

# Draft Regulatory Impact Statement: Proposed amendments to the National Policy Statement for Freshwater Management 2011.

## Agency Disclosure Statement

This Regulatory Impact Statement (RIS) has been prepared by the Ministry for the Environment and the Ministry for Primary Industries. It accompanies the discussion document *Proposed amendments to the National Policy Statement for Freshwater Management 2011*, the section 32 evaluation report and proposed amendments to the NPS-FM as part of the consultation package released in November 2013.

This draft RIS provides an analysis of the options to assist with setting freshwater objectives and limits required under the National Policy Statement for Freshwater Management 2011 (NPS-FM).

The options presented here constitute the additional reforms Cabinet agreed would need to be developed to achieve effective implementation of the NPS-FM. The Government asked the collaborative group the Land and Water Forum (LAWF) to provide further recommendations on how objectives and limits should be set. The proposals for a national objectives framework with bottom lines and freshwater accounting stem directly from the recommendations of LAWF.

The detail of the recommendations has been developed by specialist reference groups, freshwater iwi leaders group and their advisors and science panels (which include members from leading CRIs). The proposals have been informed and refined through public consultation, both on the LAWF first report and by the Government in the *Freshwater Reform 2013 and Beyond* discussion document.

Notwithstanding the impact analysis on the proposals that has been undertaken by the Government through case studies, there remain gaps in the understanding of the impacts on councils and resource users nationally – in particular of meeting the requirements for national bottom lines.

We are seeking feedback on this, and other matters, through consultation beginning in November 2013. A final RIS will be submitted to Cabinet with recommendations before final decisions are made.

## Executive summary

1. This draft Regulatory Impact Statement (RIS) describes the options assessed to address problems arising from the implementation of the National Policy Statement for Freshwater Management (NPS-FM). Research has shown that decision-making in the area of freshwater management is inefficient, lacks transparency and is not adequately recognising tāngata whenua values. With the significant pressures on water use around New Zealand continuing with the status quo risks inconsistent and potentially ineffective approaches to setting objectives for freshwater bodies. Without further direction, there cannot be efficient allocation of the available resource. These problems hinder regional councils' ability to give effect to the NPS-FM in their regional plans.
2. The preferred option to address the identified problems is to amend the NPS-FM by
  - a. Adding guidance in the Preamble about the meaning and application of Te Mana o te Wai
  - b. Requiring councils to establish a system to account for all resource use that affects fresh water (specifically water takes and sources of contaminants)
  - c. Requiring councils to follow a specified process to set objectives, based on managing water bodies to meet community values
  - d. Establishing a suite of national values, which include values that will contribute to Te Mana o te Wai
  - e. Making ecosystem health and human health (for secondary contact recreation) compulsory national values
  - f. Establishing national bottom lines for the compulsory values, with a suggested framework for when those national bottom lines may be allowed to be breached
  - g. Requiring councils to monitor progress towards achieving the objectives
3. The water reform proposals leading to the proposed amendments to the NPS-FM have been prepared by the Ministry for the Environment and the Ministry for Primary Industries. They are based on the extensive collaborative work done between 2009 and 2012 by the Land and Water Forum and the results of consultation done by the ministries in March 2013.
4. This RIS is in three parts. Part 1 is the description of the status quo and problem definition. Part 2 covers implementation options. Part 3 contains the impact analysis for the national objectives framework, and the proposal for freshwater accounting.
5. Amending a national policy statement must follow a statutory process. The Government will consult with communities throughout New Zealand and invite submissions on the proposed amendments. The Ministry for the Environment will then prepare a final RIS taking into account the views in submissions and make recommendations on whether to proceed with the amendments, and if so, what form the amendments will be. This is expected to be in 2014.

