attribute table bands may be an issue in terms of maintaining high water quality, and mitigating the potential for degradation within a band. Proposals regional councils are able to maintain water quality within an attribute band where these have been defined (see [Maintain or Improve section](#)). Having appropriately defined bands is necessary to maintain high water quality, and ensure variation within a band does not result in appreciable degradation.

Alternatively, a requirement to improve (rather than maintain) would mitigate the risk of water quality declining within a band. This is discussed in the following section.

We also note that requiring improvement in all rivers and lakes would mitigate the potential for degradation within a band (see [Focus on lakes and rivers that are fourth order or larger section](#))

Submissions also indicate the proposed narrative descriptions are not fit for purpose. The purpose of these descriptions is to inform community engagement in regional planning, by making it clear what water quality in a given band means. However, submissions indicate they do not reflect public attitudes towards risk (eg, what is considered ‘excellent’), and widespread misunderstanding about the risk of infection associated with each band. This means the proposed narrative descriptions may not describe risk to human health in a way that is useful for community engagement in regional planning.

Recommendations

Include an additional attribute band, which is equivalent to the existing A attribute band.

Amend the narrative descriptions of each attribute band so they more clearly describe the actual risk to human health and address submitter concerns.

Lack of a national bottom line

About a third of regional councils, smaller portions of environmental groups and iwi/Māori, and LAWF noted the proposed *E. coli* attribute table does not contain a national bottom line. This was generally seen to be a significant issue because the existing attribute’s national bottom line is an important safeguard.

Some submitters were concerned that the lack of a national bottom line meant there would be potential for degradation within the bottom band (because proposed changes to Objective A2 mean that water quality need only be maintained with a band). National bottom lines ensure water quality in the lowest band must at least be improved to that point.

Without a national bottom line, freshwater objectives for the proposed *E. coli* attribute in FMUs that are in the bottom band may be set inappropriately low because that band does not have a bottom threshold.

The proposed Objective A3 and Policy A5 will drive improvement in larger rivers and lakes. However, this is not necessarily the case with smaller water bodies. The potential for water quality to decline may undermine confidence in the Freshwater NPS as an instrument that will halt declines in water quality.

Recommendations

EITHER

Amend the proposed Policy CA2(e)(iia) of the Freshwater NPS to require water quality in the lowest attribute band to at least be maintained at current state (rather than a band) if there is no national bottom line

OR

Amend Objective A3 and Policy CA2(f)(iaaa) so it requires improvement in all water bodies.

Primary contact recreation is affected by more than microbial risk/the *E. coli* attribute

These submissions generally requested that other attributes be included to provide for human health and swimming. Iwi/Māori submissions in particular, considered human health and swimming to be affected by a much broader range of matters including access, clarity, and even ecosystem health. Submissions from regional councils and research organisations specifically requested that benthic cyanobacteria be included.

The Freshwater NPS establishes a framework for setting freshwater objectives and limits based on the values a community identifies for their water. Regional councils must identify the values of their fresh water, and what measurable characteristics they will use to provide for these (ie, attributes).

While the framework is partly populated with some compulsory values and attributes, these are not intended to be exhaustive. The narrative description of the human health for recreation value recognises that a broad range of matters is relevant for swimming. We have a work programme to consider additional attributes – including benthic cyanobacteria. Regional councils and communities should also define their own attributes where this is appropriate, for example, where they consider other measures are important to provide for human health and swimming.

The Te Mana o te Wai proposals will also augment this framework, which will drive regional councils to consider the connection between a wider range of values, and how they provide for the health and wellbeing of the water body itself.

Recommendation

Proceed with the amendments as proposed, except where otherwise recommended.

How the proposed *E. coli* attribute will work with the Ministry of Health/Ministry for the Environment guidelines

Submissions questioned how the proposed “standards” will work with the 2003 Ministry of Health/Ministry for the Environment guidelines. Submissions from district health boards were particularly concerned that the proposed attribute would override the guidelines, while using less stringent measures and grades (see ‘Stringency and potential lowering of standards’ above).

The Ministry of Health/Ministry for the Environment guidelines adopted a protocol where grading quality (general suitability for swimming on a long-term basis, using long-term monitoring) and surveillance (suitability for swimming in the short term, or day to day) are separate-yet-complementary elements. The proposed *E. coli* attribute (like other attributes) is the measure councils must use to set freshwater objectives and limits over a larger spatial area (called a freshwater management unit). This is in line with the “grading quality” of the guidelines.

Appendix 5 incorporates the surveillance monitoring recommendations of the guidelines. This is intended to give stakeholders and the community confidence that risk to human health at specific times and places will be monitored consistently around the country.

Recommendation

Proceed with the amendments as proposed, except where otherwise recommended.

Unclear which version of the *E. coli* attribute table was proposed

Submissions from most research organisations, half of regional councils, and a smaller portion of iwi/Māori and environmental groups questioned which attribute table was being proposed. While the draft Freshwater NPS included in the *Clean Water* consultation document included one version of the attribute table, a more detailed version was included on the Ministry for the Environment's website:

- The *Clean Water* version included a single test – how often water quality exceeds a threshold of 540 *E. coli* per 100ml.
- The website version included four tests – how often water quality exceeds a threshold of 540 *E. coli* per 100ml; how often water quality exceeds a threshold of 260 *E. coli* per 100ml; whether the median was above or below 130 *E. coli* per 100ml; and whether water quality meet various 95th percentile concentrations of *E. coli*.

Of submissions that raised the issue, almost all requested the more detailed attribute table be used. This was seen as more robust and accurate measure of risk to human health.

However, a small number of submissions, including from LAWF and NIWA questioned whether all four tests are necessary, and whether the attribute table could be simplified by only including the most constraining tests. In this regard, the 130 *E. coli* median value was seen as the most constraining and important test for safeguarding human health.

NIWA also noted the proposed attribute table uses two different statistical distributions and queried whether this was intentional. This is referring to the fact that two of the four tests measure how often *E. coli* exceeds fixed thresholds, while the other two tests measure *E. coli* concentrations using fixed percentiles.

The purpose of using multiple tests to determine attribute state is to reflect the distribution of *E. coli* concentrations over time. That is, to reflect how often water quality is exceeding important thresholds, what the concentrations are during typical conditions, and what the concentrations are during rarer events.

Officials have, however, identified a risk with the 95th percentile test. We cannot accurately model 95th percentile test nationally, and so cannot fully test its impact or illustrate current state on the swimming maps. It is not possible to use the measure for objective setting, or to track progress over time without extensive monitoring – limiting its use for a national target or freshwater management. The 95th percentile test also focusses on rarer events like floods or other high flows, when people are less likely to be swimming.

Officials consider that the 95th percentile cannot be modelled with sufficient certainty, and recommend excluding that test where there is insufficient monitoring to establish the 95th percentile concentration.

Recommendations

Amend the proposed changes to Appendix 2 (attributes) of the Freshwater NPS relating to the *E. coli* attribute to clarify that all four columns (ie, 'tests') must be satisfied to determine attribute state, measuring: exceedances of 540 *E. coli* per 100ml; exceedances of 260 *E. coli* per 100ml; whether the median is above or below 130 *E. coli* per 100ml; and varying 95th percentile concentrations.

AND

Specify that the 95th percentile test cannot be modelled, and does not apply if there is insufficient monitoring to establish the 95th percentile concentration.

Satisfying multiple tests to determine attribute state

A small portion of submissions, including regional councils, questioned how multiple tests should be applied to determine attribute state. This was seen as complex and unclear.

The intent is for all four tests to be satisfied before an attribute state is determined. That is, for a freshwater management unit to be in the A band, all four tests in that band must be satisfied, otherwise the freshwater management unit is in a lower band.

Recommendation

Add a footnote to the attribute table: “All tests within an attribute band must be satisfied to determine attribute state”.

Sampling method to determine attribute state

NIWA and other research organisations, and a small portion of councils, have recommended changing the sampling methodology for the proposed attribute – to 60 samples over 5 years (instead of 100 samples over 10 years). Technical advice indicates this is sufficient, and submissions considered it would mitigate the risk that longer timeframes would mask short-term degradation.

Similarly, a small portion of submissions, including from some regional councils, commented that the proposed attribute table was not efficient. This is because attribute states would be determined based on sampling regardless of weather conditions – including conditions that people did not actually swim in. These submissions considered that the attribute should be focussed on those times and conditions in which people swim, and in particular, exclude measurements during rainfall and high flows.

However, other submissions, including from NIWA, supported sampling “regardless of weather conditions” – although noted “regardless of flow conditions” would be more appropriate.