## Part 1: Status quo, problem definition and RIS objective

### Status Quo

6. In 2009 the Government initiated a new strategic direction for fresh water reform called the Fresh Start for Fresh Water Programme. As part of that, the National Policy Statement for Freshwater Management (NPS-FM) was prepared and came into effect on 1 July 2011. The NPS-FM requires regional councils to set freshwater objectives and limits in plans by 2030, to improve the way water is managed.
7. The NPS-FM contains the following direction:
  - a. Regional councils are required to set freshwater objectives and limits.
  - b. Limits must describe the maximum amount of resource use available which allows a freshwater objective to be met.
  - c. Over-allocation is to be avoided, and existing over-allocation is to be phased out.
  - d. The overarching objective for the state of fresh water is to safeguard the life supporting capacity, ecosystem processes and indigenous species of fresh water, including their associated ecosystems.
  - e. The overall quality of fresh water within a region is to be maintained or improved.
  - f. In over-allocated situations regional councils are required to set targets (a limit), including defined timeframes within which those targets are to be achieved.
8. The NPS-FM includes a requirement that all policies must be fully implemented by 2030. If a regional council cannot achieve implementation by 31 December 2014, it must notify a 'progressive implementation programme' that describes how it will meet the 2030 deadline.
9. Horizons Regional Council has assessed its One Plan (notified prior to the NPS-FM) and decided that it will give full effect to the NPS-FM by 2014. Otago Regional Council also believes its plan change 6A will give effect to the NPS-FM by 2014, while Taranaki Regional Council intends to notify a plan change to give full effect to the NPS-FM by 2014. The remaining councils have notified progressive implementation plans outlining the process for having freshwater objectives and limits in place by 2030, with most intending to have implemented the NPS-FM by 2022.
10. When Cabinet agreed to the NPS-FM, it agreed additional measures were needed to "achieve effective implementation of the NPS". This included supporting measures, such as guidance on the process, scientific tools (databases and catchment modelling), as well as regulatory measures if required to assist regional decision making.
11. The Government invited the Land and Water Forum<sup>1</sup> (LAWF) to provide detailed recommendations on a framework for setting and managing objectives and limits. LAWF brought together people with a stake in freshwater and land management from iwi organisations, industry sectors, environmental and recreational NGOs, and science organisations.

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<sup>1</sup> The Land and Water Forum is an independent forum whose first phase of work lasted from August 2009 to August 2010. Their report *A Fresh Start for Freshwater* (2010) identified a set of outcomes and goals for freshwater management and recommended a number of policy changes to achieve those. Public meetings to discuss the Forum's Report were held around the country at the end of 2010 and the beginning of 2011.

12. In its second report (May 2012), the LAWF provided 38 recommendations, many focused on providing greater central government direction in setting objectives and limits.<sup>2</sup> The recommendations to establish a regulated **national objectives framework** with **national bottom lines** and require **freshwater accounting** are addressed here.

### Costs of the status quo

13. Setting limits that are explicitly linked to objectives requires a mix of science, technical and economic information, as well as values-based judgements. All these matters require time-consuming and costly research, which can be debated through regional council planning and court processes, resulting in uncertain and potentially inconsistent outcomes around the country. The costs fall on regional councils (and their ratepayers), submitters and appellants on regional planning documents, as well as the courts.
14. The actual costs to regional councils in implementing the NPS-FM are difficult to quantify because all councils undertake, to varying degrees, the work required by the NPS-FM as part of their statutory functions under the RMA. Councils have either budgeted specifically for implementation of the existing NPS-FM, or have increased finance to current work programs<sup>3</sup>. There is a large variation in the proposed budgets for implementing the NPS-FM, from tens of thousands up to \$2m/year<sup>4</sup>. This is partly a reflection of whether the work is stand alone, or is embedded in existing plan reviews and established monitoring work. It may also reflect each council's capability and understanding of what is required in setting objectives and limits. That is, those councils that have already begun have a larger budget than those that have not<sup>5</sup>. Anecdotal evidence suggests councils are waiting for more direction from government on how to set objectives<sup>6</sup>.
15. Objective A2 of the NPS-FM directs that over-allocated water bodies that have been degraded by human activities should be improved. Giving effect to this objective in their regional plans requires councils to find ways to encourage reductions or reallocate resource use. Reducing resource use will represent costs to the users.
16. Harrison Grierson and NZIER (2011) estimated NPS-FM implementation costs at \$33 to \$49 million for planning costs for regional councils and \$35 to \$52 million for planning participation costs for communities, stakeholders, local authorities and industry. The report recognised that "each regional council is likely to implement policies and plans in different ways" and that "the approach taken will impact greatly on how the costs and benefits fall". Standardising the implementation of the NPS-FM could reduce implementation costs to both councils and resource users.

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<sup>2</sup> The Second report also recommended that councils follow a collaborative process in developing their regional plans for water management. This recommendation is being progressed through the wider proposals considered for resource management reform.

<sup>3</sup> Data obtained from Annual Plans, LTCPs and NPS Progressive Implementation Plans.

<sup>4</sup> Environment Canterbury budgeted \$7.6 million for scientific investigations (and monitoring work) for the 2011/12.

<sup>5</sup> For example Northland Regional Council current business as usual budget for water related monitoring is \$1m/year. The 2012-2022 LTP contains an additional \$100 thousand in year 1 for monitoring and analysis. Additional monitoring between \$180,000 and \$250,000 each year for 10 years is included for the NPS-FM.

<sup>6</sup> For example <http://www.odt.co.nz/news/farming/266061/inclusive-approach-water-management-welcomed>

17. A study of regional council freshwater management approaches showed that *Variation 5 - Lake Taupō Catchment* to the Waikato Regional Plan cost the council \$11.3m over 12 years for policy development and scientific studies. They estimated cost savings of up to \$200,000 over two years and \$100,000 annually over the policy development phase (2000-2011) if there had been a “national limit setting scheme in place”.
18. An indication of the costs and benefits of the status quo is given in Table 1. These costs apply to expenditure on regional plan development, hearings and appeals and cannot be apportioned according to individual plan provision (objective, rule or method). Costs are indicative of magnitude and described as low, medium or high to convey a sense of relativity.<sup>7</sup>
- High is more than \$100 million
  - Medium is between \$2 million and \$100 million
  - Low is less than \$2 million

*Table 1: Costs and benefits of the status quo for objective and limit setting under the NPS-FM*

Impacts			
Costs	Magnitude	Falls to	Rationale
Science and Technical work	Medium	Regional councils	Costs to gather the scientific and technical studies required to underpin the objective and limit setting. Based on council projected costs for implementing the NPS-FM \$100,000-\$2m
Consultation	Low	Stakeholders, regional councils	Costs of advocacy during plan development. Actual costs depend on the number of water bodies in the region, the pressures on those water bodies caused by existing uses in the catchment, and whether councils use the standard consultation procedure required by Schedule 1 of the RMA, or whether they use the collaborative process recommended by the LAWF.
Investment certainty	High	Regional councils, resource users	Costs in terms of delay while councils gather technical information then debate the application of that information through the plan development process.
Appeals	High	Regional councils, submitters, Courts	Costs for contesting plan provisions, numbers and methodologies through the planning and court process. For example, Horizons Regional Council, (whose One Plan had limits even before the NPS-FM came into effect), spent \$6.5m on the hearing and a further \$3.3m on appeals to Environment Court.
Benefits	Magnitude	Falls to	Rationale
Innovation	Low	Regional councils	Greater scope of work needed at the individual regional level may lead to innovative methodologies for setting objectives and limits.

<sup>7</sup> Cost magnitudes were determined in the context of MfE costs to develop resource management policy and regulation. The average cost to prepare a regulation was 1.1 million, ranging from \$350,000 for the Measurement and Reporting of Water Takes regulations to \$2.5 million for the National Environmental Standard for assessing and managing contaminants in soil to protect human health. Impacts in this RIS, where quantified, are indicative in 2013 dollars, are not discounted and should be viewed as current examples only.

## **Problem definition**

19. The NPS-FM came into effect in 2011 requiring councils to manage water in an integrated and sustainable way, while providing for economic growth within set water quantity and quality limits. Direction about how this should be achieved was provided in supporting guidance with a commitment to provide further direction later.
20. In December 2012, the Ministry surveyed all regional councils asking what difficulties they were having implementing the NPS-FM. All councils cited difficulties with 'defining life supporting capacity' – as required to give effect to Objectives A1 and B1 – and 7/16 councils were unsure of the difference between numeric objectives and limits. Half of all councils cited issues with capability and capacity required to do the technical investigations and science to inform objective and limit setting. These issues are described in greater detail below.

### ***Defining life-supporting capacity***

21. In giving effect to the NPS-FM, councils must adopt provisions in their regional plans to safeguard the life-supporting capacity of fresh water and associated ecosystems. If there is no guidance on what it takes to achieve life-supporting capacity, then debate about the level at which safeguarding life-supporting capacity is achieved will be duplicated over multiple catchments and regions. There is a risk that some industry sectors will have to engage with many councils around the country debating the same issues to achieve the same or similar outcomes. This may perpetuate the current situation where final decisions are made by the courts after considerable delays and expense.

### ***Setting objectives and limits***

22. Objective setting prior to and since the NPS-FM has demonstrated that councils and their communities are not explicitly linking their freshwater objectives with the maximum amount of resource use available that would allow the objective to be met, as is required by the NPS-FM. For example, when setting a numerical objective for a lake so that its water quality is maintained at, or can reach an intended environmental outcome (such as 200 mg total nitrogen per cubic metre), that objective needs to be linked to the total nitrogen load from the catchment that the lake can carry (in tonnes per year). The council and community can then work out how much the existing load needs to be reduced, and if so, how the limit can be allocated among existing users. If the limit is over-allocated, they need to decide what process to use to reduce users' allocations. Only then can the council and the community determine the costs associated with the lake water quality improvement, and with that information, can review whether the objective is the right one for the water body.
23. Regional councils are free to decide how to 'give effect' to the NPS-FM when setting objectives and limits through the planning process. Having the ability to reflect local views in freshwater management allows those affected to influence what happens in their region, and allows management techniques to be tailored to local conditions and social and economic needs. It has also meant that councils have adopted a wide range of water management purposes in their regional plans. For example, narrative objectives expressed in regional plans in effect in April 2013 describe values for 92 different states for water quality. Some are specific to a water body, such as "fish

spawning purposes for whitebait” or “habitat for threatened species”. Others are general, such as “iwi values” or “reasonably foreseeable needs of future generations”.