Ultimately the purpose of the *E. coli* attribute table is to provide a measure for setting longer-term freshwater objectives that provide for human health for recreation. It is not:

- intended to manage risk to human health at the specific times and places where people swim – that is the role of surveillance monitoring
- limited to swimming. It is intended to inform freshwater objectives for human health, at any level of immersion – which can occur under many different circumstances other than swimming.

Recommendation

Amend the footnote to the attribute table so attribute state is established according to 60 samples over 5 years regardless of weather and flow conditions.

Further development of the *E. coli* attribute table

A small number of submissions, including from NIWA, sought further consultation with technical and policy experts before finalising the *E. coli* attribute table. Research organisations also commented on the need for further investment to fill data gaps, particularly in relation to lakes.

In general, submitters commented the swimming standards must be underpinned by robust and independent science, the standards would benefit from additional development, and the integrity of the proposals was dependant on robust and independent science.

Taranaki Regional Council and research organisations including NIWA also noted there is a need to update the Ministry of Health/ Ministry for the Environment guidelines. They suggest the relationship between *E. coli* and the harmful pathogens it is meant to indicate needs to be re-established in the New Zealand context.

Work to further develop science and incorporate this into how we manage fresh water is ongoing, and can be incorporated into future iterations of the Freshwater NPS if needed. We are currently reviewing the Ministry of Health/Ministry for the Environment guidelines. Initial work will focus on updating the relationship between *E. coli* and risk of illness when swimming that underpins the Ministry of Health/Ministry for the Environment guidelines. A full review is a multi-stage process that we anticipate will be complete in 2020.

Recommendation

Proceed with the amendments as proposed, except where otherwise recommended.

Proposed monitoring requirements related to swimming

Clean Water proposed new monitoring requirements related to swimming. Regional councils would be required to monitor *E. coli* exceedances over time, as specified in the proposed Appendix 5 of the Freshwater NPS. These requirements are based on the Microbiological water quality guidelines for marine and freshwater recreational areas (the 'Ministry of Health/Ministry for the Environment (MoH/MfE) guidelines').

Submissions raised the following issues:

- Appendix 5 is based on the MoH/MfE guidelines but these need to be reviewed.
- The surveillance monitoring requirements introduce a significant cost burden.
- Any surveillance monitoring should be focussed on the times and places where people swim.

Appendix 5 is based on MoH/MfE guidelines that require review

The MoH/MfE guidelines require catchment assessments to provide a more complete picture of likely risks to human health. Health boards noted that this aspect of the MoH/MfE guidelines was not included in Appendix 5. The Land and Water Forum, Water NZ, community groups, the NZ Freshwater Sciences Society and some regional councils called for an urgent review of the guidelines.

Councils submitted that the requirement for repeat sampling when a single sample collected during the bathing season is greater than 260 *E. coli* per 100ml is unnecessary. They said that technological advances since 2003 mean that councils can use microbial source tracking to help identify potential health risks and may soon make use of predictive models or molecular methods, which can yield same day results, to gain better information about health risks associated with spikes in *E. coli* levels. Further, there are places where there is no benefit from daily repeat sampling if they know the level of *E. coli* is unlikely to have dropped below 260 *E. coli* per 100ml.

Councils also claim that the means of notifying the public about health risks, for example putting up signs, has never been satisfactory because signs can become out of date the next day, are confusing for the public, and are resource hungry for councils. The option of notifying

people through council websites or LAWA may provide more current information, but would not be sufficient for people without easy internet access.

The MoH/MfE guidelines are underpinned by the Freshwater Microbiological Research Programme which included a microbiological study of 10 variables in 25 sites around New Zealand from December 1998 to February 2000. The Ministry for the Environment has begun a process to reassess the underpinning science of microbiological monitoring for protecting public health. This is the first step in the programme to review the MoH/MfE guidelines.

The MoH/MfE guidelines are scheduled for review to confirm the applicability of the underpinning microbiological science, but the overall approach of surveillance monitoring – regular sampling where people swim and alerting the public when sampling indicates potential health risks – is still valued by public health officials. Council concerns about the expense of using signage that can quickly become out of date may be addressed by the type of centrally controlled and updated solar powered electronic boards that are in use overseas.

Recommendation

See the recommendations below in the section titled “Monitoring should be focused on the times and places where people swim”

The monitoring requirements introduce a significant cost burden

Regional councils noted that they undertake state of the environment *E. coli* monitoring to measure progress towards achieving their freshwater objectives as well as surveillance monitoring of recreational bathing sites to provide current information to the public. They feel that specifying surveillance monitoring in a national policy statement, which can only direct regional plan contents and influence resource consent decisions, is not an appropriate means to direct surveillance monitoring requirements.

Regional councils and Local Government New Zealand felt that the requirement for repeat sampling when a single sample collected during the bathing season is greater than 260 *E. coli* per 100ml is unnecessary if it applies to a place where there is little human contact with the water body. Many said that this would require increases in staff. For example, in both the Bay of Plenty and Taranaki regions two new full time equivalent staff members would be required during the bathing season, with associated field sampling costs, whereas in Waikato there would be a 15-fold increase in sampling effort and expenditure.

Other councils said that staff would need to travel long distances to monitor remote lakes and rivers that were rarely used for swimming, and this would be in addition to monitoring sites on smaller rivers that are popular for recreation. They noted that they have limited means to recover costs for monitoring water bodies for recreational purposes and a new funding mechanism would be needed to do this.

Some councils, community groups, and iwi groups noted that the money spent on follow-up monitoring would be better spent working with communities to fix the problem, especially where there are known problems that may take several years to address.

Individuals and some iwi groups supported having a requirement for more monitoring with the results readily available because this will provide the public with better information about the health risks associated with recreation at particular sites.

We recognise requiring surveillance monitoring in all “large” rivers and lakes during the bathing season is unnecessary because if there are very few people swimming or kayaking, it is not needed as a public health safeguard.

Officials agree with councils who submitted there is benefit to repeat monitoring if they know *E. coli* concentrations are unlikely to have dropped (ie., it is still raining), and consider that warnings can remain in place until additional monitoring is worthwhile.

Recommendation

See the recommendations below in the section titled “Monitoring should be focused on the times and places where people swim”.

Monitoring should be focused on the times and places where people swim

The MoH/MfE guidelines adopted a protocol where grading quality (general suitability for swimming on a long-term basis, using long-term monitoring) and surveillance (suitability for swimming in the short term, or day to day) are separate yet complementary elements.

NIWA commented that surveillance monitoring is an important addition to the Freshwater NPS because “from a public health risk point of view, it provides a counter-balancing to the less restrictive nature of the grading [the 80th percentile rather than the 95th percentile of the previous minimum acceptable state]”.

All councils and LGNZ submitted that surveillance monitoring needs to be targeted at the actual use of the water body, for example during high flows for kayaking or during summer months for swimming, so the public health risk can be determined and communicated to the people affected. The same point was made by Federated Farmers, Beef + Lamb, and the Fertiliser Association.

Some councils (Auckland, Hawke’s Bay, Northland, Greater Wellington, and Environment Canterbury) wanted surveillance monitoring directions to sit outside the Freshwater NPS, preferably after a comprehensive review of the MoH/MfE guidelines.

We consider that if the public are to understand the risks of swimming in any water body, surveillance monitoring needs to be undertaken consistently from region to region, and the results need to be communicated consistently from region to region. National direction through the Freshwater NPS is an appropriate way to achieve that consistency.

Recommendations

Amend Policy CB1 by adding this monitoring requirement (instead of Policy CB1(aa)(i) as proposed):

“establishes methods for monitoring the extent to which the values identified under Part CA2(b) are being provided for in a freshwater management unit. These methods must at least include:

(i) surveillance monitoring of microbial health risks to people in accordance with the guidance in Appendix 5 (applies in a river or lake in a freshwater management unit used for primary contact)”.

Replace the proposed Appendix 5 and add a new appendix as follows:

“Where a regional plan has identified that a freshwater management unit is used for primary contact the council will:

- a. identify a sampling site (or sites) in the freshwater management unit that is representative of the site or sites (if any) that are used for primary contact
- b. identify the bathing season that the site or sites will be used for primary contact
- c. undertake weekly sampling for the indicator bacteria *E. coli* at that the site or sites will be used for primary contact during the bathing season
- d. investigate potential causes of microbiological contamination if a single sample is greater than 260 *E.*

coli per 100ml

e. inform the public that a site is unsuitable for recreation if a sample from the site is greater than 540 *E. coli* per 100ml, and maintain that information until sampling shows results of less than 540 per 100ml (note that if no follow-up sampling is undertaken, the public information that the site is unsuitable for recreation must be maintained)."