24. Setting freshwater objectives to meet such a variety of water management purposes results in a wide range of approaches to what contaminants or attributes need to be managed and to what extent. This can add time-consuming and costly disputes to what is already a contentious part of the plan development process, with councils under pressure from all sectors in the community to meet their needs and preferences, while also being required to give effect to the NPS-FM and achieve the purpose of the Act.

### ***Council capacity and capability***

25. The NPS-FM has been in effect for two years, but councils are still struggling with its key requirements to set objectives and limits. This arises partly from lack of technical resources and partly because the issues they are trying to resolve (degraded quality of freshwater bodies and increased pressure to use what is available) are highly contentious.
26. Some of the consequences of continuing with the status quo are:
- a) **Inefficient use of council resources:** Councils with sufficient resources will continue to undertake (or commission) scientific assessments to develop objectives specific to water bodies and values in their regions, or obtain assistance from scientific research institutes. This can duplicate effort from scientists around the country, especially when stakeholders who disagree with any consequent limits must then engage other scientists to debate the detail of the numbers through the planning process. Water bodies may be managed for very similar purposes, with subsequent debate about exactly where to set objectives to achieve very similar outcomes.
  - b) **Ineffective objectives:** councils with limited resources may continue to use various existing guidelines – usually 2000 ANZECC Guidelines (or earlier versions), and Ministry for the Environment water quality guidelines.<sup>8</sup> The use of outdated guidelines means that objectives may be set at the wrong level to safeguard freshwater’s life-supporting capacity, ecosystem processes and indigenous species. This can mean that ineffective or inappropriate conditions are imposed on resource consents (if they are granted) and the NPS-FM objectives are not achieved.
  - c) **Lack of equity:** If the objectives and consequent limits are set too low, future generations may face clean up costs, or inherit a permanently degraded water body. Already the Government has spent \$450 million dollars contributing to programmes to clean up just a few of New Zealand’s rivers and lakes (with additional funding from regional councils). If the limits are set too high, there may be lost opportunity costs for water users.
  - d) **Lack of transparency:** if a freshwater objective is not set to achieve a specific freshwater state, such as a maximum amount of periphyton cover, then the limit

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<sup>8</sup> The Ministry has produced a range of water quality guidelines to assist regional councils in their RMA functions, starting with Water Quality Guidelines No. 1 Biological Growths (1992), and most recently Draft Guidelines for the selection of methods to determine ecological flows and water levels (2008)

cannot be set for drivers affecting that state, such as maximum nutrient leaching in the catchment. Without well defined limits, resource users face uncertainty about the extent to which they may need to change their practices to meet the instream objective. Objectives that cannot be linked to limits mean that the full consequences of an objective may not be clear and understood by all parties before being adopted in the plan.

- e) **Lack of recognition of iwi values:** Feedback from iwi during consultation for the freshwater reform in March 2013 was that iwi want better council engagement with Maori in the resource management process to better recognise iwi values.

27. Inconsistent approaches to regional and local decision making was one of the problems that the NPS-FM was intended to address.<sup>9</sup> With the high pressures on water use around New Zealand, continuing with the status quo risks continuing with inconsistent and potentially ineffective approaches to setting objectives and limits. This would fail to give effect to the NPS-FM.

## Objective

28. In December 2012 Cabinet agreed to this overall aim for the water reform strategy:

*“to create a more effective water management system which protects water quality, supports economic growth and enables the efficient use of fresh water within limits that reflect national and community objectives.”*

29. Cabinet then also agreed that the effective implementation of the objective and limit setting requirements of the NPS-FM required:

- objectives set for all water bodies that reflect the values of iwi/Maori, communities, and resource users;
- limits set for achieving these objectives;
- adjustment timeframes and pathways set where current resource use exceeds limits and objectives are not being achieved;
- the impacts of the objectives, limits, adjustment timeframes, and adjustment pathways to be well understood and factored into decisions;
- a clear and useful picture of progress against objectives and limits to be available at national and local levels that can inform wider evaluation of water reform.

30. To assist councils, and address the specific problems arising with the implementation of the NPS-FM, the objective of the proposed reform is:

*To ensure effective objectives and limits are set, at reasonable cost, that meet a national minimum for water quality, whilst recognising local views about values and resource priorities.*

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<sup>9</sup> Ministry for the Environment (April 2011). Regulatory Impact Statement – National Policy Statement for Freshwater Management