Proposed objective and policies related to swimming

Submissions from some key stakeholders, including regional councils, research organisations, and small portions of other submitter types, expressed support in principle for the removal of references to secondary contact and introducing the new objective, policies and national targets for swimming. As with the attribute table, support is qualified, and submissions raise a range of concerns which are outlined below.

National swimming targets are not enforceable or included in regulations

A range of submitter types, including LAWF, NIWA, and environmental organisations, commented on the fact that the national swimming targets are not directly included in the objectives and policies of the Freshwater NPS. These submitters were concerned that as the targets are not backed by regulation they would not be enforceable.

Many of these submitters, including councils, were also concerned that the proposed targets do not allow for community engagement, as they sit outside of the community planning framework prescribed in the RMA and Freshwater NPS. In particular, they noted the Government is engaging directly with regional councils outside of the planning framework to establish what contributions will be made by each region towards the national targets.

Submissions also noted that it is not clear what regional councils actually have to do to implement the new objective and policies and how they relate to the national targets. For example, some submitters commented that the wording of Objective A3, which requires regional councils to improve water quality so it is suitable for swimming "more often", is confusing and unclear. These submitters suggested that more specific direction about what is to be achieved may be appropriate (eg, X% swimmable by X date), suggesting it would be clearer if the objective and policies were tied directly to the national targets.

LAWF specifically requested that officials investigate if it is possible to directly incorporate the targets into the Freshwater NPS, following a process of engagement with stakeholders and the community.

The intent of the new objective and policy is to support the national targets, and require regional planning that will improve water bodies for swimming. Regional councils will be required to incorporate objectives and timeframes for improving water bodies for swimming into their plans for which they can be held to account.

Changes to proposals can clarify the intent of the new objective and policies by referencing the national target within the Freshwater NPS, and stating that councils must contribute to achieving that target when giving effect to Objective A3 and Policy A5.

However, amendments to the Freshwater NPS cannot make individual councils responsible for the performance of others, and our ability to make individual councils responsible for achieving the national target is limited. This is because the national targets define success as a national-level outcome that depends on the performance of separate councils, and does not provide region-specific outcomes.

The Government is currently working with councils to determine what their relative contribution will be – that is, region-specific outcomes. But this process will not be completed until March 2018.

In lieu of regional targets, it is desirable to require regional councils to report on their contributions to achieving the national target at regular intervals. Officials consider this will give communities information to hold their councils to account. We recognise this will have an ongoing impact on the reporting burden on regional councils.

Recommendations

Directly incorporate the national target as an appendix to the Freshwater NPS, and explicitly refer to this when stating requirements to improve water quality for swimming in Objective A3 and/or Policy A5.

AND

Amend the Freshwater NPS so regional councils are required to report on their contributions to achieving the national target at regular intervals.

Focus on lakes and rivers that are fourth order or larger

Submissions from individuals, environmental groups, and LAWF requested that all rivers and lakes should be covered by the national target, and the new objective and policy in the Freshwater NPS. Many submissions commented that by restricting the scope to lakes and rivers that are fourth order or larger, the majority of rivers and lakes would be excluded from the requirements to improve water quality for swimming – including many sites that are in fact used for or have been used for swimming.

Officials note that LAWF suggests using the phrase “valued for primary contact”. However this may add unnecessary confusion by overlapping with “values” under the national objectives framework. We consider “used for or has been used for primary contact” represents the same concept.

Conversely, some regional councils were concerned that many lakes and rivers that are fourth order or larger are not used or valued for swimming, and should not be managed for this purpose. This issue is repeated in comments on the proposed attribute and monitoring requirements. Some regional councils also considered that applying the new objective and policies to all fourth order water bodies and above is inconsistent with community involvement in deciding which rivers and lakes are valued for swimming.

A common theme from submitters was support for the new objective and policies to focus on improving the quality of water bodies/sites that are used for or have been used for swimming irrespective of size. Regional councils considered this would be more efficient, while individuals and environmental organisations considered these should at least be included (although the dominant view is that all rivers and lakes should be captured). LAWF also preferred including all water bodies, but requested that swimming measures should at least apply to all sites that are, or have been, used for primary contact recreation.

Submissions from some regional councils and environmental organisations suggested that Policy A5 should require councils to identify water bodies or sites that are valued for swimming.

Other issues raised by submissions included:

- Some generators are concerned that Policy A5 as currently worded will apply to all lakes and rivers that are fourth order or larger including those with hydro schemes (eg, Waitaki scheme operated by Meridian). This implies that water bodies with hydro schemes will

need to be managed for swimming even though they are not used for it, which will impact on their operations.

- A small number of regional councils suggested that stream order is an inaccurate method for categorising rivers and should not be used.
- One regional council requested clarification on the definition of large lakes, specifically the meaning of 'perimeter on average'.

It is desirable for regional councils to at least identify sites used for primary contact. Both to ensure sites used for swimming are managed for swimming, but also to address issues identified with surveillance monitoring proposals. Most regional councils already identify recreational sites for similar purposes. Based on available information, we estimate the majority of identified sites are on fourth order or above rivers, and the impact of capturing these additional sites in proposals is limited.

While officials acknowledge it is important that these sites be managed and improved. We note including the sites within the national target is not workable because they will vary over time according to regional plans. For this reason, officials recommend amending the proposal so regional councils must identify sites used for primary contact, and seek improvement for these sites in addition to, but separate from, the proposed Objective A3 and Policy A5.

Officials cannot fully test the impact of including a larger class of water bodies. Adding in smaller order streams (ie, either first, second or third order) is likely to have a major impact on the costs of implementing the target and the sum total of water bodies that need to be improved for swimming.

- Including third order streams and above in the target increases the number of rivers that need to improve for swimming from 45,000 to 100,000 km. This would potentially double the cost of implementation depending on where mitigation occurs in the catchment.
- Similarly, adding second order streams and above increases the number of rivers that need to improve for swimming from 45,000 to 200,000 km.
- Adding first order streams and above increases the number of rivers that need to improve for swimming from 45,000 to 420,000 km.

Recommendations

EITHER

Amend proposals so regional councils must identify sites used for primary contact, and improve these sites - in addition to all lakes and rivers that are fourth order or larger

AND/OR

Amend proposals so that Objective A3, Policy A5 and Policy CA2(f)(iaaa) apply to third order water bodies

OR

Amend proposals so that Objective A3, Policy A5 and Policy CA2(f)(iaaa) apply to all water bodies.

Definition of 'suitable for immersion'

A large number of submitters commented on what is (or should be) considered suitable for immersion. This included the majority of individuals and iwi/Māori submissions, most environmental groups and district health boards, and smaller portions of all other submitter types.

For the purpose of Objective A3 and Policy A5, “suitable for immersion” is defined as the A, B and C grades of the proposed *E. coli* attribute table.

Overall submissions considered the definition as inadequate because it would allow water quality to exceed 540 *E. coli* per 100ml up to 20% of the time. Most individuals, iwi/Māori, and environmental groups that commented on this issue considered this would mean people are exposed to an unacceptable level of risk when swimming or undertaking other primary contact recreation – while calling this “suitable for immersion”.

Many contrasted the proposed definition with MoH/MfE guidelines and the existing minimum acceptable state for primary contact recreation, and considered it was a lowering of the standard that would allow for increased risk to human health.

The proposed definition of “suitable for immersion” is intended to reflect the Government’s national target, and inform a new objective and policy requiring regional councils to improve towards that target. That is, by changing regional plans to state what improvements will be made, and over what timeframes, as part of making rivers and lakes suitable for swimming more often.

Importantly, the proposed definition informs a new objective and policy that will drive improvement on the *status quo*. It is also more stringent than the existing national bottom line which is suitable for secondary contact recreation. Making 90% of rivers and lakes swimmable by 2040, as proposed, will be challenging and have a significant impact on resource use.

The proposed definition should also be considered as part of a wider framework where regional councils and communities also set their own freshwater objectives – these can be more ambitious than the proposed definition for what is “suitable for immersion”.

Recommendation

Proceed with the amendments as proposed, except where otherwise recommended.

Unclear relationship with the National Objectives Framework

Submissions from a number of regional councils, and small numbers of other submitters, raised concerns about the relationship between the proposed Objective A3 and Policy A5 and the National Objectives Framework (NOF).

Specific comments included:

- That it is unclear to which spatial scale Objective A3 and Policy A5 will apply (eg, every drop of water, individual waterbodies, or freshwater management units) and if the spatial scale for achieving improvements is the same as the NOF. Some submitters suggested clarifying that the requirements apply to the freshwater management unit (FMU) scale to align with NOF.
- That it is unclear how the swimming targets will work with the management framework prescribed in the NOF whereby water quality targets are based on the values and objectives identified through consultation with communities.

The proposed new objective and policy for swimming represent an additional requirement alongside the NOF. Regional councils are still required to set freshwater objectives for *E. coli* at the FMU scale as part of the NOF framework. The intent of the proposed Objective A3 and Policy A5 is to provide additional direction to improve water bodies within an FMU, to contribute towards achieving the national swimming targets.

In short, managing *E. coli* is part of the values based NOF process while Objective A3 and Policy A5 provide more specific direction on that issue.

Recommendation

Proceed with the amendments as proposed, except where otherwise recommended.

Regional plans are not suitable instruments for swimming targets

Submissions from LGNZ and some regional councils commented that regional plans are not a suitable policy instrument for identifying swimmable water bodies, or reporting against swimming targets. They noted that it is difficult to reflect water quality variation over time in regional plans and that any swimming related information contained in regional plans will quickly become outdated.

These submitters suggested it would be more appropriate for this information to be provided on regional council websites or other online platforms such as LAWA.

The policy is intended to ensure regional plans include objectives/methods specific to improving water bodies and sites for swimming, as part of achieving the national target. The purpose of this policy is not to identify places that people can swim, or report against swimming targets but to ensure regional plans actively manage places people can swim (ie, through planned improvements and planned monitoring).

Recommendation

Proceed with the amendments as proposed, except where otherwise recommended.

Desire for consistent terminology

Many submissions representing all submitter types noted the different terminology used to describe swimming (eg, immersion, contact with water) and requested that consistent terminology be used throughout the Freshwater NPS and related documents to describe swimming.

Many of these submitters, including LAWF, requested that the term “primary contact” be used to describe the intent of the proposed objective and policies (and national targets). In general, submitters considered that water quality was important for all kinds of contact with fresh water affecting human health, and should not be limited to recreation or “swimming”. The LAWF submission also suggested that the revised description for the human health for recreation value should refer to primary contact instead of recreation.

Consistent terminology is desirable, and “primary contact” is a suitable term. This is a minor technical change, and is consistent with policy intent, in that managing water for primary contact necessarily means managing for any level contact.

Note that a single term is always going to struggle to capture the different ways people interact with fresh water. Officials also recommend including a broad definition of ‘primary contact’ that captures as many of these activities as possible.

Recommendations

Amend Objective A3, Policy A5, Policy CA2(f)(iaaa) and related definitions to use the term “primary contact” instead of “immersion” or other references to swimming.

AND

Define primary contact within the interpretation section.

Extent of required improvement is unclear

A small number of submissions from regional councils, hydro generators and iwi/hapū raised concerns about the implications of the requirements of Objective A3 and sought clarity on its relationship with Objective A2.

Submissions from two hydro generators commented that the wording of Objective A3 implies that regional councils are required to achieve unqualified water quality improvements in all applicable water bodies, including those already classified as safe for swimming. They recommend giving communities the choice of whether to maintain or improve these water bodies.

Some regional councils made similar comments, and suggested that water bodies already in the A band should not need to improve. This position was backed by other submissions that requested that this process should reflect community values.

One regional council also noted that incremental improvements towards swimmable water quality will not satisfy community expectations.

Two submissions also commented that it is not clear how Objective A3 relates to the other objectives in the Freshwater NPS. One regional council noted that Objective A2 requires councils to maintain or improve water quality while Objective A3 requires councils to improve water quality for swimming. One iwi/Māori submission requested that Objective A3 should refer to the relationship between human health, ecosystem health, and cultural health.

Officials note that the intent of the national target was intended to include water bodies that are already swimmable (ie, B and C bands). So Objective A3 is expected to drive improvement in these water bodies as well as those not currently suitable for swimming.

Recommendation

Qualify Objective A3 so it does not require improvement where water quality is already in the highest attribute band (note this issue is tied to the suitability of the A band, discussed in the section above, “Stringency of the proposed attribute table”).

Infrastructure

Background

Policy CA3 allows regional councils to set freshwater objectives below bottom lines if the current water quality is below bottom lines and:

- that is a result of naturally occurring processes, or
- existing infrastructure contributes to current water quality, as long as that infrastructure is listed in Appendix 3.

Appendix 3 is currently empty and *Clean Water* states that the Government is not proposing populating it at this stage.

Proposed amendments

Clean Water proposed further clarification of the circumstances where regional councils could consider establishing freshwater objectives below bottom lines. It was proposed that objectives can only be set below national bottom lines:

- for attributes where current water quality is below national bottom lines
- for infrastructure that was operational on 1 August 2014
- in the physical area where the infrastructure contributes to water quality
- if it is reasonably necessary to continue to realise the significant benefits provided by the infrastructure.

Submissions

Submissions raised the following issues:

- there was significant demand to populate Appendix 3 and the process for doing so needs to be clarified
- the meaning of the “benefits provided by listed infrastructure” needs clearer definition
- Appendix 3 should be removed and regional councils empowered to set freshwater objectives below bottom lines where infrastructure is contributing to current water quality
- some hydro-generators sought to remove the requirement that infrastructure must “contribute” to existing water quality for regional councils to consider objectives below bottom lines
- a related issue of the effect of the Freshwater NPS on lakes created by mining operations was raised by Straterra, which represents the interests of New Zealand’s mining sector.

Twelve submitters, including Horticulture New Zealand and three groups representing iwi/Māori interests, opposed the principle of exceptions to bottom lines and called for the removal or significant amendment of Policy CA3.

Populating Appendix 3 with infrastructure was given widespread support despite not being included in the proposals in *Clean Water*.

Populating Appendix 3

Twenty-four submissions – just under half of all submissions on these proposals – requested the Government consider populating Appendix 3. Submitters from all categories made this request and include LAWF, all hydroelectricity generators that submitted, Te Rūnanga o Ngāi Tahu, Fish and Game, and the Southland and Bay of Plenty Regional Councils.

As *Clean Water* expressly stated the Government is not proposing listing infrastructure in Appendix 3. Our advice is that it would not be appropriate to include any infrastructure in the upcoming amendments to the Freshwater NPS. Listing some infrastructure without giving infrastructure owners an equal opportunity to present evidence to the Government would be unfair, and could have an impact on market competition.

Ensuring Appendix 3 is populated before regional councils begin the limit-setting process required by the Freshwater NPS will ensure affected communities are able to consider the broadest ambit of freshwater objectives possible. If Appendix 3 is not populated and a limit-setting process begins in an area where significant infrastructure is located, councils and their communities will either not be able to consider the whole scope of potential freshwater objectives ie, from existing water state and up) or will need to wait and appeal to Government to have the relevant infrastructure added to Appendix 3.

A clear process for populating Appendix 3 will provide public confidence and certainty for regional councils when they begin limit-setting processes in areas with significant infrastructure. After an initial call for evidence, the Government could consider evidence on a regular, potentially annual, basis to have Appendix 3 populated. This will help regional councils plan their implementation of the Freshwater NPS.

Recommendation

Develop a process for populating Appendix 3 with the intention of undertaking public consultation on a proposed list in the next year.

Benefits of infrastructure

Six submissions, including those from Fish and Game and Water New Zealand commented on the proposed definition of “benefits of infrastructure” that would be added to Policy CA3 of the Freshwater NPS. The proposed definition is “means the positive effects of the infrastructure on the wellbeing of the community and can include, but are not limited to, renewable electricity generation, employment and economic wellbeing”.

The general tenor of the submissions was that it is unhelpful to include specific examples of what a “benefit” is considered to be, or that providing the examples – renewable energy, employment or economic wellbeing – would emphasise the importance of those benefits to the detriment of other potential benefits, including those that might not yet have been identified.

The RMA contains a general definition of benefits: “benefits and costs includes benefits and costs of any kind, whether monetary or non-monetary”. If the definition of benefits was removed from the proposed amendments to Policy CA3, the definition would resort to the meaning as defined in the RMA.

The intention behind the inclusion of the meaning in the proposed amendments to Policy CA3 was to provide some guidance to regional councils as to what “benefits of infrastructure” might include though it remained a broad definition. This is best left to guidance. The definition in the RMA is similarly broad and officials have no concern resorting back to that definition in respect of Policy CA3.

Recommendation

Remove definition of “benefits of infrastructure” as proposed in *Clean Water* and rely on definition of “benefits” provided in the RMA.