## Options to support regional councils in setting objectives and limits

31. When Cabinet agreed to the NPS-FM, it also agreed additional measures were needed to “achieve effective implementation of the NPS”. This included:
- Developing general guidance on decision making and processes for implementing the provisions in the NPS (including the setting of water quality and quantity limits, the fair and efficient allocation of water beyond the limits set, improving integrated management, and involving iwi and hapū in freshwater management);
  - Detailed work on the nature of limits, technical methods for describing limits and ways to implement limits to reduce the potential costs of the NPS;
  - Work on supporting measures such as development of databases, catchment modelling and other scientific tools, to ensure that the decision making processes at a regional level are supported;
  - Additional Resource Management Act 1991 regulatory measures as required, for example National Environmental Standards.
32. The Government commissioned the Land and Water Forum (LAWF) to develop these additional measures and provide options to support regional councils in setting objectives and limits. LAWF produced two reports, which built on their earlier report *A Fresh Start for Freshwater* (2010), and reflected a broad consensus in their views for the future management of freshwater in New Zealand.<sup>10</sup>
33. The second LAWF report (May 2012), provided recommendations among which were several options around greater national guidance and the concept of a national objectives framework. Specifically, recommendation 4 was that “the government should, through a national instrument, establish a national framework under which regional councils set freshwater state objectives to give effect to the objectives in the NPS-FM.” This became known as the “national objectives framework”. In their third report (November 2012) the LAWF set out their recommendations for how councils could manage resources within limits.
34. After the release of the LAWF’s second report, the Ministry for the Environment and Ministry for Primary Industries set up a reference group to progress LAWF recommendations for a national objectives framework. The reference group drew on members of the LAWF, with some technical staff from regional councils and science organisations. During the development of a national objectives framework the group was supported by science panels with fresh water expertise across various types of water bodies and fresh water values. The science panels investigated what was needed to sustain the values in the various water bodies and made recommendations to a science review panel about appropriate national objectives and how to set limits.
35. In November 2012 Cabinet agreed in principle that Government consult on a package of wider freshwater reforms, including a **regulated national freshwater objectives framework** with two **national bottom line** objectives and **freshwater accounting**. A

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<sup>10</sup> These reports - *Second Report of the Land and Water Forum* (May, 2012); and *Third Report of the Land and Water Forum* (November, 2012) - are available on their website [www.landandwater.org.nz/](http://www.landandwater.org.nz/)

discussion document *Freshwater Reform 2013 and Beyond*, was released in March 2013, alongside consultation on wider reform of the RMA.

36. Responses to the discussion document strongly supported the concept of a national objectives framework, with bottom lines. However, the discussion document was reasonably high level and many responses while agreeing in principle, sought more detail on the proposal.

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## What is the national objectives framework?

37. The national objectives framework is a decision support tool which provides regional councils with a process for setting freshwater objectives in regional plans. The objectives are set in conjunction with, and influence the policies, rules and methods in the regional plan – they are not done in isolation from other provisions.
38. The framework comprises on the following processes and components:
- A menu of **national values** (e.g. mahinga kai, fishing, irrigation) that can be used to set objectives for specified freshwater bodies (under the RMA, ‘fresh water’ does not include coastal water or geothermal water, and ‘water bodies’ are rivers, lakes, wetlands and groundwater). The national values include tāngata whenua values which are based on mātauranga māori (traditional science).
  - In developing their regional plans, councils and communities must consider the values to apply to water bodies or groups of water bodies in their region. There are two compulsory values. The framework directs them to a set of attributes (or water quality characteristics ie nitrogen) for each value.
  - Within each attribute there are four states. They range from an “A” state where the water body would be at or near a pristine state, down to a “D” state, where the water body has been changed to the extent that the value is no longer achieved, and recovery may be difficult.
  - The community and council work out what state the water body is currently in, and what state they want it to be in. When they have worked out what is desirable and feasible, they use the figures in the attribute tables to set a **numeric management objective** for the water body. The plan must then set limits on the maximum amount of resource use available which will allow the objective to be met. That limit can then be allocated among the resource users.
  - The boundary between the “C” and “D” states is the **minimum acceptable state** for the value (or the bottom line if it is a compulsory value). To achieve the minimum acceptable state, objectives must be set at a C state or higher.
  - Communities can choose values that are not national values if they agree they are desirable for particular water bodies. In that case they need to determine appropriate attributes and objectives. The framework provides a process for this.

The national objectives framework provides a process for setting freshwater objectives at a detailed numeric level, thereby allowing limits to be set with a clear justification as to how those limits will achieve the objective. Having *numeric* freshwater objectives is critical in deriving effective resource use limits because it provides councils with a clear and measurable target upon which to base limits. The discussion between councils and communities can then focus on the uses and values a community would like, rather than, for example, whether species protection for ecosystem health should be set at 70% or 80% to safe-guard the life-supporting capacity of the water body, with decisions finally being decided by the court.

## Part 2: Implementation Options

### Options to implement the national objectives framework

#### *Assessment Criteria*

39. All options to implement the framework have been assessed in terms of costs, benefits and risks. The criteria to determine whether the RIS objective is being achieved (see Table 4) are common to the wider water reform programme and are all weighted equally. Each criterion is described in terms of its application to this analysis.

#### *Impacts of options*

40. The impacts of each feasible option, including the magnitude of the impact, have been assessed relative to the status quo. The status quo being that the NPS-FM already requires objectives and limits to be set in plans by 2030.

#### *Option identification*

41. The options considered build on the recommendations from the Land and Water Forum (LAWF). Members of the LAWF were drawn from all major groups with a stake in freshwater management. Their meetings spanned four years of deliberations, and ended with consensus recommendations to the Government about how it should proceed.
42. LAWF recognised the absolute need for integrated management of land and water and agreed that decision making on water management was best retained at the regional level. They discussed alternative legislative solutions but concluded that the current RMA framework is effective, albeit with additional national direction needed to improve and ensure better performance at the regional level.
43. Further work by specialist and technical groups from throughout New Zealand continued with the development of the LAWF recommendation for a national objectives framework with bottom lines. Five options for implementing the national objectives framework were then considered.
- National Environmental Standard (NES)
  - Amend Schedule 3 and section 69
  - New Regulation - section 360 or other (repeal and replace the NPS-FM)
  - Guidance
  - National Policy Statement (amend the NPS-FM)
44. Implementing the national objectives framework through a national environmental standard was considered during initial development of the framework because it was thought bottom lines might be best implemented as a standard. The scope of an NES is limited to standards, methods for classifying a natural resource, methods to implement standards, exemptions from standards, and transitional provisions. The NES then regulates activities (as permitted, controlled, prohibited etc) according to those standards or classifications in the same way that a regional or district rule would.
45. A NES can appear to offer a suitable vehicle for the technical aspects of the NOF, but because NES act as plan rules they cannot direct the planning process. The main aim

of the framework is the setting of objectives in regional plans in accordance with values determined at a regional or catchment level. NES are not, therefore, suited to directing processes for formulating objectives in regional plans. The conclusion was that an NES could not solve the problem of difficulties with objective setting identified with the status quo and was discarded as a feasible option for further analysis.

46. Schedule 3 of the RMA contains a set of water quality classes based on the uses for which water may be managed. While schedule 3 could be expanded to include the numeric attribute states for each value, and so address the problem of plans adopting various thresholds for swimming for example, it too would only solve part of the problem because it could not provide a process for how the plan should set objectives based on those assigned values. Replacing Schedule 3 was therefore discarded as a feasible option for addressing the problem.
47. Developing a new kind regulation not currently provided for in the RMA was considered when an NES approach was rejected. Such an instrument could be tailor-made to suit the national objectives framework and would need to be sufficiently differentiated from what existing regulatory tools (NPS/NES) provide. A new instrument would have required repealing the NPS-FM and incorporating aspects of it within the RMA itself. This option was rejected because it was determined that an NPS can include methods and processes, and so changing the RMA and developing purpose-made regulation was not necessary.
48. Using an NES, amending schedule 3, or developing a new regulatory tool under the RMA to implement the national objectives framework were not considered feasible options and are not assessed further.

### *Feasible options*

49. Guidance plus amendments to the NPS-FM are assessed against the status quo for implementing the national objectives framework:
  - **Option 1** - Status quo (do nothing)
  - **Option 2** – Guidance
  - **Option 3** - NPS (amend the National Policy Statement for Freshwater Management)

### *Option 1 - Status quo*

50. Under the status quo councils will continue to give effect to the objectives and policies of the NPS-FM in their regional plans using the existing guideline. They could use the processes recommended in the third report of the LAWF to set objectives and limits, but they would still be reliant on existing water quality guidelines, and need to commission their own scientific and economic analysis to determine appropriate objectives for water bodies in their regions<sup>11</sup>.

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<sup>11</sup> Objectives and limits must be in plans by 2030 but the NPS-FM does not direct when the limit must be met or the objective must be achieved. It is realistic to expect in some cases achieving desired water quality may take much longer.

51. The costs associated with the status quo are described in the problem definition above. There are also potential (unquantifiable) benefits in maintaining the status quo if councils choose innovative catchment specific approaches to setting freshwater objectives which may be more appropriate to local circumstances.
52. Councils were surveyed in December 2012 regarding issues they were having implementing the NPS. Confusion around interpretation of its requirements was a common theme. The Government initiated a programme of developing further measures to assist councils with implementation. Councils and the wider community were consulted on what form these extra measures might take in March 2013, where they indicated strong support for a national framework, albeit on the concept rather than the detail which is being consulted on now. Continuing with the status quo is not considered an appropriate option because it will not address the problems identified in the problem definition. There are risks that if the framework is not progressed, those councils relying on expected further direction will face set-backs in giving effect to the NPS-FM in their regional plans.