Regional councils given decision-making power

Four submissions sought the removal of Appendix 3 altogether and instead regional councils would be empowered to set freshwater objectives below national bottom lines in the circumstances identified in Policy CA3. This was put forward as an option by Trustpower, the Independent Electricity Generators Association, Genesis Energy (if Appendix 3 is not populated), and the Northland Regional Council.

Other submitters, notably Southland Regional Council, expressly sought the retention of Appendix 3 as listing infrastructure in Appendix 3 is a question of national importance and should therefore remain the responsibility of central government.

We consider exceptions from the national bottom lines as a result of the impact of infrastructure to be an issue of national importance. The presence of Appendix 3 (however unpopulated) adds weight to this position. If Appendix 3 were removed it would demonstrate an inconsistent approach to the issue of infrastructure and the Freshwater NPS and might encourage regional councils to more freely apply exceptions to national bottom lines.

We consider the appropriate level of discretion is for regional councils to consider where freshwater objectives can be set, having been given a signal from central government as to whether or not they can consider freshwater objectives below national bottom lines. This requires a clear process for populating Appendix 3, as a decision to list (or not list) infrastructure in Appendix 3 is a clear indication of the importance of said infrastructure.

Removing Appendix 3 in the upcoming amendment to the Freshwater NPS could be subject to legal challenge on the basis of insufficient consultation.

Recommendation

Retain Appendix 3 and develop a process for its population.

Infrastructure should not be required to ‘contribute’ to existing water quality

Trustpower and the Independent Electricity Generators Association (IEGA) raised concerns about the requirement that the infrastructure must ‘contribute’ to the degraded water quality for regional councils to establish freshwater objectives below national bottom lines. This aspect of the policy was included in the 2014 amendments to the Freshwater NPS and these amendments do not propose any changes to the concept.

Trustpower and the IEGA are concerned this may mean they are held ‘responsible’ for the degraded water quality. Officials do not share these concerns – ‘contributes’ does not indicate sole responsibility and moreover if infrastructure is not a ‘contribution’ to existing water quality then requiring a change to its operation could not logically have an impact on the water quality issue.

We consider that the intent of Policy CA3, which is to discourage regional councils from regulating infrastructure in such a way that the benefits it provides is negatively affected, would not be materially impacted by removing the contribution requirement.

Amending the requirement that infrastructure “contributes” to existing water quality might be subject to legal challenge on the basis that there was insufficient consultation.

Recommendation

Retain the requirement that the infrastructure ‘contributes’ to the water quality issue.

Lakes created by mining operations need exemption from national bottom lines

Straterra, the body representing New Zealand’s mining sector, have raised concerns about the effect of the Freshwater NPS on the artificial lakes created through mining operations. Straterra raised concerns that the quality of many of these lakes will not be able to be restored above national bottom lines for some time.

We do not consider this to be a significant issue. It was not raised in the recent review of the implementation of the Freshwater NPS, which considered the implementation processes of all regional councils. It is unlikely a regional council would elect to set a freshwater management unit with an artificial lake created by mining as a predominant element, meaning that monitoring such a lake is unlikely to be ‘representative’ of the freshwater management unit in which it is located.

We are happy to investigate the issue further with Straterra and councils where mining operations are located to assess whether this is an issue that warrants further action.

Recommendation

Do not exempt lakes created by mining operations from national bottom lines.

Monitoring requirements

Background

Part CB of the Freshwater NPS sets out the regional councils' monitoring requirements for implementing the Freshwater NPS. It requires regional councils to monitor the achievement of progress towards achieving freshwater objectives.

Proposed amendments

The *Clean Water* package proposed a number of amendments to the monitoring requirements of the Freshwater NPS. The amendments would require regional councils to:

- establish methods for monitoring the extent to which the values identified in a freshwater management unit (FMU) are provided for
- establish methods to monitor:
 - *E. coli* exceedances over time (discussed above in the Proposed Monitoring Requirements Related to Swimming section)
 - macroinvertebrate communities
 - measures of the health of indigenous flora and fauna
 - Mātauranga Māori
- recognise the relationship between long-term monitoring results and the overall state of fresh water in an FMU
- establish methods to respond to monitoring information that indicates freshwater values or objectives will not be provided for in an FMU
- make monitoring information available to the public regularly and in a suitable manner.

The proposals were designed to reflect recommendations made by LAWf in 2016, while providing flexibility to allow the policies to be adapted to the local context of each FMU.

Submissions

The majority of submitters support the above-mentioned proposed changes to the Freshwater NPS.

Submissions, to a large extent, revolve around support or opposition to LAWf's recommendations on macroinvertebrate monitoring, which have served as a focal point of public attention in relation to proposed amendments to monitoring plan requirements.

Other issues raised were:

- the need for consistent and regionally-comparable monitoring
- clarifying the monitoring requirements of indigenous flora and fauna.

The Land and Water Forum's recommendations

LAWf recommended that councils be required to:

- monitor the macroinvertebrate community index (MCI)

- investigate a MCI score of less than 80 or a declining trend in MCI scores
- if necessary develop action plans to address the low score/declining trend
- improve MCI scores to at least 80 unless the low score is caused by natural processes, non-native species, or hydrological modification.

LAWF was unable to agree on an acceptable definition of hydrological modification.

A wide range of submitters supported the inclusion of the MCI as a mandatory monitoring tool but there were mixed views on the inclusion of a trigger score of 80 for further action. Many noted that if a trigger were included, an exceptions framework would need to be developed.

A number of submissions expressed opposition to LAWF's recommendation. These submitters argue that the MCI is not a management-oriented index because it does not measure overall ecosystem health of the freshwater management unit or identify the primary stressors on the macroinvertebrate communities. Further, over 80% of sites councils monitor for MCI are sampled annually only, meaning that trends only become apparent over long timeframes.

Submitters requested that there be a requirement for councils to set "meaningful" thresholds to trigger council action to provide for the ecosystem health value. Some supported the LAWF proposed threshold, others consider councils should set their own and a third group thought a meaningful threshold should be set at the national level (but not necessarily the threshold proposed by LAWF).

Macroinvertebrate communities are widely recognised as useful for assessing water quality and ecosystem health. All regional councils except the Chatham Islands currently monitor macroinvertebrates using MCI as part of their regular state of the environment monitoring and reporting, though Gisborne only recently established the programme in anticipation of the Freshwater NPS amendments.

Officials are broadly supportive of the recommendations put forward by LAWF, but note that monitoring macroinvertebrates is currently an area of active science. We are concerned that the most appropriate index may change, or the trigger values may change as the science develops, which would make the Freshwater NPS trigger values inappropriate.

We also note that having a single trigger value (ie, MCI score of 80) that applies nationally is problematic as it does not account for natural variation. MCI scores fluctuate widely depending on local conditions, and most sites are sampled annually only.

To mitigate these risks, officials have developed alternative options.

The first option would incorporate LAWF's recommendations, with two minor amendments. This means:

- mandating the use of MCI specifically
- specifying that an MCI score of 80 or a declining trend triggers the already proposed requirement to develop methods (eg, action plans) to respond
- requiring methods (eg, action plans) to investigate the causes of declining trends of breaches of 80 MCI; seek to halt declining trends; and improve water quality that is below 80 MCI unless this is caused by naturally occurring processes, invasive species that cannot be managed, or infrastructure listed in Appendix 3.

Defining hydrological modification for the purpose of an exception, as LAWF proposed, would be necessary but is difficult as most catchments contain streams and rivers modified in some way. Officials propose using Appendix 3 for this purpose.

LAWF also requested an exception for invasive species. Our understanding is that this was specifically in response to concerns raised about the impact of Didymo on MCI in water bodies

modified by hydro-generation infrastructure. We consider that this concern is addressed through the ability to list infrastructure in Appendix 3.

Officials cannot estimate the cost of regional councils having to manage for, and improve, MCI scores because of the wide range of factors that influence it. Based on the monitored sites, 28% of rural streams and around half of urban streams may fall below 80 MCI on average. However, these monitoring sites are targeted towards more intensively developed streams that are unlikely to be representative. Low MCI scores are also caused by various pressures – many of which need to be managed under the Freshwater NPS and RMA generally, for example, nutrient inputs and stormwater discharges.

The second option would amend the proposal to require councils to set numeric thresholds for macroinvertebrate monitoring scores that will trigger the already proposed requirement to develop methods/action plans. This will:

- require regional councils to set their own numeric thresholds for macroinvertebrate monitoring, which will trigger already proposed requirement to develop methods (eg, action plans) to respond
- suggest that the MCI may be a suitable index for this purpose
- specify that if regional councils use MCI for this purpose, the threshold must be a score of 80 or a declining trend
- not require councils to manage for MCI scores explicitly.

Officials consider this option will achieve the policy intent of monitoring for ecosystem health, and ensure councils respond to that monitoring without locking in usage of the MCI for the next generation of regional plans.

It will also provide flexibility for the policy to be applied at a national level, to force councils to develop numeric thresholds that require responses to monitoring, and allow us to incorporate new and improved monitoring methods when the science develops.

Recommendations

EITHER

Amend proposed changes to Part CB of the Freshwater NPS, consistent with LAWF recommendations, to:

- mandate the use of the Macroinvertebrate Community Index (MCI) specifically
- specify that a MCI score of 80, or a declining trend, triggers the already proposed requirement to develop methods (eg, action plans) to respond
- require methods (eg, action plans) to investigate the causes of declining trends of breaches of 80 MCI; seek to halt declining trends; and seek to improve water quality that is below 80 MCI unless this is caused by naturally occurring processes, invasive, or infrastructure listed in Appendix 3.

OR

Amend proposed changes to Policy CB1 of the Freshwater NPS, to:

- require regional councils to set their own numeric thresholds for macroinvertebrate monitoring, which will trigger already proposed requirement to develop methods (eg, action plans) to respond
- suggest that the MCI may be a suitable index for this purpose
- specify that if regional councils use MCI for this purpose, the threshold must be a score of 80 or a declining trend.

The need for consistent and regionally-comparable monitoring

Submitters from a range of organisations noted the need for consistent and regionally-comparable monitoring of ecosystem health indicators. Submitters emphasise that present monitoring does not allow officials and scientists to develop a national picture and diagnose

national trends on macroinvertebrate communities and broader ecosystem health issues across New Zealand. This is because councils use disparate sampling methods that do not produce comparable data, precluding inter-regional comparisons, national-level modelling, and consistent environmental reporting.

These submissions are notable because of their consistency across extremely diverse interest groups. They fit squarely in line with one of the primary reasons the Freshwater NPS was developed; to improve consistency in national water management decision frameworks. In addition, they address an issue that numerous individual submitters raise – the importance of developing a comprehensive New Zealand picture and image based on accurate information on ecosystem health.

Either option presented above in the section discussing the LAWF's recommendations for the MCI would go some way towards addressing the issue of nationally-comparable data. Additionally, work is planned for 2017/18 on a National Environmental Monitoring Standard for macroinvertebrate monitoring.

Also, ongoing work through the Environmental Monitoring and Reporting programme with regional councils continues in relation to standardised monitoring for indigenous flora and fauna and Mātauranga Māori. These are not finalised and therefore cannot be incorporated into the Freshwater NPS at present, but might be suitable in the future.

While recognising the need for uniform data standards and inter-regionally comparable monitoring data, we believe these ongoing processes will be sufficient to address submitters' concerns and therefore we do not propose additional amendments.

Recommendation

Proceed with the amendments as proposed, unless otherwise stated.

Clarifying the monitoring requirements for indigenous flora and fauna

Submitters, including LAWF, requested clarity on whether monitoring requirements for "indigenous flora and fauna" applies to "in-stream" flora and fauna, "water-dependent" indigenous flora and fauna or all indigenous flora and fauna. Numerous submitters also requested that this monitoring requirement explicitly mention native fish.

The policy intent is to require councils to monitor indigenous flora and fauna, which by definition includes native fish, to help them evaluate whether they are meeting set objectives and providing for ecosystem health values. As such, we consider that being overly prescriptive in monitoring requirements for indigenous flora and fauna would be counter-productive, and in the case of incorporating fish explicitly, an unnecessary legal clarification.

While we recognise the need to develop monitoring uniformity, and to improve the quality, consistency and conformity of fish monitoring in particular, we consider ongoing EMAR processes and the development of the National Policy Statement for Biodiversity to be more appropriate pathways to meet those objectives. As such, we recommend no change to the proposed amendment.

Recommendation

Proceed with the amendments as proposed, unless otherwise stated.

Coastal lakes and lagoons that intermittently open to the sea

Background

The lake attribute table for total nitrogen in Appendix 2 of the current Freshwater NPS includes a footnote that says “intermittently closing and opening lagoons (ICOLs) are not included in brackish lakes”. This has created confusion about the status of these coastal lakes; it is not clear to councils and the public whether the lake attributes in Appendix 2 apply to ICOLs.

In 2014, we commissioned the advice of an expert panel on possible attributes and thresholds relevant to the ecosystem health of coastal lakes and lagoons that intermittently open to the sea. The advice of the panel was that the Freshwater NPS lake attributes for total nitrogen, total phosphorus, and phytoplankton, are applicable to these coastal lakes.

Proposed amendments

The proposed amendments to the Freshwater NPS:

- remove the footnote from the total nitrogen attribute table
- add a new footnote to each lake attribute table about monitoring requirements for lakes and lagoons that intermittently open to the sea
- amend the descriptions of each of the narrative attribute states for lake attributes to be more inclusive of lakes and lagoons that intermittently open to the sea.

Submissions

Submissions from most regional councils, the science community, and primary industry supported the clarification of the place of ICOLs in the Freshwater NPS and the application of the attributes and national bottom lines to those water bodies.

Submissions raised the following issues:

- Improving degraded lakes, in particular, Ellesmere/Te Waihora, will require reductions in nutrient loads to achieve a bottom line that will have significant implications for land use and associated negative social and on-farm consequences.
- Monitoring proposals that require a rolling annual median of 12 samples for both open and closed states are unworkable because some coastal lakes and lagoons remain open or closed for considerable periods of time.
- Reference to macrophytes and macroalgae is technically imprecise: the science organisations suggested alternative wording for the descriptions for the narrative attribute states, which they believe contain some technical inaccuracies.

Implications and consequences for degraded lakes

Environment Canterbury is concerned that it has set objectives in regional plans for two coastal lakes (Te Waihora and Wainono) at levels below the proposed national bottom lines, and that reductions in nutrient loads to achieve a bottom line at Te Waihora will have

“significant implications for land use and associated negative social and on-farm consequences”.

In its view, the community and iwi do not support listing Te Waihora in Appendix 4, thereby making it eligible to set a transitional objective below a national bottom line, because this approach is perceived negatively as an “opt out” and does not reflect the long-term commitment made.

Both Te Rūnanga o Ngāi Tahu and the Waihora Ellesmere Trust noted in their submissions that being listed in Appendix 4 would allow the use of a transitional objective, with Te Rūnanga o Ngāi Tahu also noting that they must be included in any decision-making process to establish transitional objectives. This would be the case because listing any freshwater management unit in Appendix 4 requires the public process directed for amending a national policy statement.

Environment Canterbury’s concerns about the negative perceptions of being listed in Appendix 4 are not shared by Te Rūnanga o Ngāi Tahu. Appendix 4 is labelled “Freshwater management units and periods of time for transition under Policy CA4” (emphasis added). The policy intent of Policy CA4 is to allow a transitional arrangement for freshwater management units, such as Selwyn-Te Waihora, which cannot be improved to a level above a national bottom line under any feasible scenarios. The intent is that councils take a transparent approach in their steps to improve water quality and test the feasibility of making further improvements after an agreed time (the time specified in Appendix 4).

Recommendation

Delete the footnote to the Total Nitrogen attribute table for lakes as proposed.

Monitoring requirements

Five regional councils (Hawke’s Bay, Northland, Auckland, Canterbury, and Southland) and NIWA were concerned that the monitoring requirements were unhelpful because some coastal lakes and lagoons remain open or closed for considerable periods of time. This means that applying a rolling median for 12 samples for each scenario may not be possible.

The footnote text was recommended by the technical advisory group to clarify that the thresholds apply during periods when a coastal lake or lagoon is open and during periods when it is closed.⁴ Their intention was that the monitoring data should be analysed separately for closed periods and open periods when comparing the state of the lake or lagoon with its freshwater objective.

The proposed text has an unintended consequence of requiring 12 samples for each situation during an annual monitoring period. The footnote can be changed to retain the intent.

Recommendation

Add the following text to the attribute tables for phytoplankton, total nitrogen, and total phosphorus (rather than the proposed text):

For lakes and lagoons that are intermittently open to the sea, monitoring data should be analysed separately for closed periods and open periods.

⁴ K D Hamill et al. 2014. *Attributes for Intermittently Open and Closed Lakes and Lagoons (ICOLLs) applicable to the National Objectives Framework for Fresh Water*. Wellington: Ministry for the Environment.