### **Option 2 - Guidance**

53. The Ministry could prepare guidance that sets out the methodology for setting objectives and limits and provide the values with attribute tables which could then be used as a decision-support tool by councils and communities in the development of their regional plans. Guidance could also identify what national bottom-lines should be set for all water bodies.
54. This option was considered as the first part of a staged implementation strategy, with regulation resorted to only if objective and limit setting was not progressed consistently around the country.
55. Including the national objectives framework as non-statutory guidance would be expected to have a large net benefit over the *longer* term as councils and communities recognise the cost savings of a nationally consistent approach, but these benefits depend on the level of uptake by councils.
56. The main disadvantage of non-statutory guidance is that the applicability of the processes and the relevance of the science can still be debated through the planning process, meaning the costs and delays currently experienced would continue. This means that there will be less opportunity for administrative efficiency in the short to medium term while objectives and limits are being set in plans.
57. Table 2 (below) provides a summary of cost, benefits and impact for guidance compared to the status quo.

Table 2: Impacts: costs and benefits unique to guidance as compared to the status quo

Impacts			
Costs	Magnitude	Falls to	Rationale
Guidance preparation	Low	Central government	Costs to prepare national guidance (guidance notes for the Quality Planning Website have cost \$40,000 -\$100,000 each to develop).
Plan advocacy	Low	Regional councils and resource users	Resource users continue to debate the science through the planning process, and may contest the applicability of the guidance as well
Clean up costs	High	Central government and regional councils	Limits that do not effectively address over-allocation of the resource use will incur growing "claw-back" measures. These are expensive so even if only some regions do not use the guidance, costs can be high. Clean up costs are also expensive (\$450m spent to date; \$35.5m by central government on Lake Taupō alone)
Impacts			
Benefits	Magnitude	Falls to	Rationale
Efficiency	Medium	Regional councils	Reduced scope of work needed at the regional level.
Certainty	Medium	Resource users	National consistency of set limits increases investor confidence and therefore contributes to economic growth.
Improved water management	Medium	Māori, communities general public, exporters and tourism sector	Would promote better conversations that result in objectives that take environmental and economic outcomes into account. Better water quality enhances or protects the 'clean green' brand New Zealand trades on and that New Zealanders value.
<b>Assumptions and risks</b>	The key assumption across the guidance emphasis package is that the guidance has widespread uptake and assists with effective implementation of the NPS-FM. The key risk is that the guidance gets insufficient uptake, thereby weakening potential gains where the guidance is debated or not accepted.		
<b>Net Impact</b>	Overall the net benefit of guidance is medium with a low certainty which derives primarily from an uncertain level of uptake, uncertainty the bottom lines will be nationally consistent and the potential for the guidance provisions to be debated through litigation.		

### Option 3 - National Policy Statement (amend the NPS-FM)

58. The purpose of any national policy statement is to state objectives and policies for matters of national significance. Local authorities are required to 'give effect' to an NPS in their regional policy statements and plans and 'have regard' to an NPS in determining applications for resource consent. National policy statements cannot set rules and regulations and so affect the resource user predominantly through the resulting plan provisions.
59. The LAWf recommended there be a national objectives framework to assist councils in setting freshwater objectives required under the NPS-FM, but they did not develop any of the detail (such as values, attributes and minimum acceptable states). This work has been done since the concept of the framework gained support through consultation undertaken by the LAWf and by the Ministry for the Environment and Ministry for Primary Industries when they consulted on water reform proposals in March 2013.
60. Option 3 is to amend the NPS-FM to incorporate the details of the framework. Regional councils would then be required to give effect to the framework in their regional plans. Specifically, they would be required to consider the listed national values, and if a

particular value for a water body was chosen by the council and community through the planning process, they would be required to use the relevant numeric attributes to set their freshwater objectives.

61. By having the framework in the NPS-FM, the attributes that will achieve the freshwater value chosen by a community and the council cannot be challenged. The value choices themselves would remain a matter for challenge, but the water quality attributes necessary to achieve a particular value would be set in the NPS-FM. Therefore, there will be savings on the matters able to be debated (by scientists and lawyers) through the planning process. However, the reduction and transfer of costs from regional councils to central government in terms of the science and technical work needed to underpin objective setting is similar whether the option of guidance or amending the NPS-FM is taken.
62. This option is expected to have a large net benefit, derived primarily through increased certainty for councils and communities on how to set objectives, including where bottom lines should be set so that they give effect to the objectives of the NPS-FM and achieve the purpose of the RMA. The link between the chosen objective and the limits required to meet it are clear, thus the implications (economic and environmental) of different value choices are able to be clearly articulated, resulting in a more transparent process.
63. Regional councils are already required to set objectives and limits by the NPS-FM and the costs of doing so are described in the status quo section of this RIS and the NPS-FM section 32 report. As with assessing the costs and benefits of guidance against the status quo, quantifying the costs and benefits of incorporating the national objectives framework into the NPS-FM is difficult because it is an incremental change to a process of implementing the NPS-FM that is already happening. (Note: The cost of meeting proposed bottom lines is covered in Part 3 of this report.)
64. Nevertheless, there are costs savings in having the framework in a national policy statement rather than guidance largely because there is a reduction in matters that can be contested through the planning process. This provides efficiency gains in the short to medium term in terms of plan development. There would be a net benefit to resource users because the costs of meeting objectives using limits can be more easily determined during the planning process, and once known can be more easily planned for.
65. Table 3 below provides an assessment of the full range of impacts (including economic, fiscal, social, environmental and cultural) of implementing the national objectives framework through an amendment to the NPS-FM.