Reference to macrophytes and macroalgae is technically imprecise

NIWA believes that it is unnecessary to add “or additional phytoplankton and macroalgae” to the description of the narrative attribute states because these are already covered by “additional algal or plant growth”.

The New Zealand Freshwater Society prefers the term “native macrophytes” to “macrophytes” in the description of the narrative attribute states to distinguish between nuisance macrophytes and desirable macrophytes.

These submitters are experts in the field of freshwater ecology and some were on the technical group that provided advice about relevant attributes for coastal lakes that intermittently open to the sea. They have suggested alternative wording that would be appropriate for the description of the narrative attribute states.

Recommendations

Do not add the text “or additional phytoplankton and macroalgae” as proposed in the narrative description of the “C” state in the attribute tables for phytoplankton, total nitrogen, and total phosphorus.

Add “(without native macrophyte/seagrass cover)” after “persistent, degraded state” instead of “(without macrophyte/seagrass cover)” as proposed in the narrative description of the “D” state in the attribute tables for phytoplankton, total nitrogen, and total phosphorus.

Managing nitrogen and phosphorus

Background

Feedback from stakeholders has demonstrated a level of distrust and dissatisfaction that regional councils are not giving effect to the Freshwater NPS as intended, specifically for managing nitrogen and phosphorus through regional planning mechanisms.

Under the existing Freshwater NPS policies, regional councils are expected to factor in the management of nitrogen and phosphorous concentrations in water bodies when establishing freshwater objectives for the periphyton attribute in each freshwater management unit (FMU) - but the Freshwater NPS does not state this explicitly.

Periphyton growth is driven by numerous highly-localised factors such as flood frequency, sediment, light and temperature, as well as nitrogen and phosphorus concentrations. Currently the relationships between these factors cannot be accurately modelled and measured at spatial scales larger than sub-catchment. For this reason national bottom lines or limits for nitrogen and phosphorus to manage periphyton are not currently set at a national scale. However, there is still an expectation that nutrients should be managed within an FMU as part of the objective and limit setting process.

Dissolved inorganic nitrogen (DIN) and dissolved reactive phosphorus (DRP) are measures of the nitrogen and phosphorus that are available for aquatic plant growth.

Proposed amendment

Clean Water proposed inserting the following note into the Periphyton (Trophic state) attribute table in Appendix 2 of the Freshwater NPS:

Note: The attribute for nitrate toxicity is not applicable in rivers that support periphyton growth. Before using this attribute to set an objective for periphyton, maximum concentrations of dissolved inorganic nitrogen and dissolved reactive phosphorus will need to be determined for the freshwater management unit. The maximum concentrations of dissolved inorganic nitrogen and dissolved reactive phosphorus will also need to consider the sensitivity of downstream environments.

The note intended to clarify that the nutrients nitrogen and phosphorus should be explicitly addressed in terms of achieving the periphyton attribute – including considering the downstream effects.

Submissions

Twenty-two per cent of unique submissions, representing a mix of submitter types, supported the intent of the proposal. Many of these submissions agreed in principle that setting appropriate concentrations for DIN and DRP was important for managing periphyton in rivers, with some submissions strongly supporting the reference to downstream receiving environments. However, some of these submissions also recommended changes to the proposal and for further research to be undertaken to develop better tools for managing nutrients in water bodies.

Three per cent of unique submissions, mainly from regional councils, opposed the proposal.

The remainder of the submissions were more general in nature and the main issues raised are listed below. Many of these issues were part of the Land and Water Forum's submission which

largely reflected the recommendations laid out in their letter to the Minister dated August 2016. There was strong support for the LAWF proposals. Many submitters commented on topics that were not part of the proposal for this consultation.

The following specific issues were raised by unique submissions in regards to the proposal and are discussed in more detail in following sections:

- The wording of the proposed 'Note' is confusing and contains factual errors.
- LAWF developed a decision support tool for setting DIN and DRP concentrations to support periphyton objectives and request its use be mandatory.
- There are multiple drivers of periphyton which have complex relationships and focussing on nutrients may not be helpful or desirable.
- The development of a multi-variate lookup table for DIN/DRP concentrations is needed to support the implementation of the proposal.

The wording of the 'Note' is confusing and contains errors

Feedback on the wording of the proposed 'Note' came from 14 unique submissions, from a wide range of submitter types. Four main points were raised:

- The wording of the first sentence in the 'Note' (incorrectly) implies that the Toxicity attribute does not apply to rivers that support periphyton. Some submitters suggested this sentence should be inserted in the Nitrate Toxicity attribute table instead.
- The wording of the second sentence (incorrectly) implies that setting concentrations for DIN and DRP should occur before setting a periphyton objective.
- The use of the term 'maximum concentrations' for DIN and DRP is incorrect. Suggestions include changing this to 'annual medians' or 'other appropriate statistics' (such as 95th percentile). Alternative wording was supplied by LAWF and NIWA.
- The wording of the third sentence referring to downstream environments is vague and its implications unclear.

The intention of the 'Note' is to require DIN and DRP concentrations to be set to support objectives set for periphyton. It is apparent from this feedback that the wording in the 'Note' is problematic and should (at least) be changed to address the above issues. We have worked with key scientists to redraft the 'Note' for clarity and correctness and recommend making the required changes.

We note that while some councils were comfortable with the proposal and its intent, Northland opposed it and others (including, Hawke's Bay, Horizons, and Canterbury) raised concerns. There may be some adverse reaction to the inclusion of the 'Note' because it provides direction on what is a complex issue. We will support councils by providing comprehensive guidance. However, we also consider that managing nutrients for instream water quality is fundamental to the objective and limit setting process already required by the Freshwater NPS. As such we do not consider that this will increase the risk of litigation as it provides better direction on an existing requirement.

Recommendations

Remove the sentence referring to Nitrate Toxicity in the Periphyton 'Note' and move it to the Nitrate Toxicity table.

Redraft the wording of the 'Note' to achieve a clearer policy intent.

Decision-support tool for setting DIN and DRP concentrations

Nine unique submissions requested the development of tools to support the setting of DIN and DRP concentrations to address concerns that regional councils are not managing nutrients effectively or consistently (LAWF; two environmental groups, two local authorities, two other organisations, one iwi, and one industry group).

A decision support tool in the form of the flow chart was developed by LAWF to show the steps for setting DIN and DRP concentrations to support achieving periphyton objectives in an FMU. It is LAWF's view that the use of the decision support tool, or something similar, be made mandatory to provide for a consistent nationwide process for managing DIN and DRP.

Officials consider there is merit in LAWFs intentions for mandatory use of a decision support tool for setting DIN and DRP concentrations based on the flow chart they provided. We have worked on translating the flow chart into text suitable for inclusion into the policies (or elsewhere) of the Freshwater NPS. This will need to be augmented by guidance and implementation support.

Recommendation

Include a decision-support tool in the Freshwater NPS, based on advice from LAWF.

Focusing on nutrients alone is not helpful

Fourteen unique submissions raised concerns about the level of scientific ambiguity regarding the connections between nutrient concentrations and periphyton growth in rivers.

The majority of these submissions noted that periphyton biomass growth is influenced by multiple factors which have complex and non-linear relationships. For example, nutrient enrichment is not always the primary driver of periphyton growth in rivers which can also be influenced by temperature, light regime, flow rates and sediment. Therefore, the setting of DIN and DRP concentrations may not necessarily be sufficient nor the best option to achieve freshwater objectives for periphyton.

It is clear that there are complex relationships between the growth of periphyton biomass and a variety of environmental drivers. However, in most cases achieving periphyton objectives requires the management of nutrient concentrations. These nutrients also have major effects on sensitive downstream environments and may be important to manage for other values and attributes at a local scale. Clarification that DIN and DRP are not the only factors to think about when managing periphyton can be addressed in the 'Note' and further information will be provided in guidance.

Recommendation

Redraft the wording of the 'Note' to achieve a clearer policy intent

Multi-variate look-up table for DIN and DRP concentrations

Requests for the future development of a multi-variate lookup table for DIN and DRP concentrations to support regional councils were received from a range of submitters, including LAWF. This table would provide a broad indication of what range of nutrient concentrations were appropriate in a variety of conditions, such as flow and light regimes.

The Science Review Panel has advised that a multi-variate lookup table would need to account for the spatial variation in all relevant controlling variables including: temperature; light; substrate; flow regime; and nutrients; and that there was a particular risk to downstream

receiving environments in setting maximum nutrient numbers. This is not considered a short-term piece of work and the science behind it will require significant development before it could be included in any guidance package.

Officials propose to consider a multi-variate lookup table for development and inclusion into guidance once additional data become available and the science is further advanced.

Recommendation

Keep a watching brief on the relevant science with the view to developing multi-variate look-up tables if and when they become an appropriate option.

Other analysis

Submitters commented on a number of other areas, not directly related to the proposals in *Clean Water*.

These submissions largely provided general commentary on freshwater management in New Zealand. This category includes commentary from 5366 submitters, the majority of which are individual portions from Forest & Bird responses (of which there were 3760), Green Party responses (1137), and ActionStation responses (1787).

These submissions dealt with a wide variety of different areas, including inter-generational equity, tourism, agriculture, urban, environmental health, and economy.

Officials note these concerns. However, they are outside the scope of the current consultation, and no changes are recommended.

Resource Management Act Part 2 Analysis

This chapter looks specifically at the proposed amendments to the Freshwater NPS and how they contribute to achieving the purpose and principles of the RMA. Existing provisions of the Freshwater NPS that are not proposed to be amended are not reassessed here. An evaluation of the proposed amendments had been undertaken in accordance with section 32 of the RMA which also provides an evaluation of how the proposed amendments achieve the purpose of the RMA. The earlier chapters of this report provide additional details on how the proposed amendments contribute to achieving Part 2 of the RMA. A further evaluation under section 32AA will also be undertaken once final decisions have been made.

In providing an analysis of whether the proposed amendments achieve Part 2 of the RMA, the focus is on the intent of the Freshwater NPS objectives. The Freshwater NPS policies are not specifically singled out as their purpose is to implement the objective and therefore support it in its intent. The proposed amendments are intended to form a cohesive process for how to set freshwater objectives and limits as is already required of regional councils under the Freshwater NPS.

The proposed Freshwater NPS objectives assessed here can be summarised as those applying to Te Mana o te Wai (new Objective AAA1); water quality (amendments to Objective A1, A2 and new Objective A3); amendments to water quantity Objective B1; and changes to monitoring requirements (Objective CB1).

The monitoring requirement of the Freshwater NPS does not in itself achieve the purpose of the RMA as monitoring is not directly driven from Part 2 (although it is closely associated with achieving Part 2, the requirements to monitor are elsewhere in the RMA) and monitoring is already required through the Freshwater NPS. However, it does provide an approach for how to monitor progress toward and achievement of the Freshwater NPS objectives that contribute to achieving sustainable management.

The table below outlines how the proposed amendments contribute to promoting the purpose of the RMA – the sustainable management of natural and physical resources – in this case freshwater resources.

Purpose of the RMA (s 5(1)) to promote the sustainable management of natural and physical resources	
<i>Section 5(2) sustainable management means managing the use, development and protection of natural and physical resources in a way or at a rate which...</i>	Regional councils are already required to set freshwater objectives and limits in regional plans to manage fresh water in their regions. The amendments to the Freshwater NPS clarify the planning framework to help councils set effective freshwater objectives and limits to better achieve sustainable management of fresh water resources.
<i>Enables people and communities to provide for their social, economic and cultural wellbeing,</i>	The proposed changes to recognise economic wellbeing, including productive economic opportunities, are intended to direct council planning to consideration of s5(2); as is the inclusion of the productive (extractive) uses in the values description. These additional values are ones that councils must consider when deciding which values an FMU will specifically provide for.
<i>Sustaining the potential of natural and physical resources to meet needs of future generations (s5(2)(a))</i>	The increased direction on how to set limits for nutrients provides for this. Limit setting is fundamental to sustaining the potential of natural and physical resources to meet the needs of future generations.

Purpose of the RMA (s 5(1)) to promote the sustainable management of natural and physical resources

	The proposed changes to the narratives of the values in Appendix 1 includes national values that relate to sustaining the potential of natural and physical resources (ecosystem health, natural form and character) as well as providing for productive uses.
<i>Safeguarding the life-supporting capacity of air, water, soil and ecosystems (s5(2)(b))</i>	The increased direction on what and how to monitor is intended to provide better information on the state and trends of freshwater resources over time so use and management of these resources can adapt as needed in a timely way.
<i>Avoid, remedy or mitigate adverse effects of activities on the environment (s5(2)(c))</i>	The amendments provide increased direction on avoiding, remedying or mitigating adverse effects – including cumulative effects (Policy C1) by recognising the interactions between ecosystems and managing water accordingly.

Matters of national importance

In achieving the purpose of the RMA, the matters of national importance in section 6 must be recognised and provided for. The proposed amendments include several elements that directly relate to matters in section 6, including:

Section 6 matters

- s6(a) The preservation of the natural character of the coastal environment, wetlands, and lakes and rivers
- s6(c) the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna
- s6(e) the relationship of Māori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga.

The Freshwater NPS relates to water bodies as defined in the RMA⁵ and as such does not directly include objectives and policies for the coastal environment. However, the proposed amendments strengthen the existing requirement in Part C to improve integrated management of freshwater – including the interactions with the coastal environment. This is achieved with the addition of requirements to set limits for nutrients (DIN and DRP) to manage for Periphyton freshwater objectives *but at the same time* also being mindful of the interactions and effects on receiving environments (lakes, wetland and estuaries) and setting limits for these nutrients accordingly. In this way the Freshwater NPS provides for s6(a) and s6(c). Note that the significant values of wetlands must already to be protected under the Freshwater NPS.

The Freshwater NPS contains tables of national values and uses, including one for ‘natural form and character’ which must be considered when setting freshwater objectives. We have expanded the narrative that underpins the additional value of natural form and character and in so doing we consider this better supports the requirement of s6(a) and s6(c).

The proposed amendments support the relationship of Māori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga. The proposed amendments to the Freshwater NPS provide a new objective (Objective AAA1) that requires

⁵ In the RMA water body is defined as “freshwater or geothermal water in a river, lake, stream pond, wetland or aquifer, or any part thereof, that is not located within the coastal marine area”.

regional councils to consider and recognise Te Mana o te Wai and incorporate tāngata whenua values in the national values in Appendix 1 and so provide for s6(e). The Freshwater NPS requires councils to consider these values when setting objectives and limits for fresh water. Additional freshwater objectives may also be set to provide for specific values of importance to tāngata whenua.

Other matters

In achieving the purpose of the RMA, particular regard must be given to the matters listed in section 7. The amendments to swimming targets and inclusion of Te Mana o te Wai addresses or provides for several of these matters, including:

Other matters

- s7(a) kaitiakitanga
- s7(c) the maintenance and enhancement of amenity values
- s7(d) intrinsic values of ecosystems
- s7(f) maintenance and enhancement of the quality of the environment
- s7(h) the protection of the habitat of trout and salmon
- s7(j) the benefits to be derived from the use and development of renewable energy.

The National Objectives Framework contains a table of values or uses that must be considered when setting freshwater objectives (Appendix 1 of the Freshwater NPS). Additional values that councils and communities must consider when setting freshwater objectives include: recreation (c); natural form and character (c)(d); fishing (h)(c); hydro-electric power generation (j); and tāngata whenua values such as mahinga kai and wai tapu (a).

Targets and policies to improve water bodies for swimming address (c), (d) and (f) above.

The proposed objective and policy in Part AAA provide for the health of the environment, the water body and the people and ensures tāngata whenua values are identified and reflected in the management of, and decision-making for, fresh water (contributing to (a) above).

Treaty of Waitangi

Section 8 of the RMA requires all persons exercising functions and powers under it to take into account the principles of the Treaty of Waitangi (Te Tiriti o Waitangi). The Treaty of Waitangi is the underlying foundation of the Crown–iwi/hapū relationship.

The proposals presented here were developed in conjunction with the Freshwater Iwi Leaders Group and as such fulfil the Treaty of Waitangi principle of ‘partnership’.

The proposed objective and policy for Te Mana o te Wai addresses the Treaty principle of ‘active protection’ by putting the river first.

Addressing tāngata whenua values and interests across all of the wellbeings, and including the involvement of iwi and hapū in the overall management of fresh water, are key to meeting obligations under the Treaty of Waitangi.

No amendments are recommended to Part D of the Freshwater NPS, which supports and clarifies the Treaty obligations of regional councils under the RMA.

Conclusion

The Freshwater NPS is subject to the RMA, including Part 2. The Freshwater NPS needs to be consistent with the purpose of the RMA. The proposed amendments promote the purpose of the RMA by providing further direction on how to give effect to it through policy statements and plans. We are satisfied that the proposed objectives and policies of the Freshwater NPS promote the purpose of the RMA and will help councils in giving effect to its provisions.