*Table 3: Assessment of impacts for the national objectives framework to be included in the NPS-FM (excluding the impacts of bottom lines – covered in section 2)*

<b>Impacts</b>			
<b>Costs</b>	<b>Magnitude</b>	<b>Falls to</b>	<b>Rationale</b>
NPS preparation	Low	Central government	Costs to amend the NPS-FM, collate and undertake the science required to inform the technical standards of the framework and develop national guidance.
Planning	Low	Regional councils	Four councils have already initiated plan changes to give effect to the NPS-FM. There may be additional costs to give effect to amendments to the NPS-FM.
<b>Impacts</b>			
<b>Benefits</b>	<b>Magnitude</b>	<b>Falls to</b>	<b>Rationale</b>
Scientific/ Technical work	Medium	Regional councils	Reduces scope of scientific work needed at the regional level because it is funded by central government.
Existing business	Medium	Regional councils /Resource users	Disruption by change of regulatory tool is minimised. Allows for regional discretion in implementation, thus recognising regional variation. Transition times allow costs of meeting objectives to be spread over time
Investment certainty	Medium	Resource users	National consistency of set limits increases certainty for resource users who can invest in expansion, or reductions within known timeframes.
Improved water management	Medium	Māori, communities general public, exporters and tourism sector	Clear direction of Maori values as national values enables better conversations with iwi who can provide expression for those values at a local level. Would promote better conversations that result in objectives that take environmental and economic outcomes into account. Better water quality enhances or protects the 'clean green' brand New Zealand trades on and that New Zealanders value.
<b>Assumptions and risks</b>	Assumes that councils set realistic transition timeframes for meeting bottom lines to offset costs, and that government investment in science and technical work will continue to support development and updating of the framework. Risks constraining innovation by councils in objective and limit setting.		
<b>Net Impact</b>	Much better than the status quo because the planning benefits (to councils and communities) outweigh costs to central government of developing and implementing the framework		

66. Amending the NPS-FM is considered to be the most practical and efficient option. Prescribing the method of freshwater objective setting within the tool which requires it would increase efficiency and consistency in implementing the NPS. It will facilitate councils having comparable management frameworks for comparable water bodies in their regions, making it easier to compare water bodies both within and between regions.
67. Table 4 (below) provides a 'quick glance' overview of the performance of each option against the objective using the assessment criteria. The description is based on the evidence and assumptions presented in the problem definition and the costs of the status quo sections of this RIS.

*Table 4: Assessment of feasible policy options against the RIS Objective: To ensure effective objectives and limits are set, at reasonable cost, that meet a national minimum for water quality, whilst recognising local views about values and resource priorities*

Criteria	Status quo	Guidance (Additional guidance is provided about the NOF to assist councils and communities to give effect to the NPS-FM)	NPS-FM (Amend the NPS-FM to include the national objectives framework with bottom lines)
<p><b>Efficiency:</b> Effort (cost and time) is minimised across all parties (government, regional councils, resource users and others). It recognises current planning processes setting objectives and limits.</p>	<p>Continuation of the status quo is likely to result in each council working with their communities to set objectives and limits as currently directed in the NPS, adapting approaches taken by other councils who have already started on the process, and seeking ad hoc advice. Councils with sufficient resources will continue to undertake (or commission) scientific assessments specific to water bodies and values in their regions, or obtain assistance from scientific research institutes.</p> <p>This can duplicate effort from scientists around the country, especially when stakeholders who disagree with any limits set must then engage other scientists to debate the detail of the numbers through the planning process. Communities can continue debating exactly where to set objectives to achieve very similar outcomes for water bodies being managed for very similar purposes.</p>	<p>✓ Councils that use the NOF guidance will save costs in establishing thresholds for minimum acceptable states for national values, and for the bottom lines for environmental health and human health. There would be increased costs to parties who choose to oppose approaches taken in line with the guidance.</p> <p>Costs will be incurred through the planning process by iwi, councils and communities in establishing and agreeing on regional numbers for the bottom lines.</p>	<p>✓✓ Councils and communities invest resources discussing what values they assign to the water bodies, rather than where they want any minimum acceptable states to be set or what attributes to manage to achieve the desired outcome.</p> <p>Provisions in the plan which give effect to the amended NPS-FM cannot be contested through the planning process, thereby reducing costs for councils and communities.</p>
<p><b>Effectiveness:</b> The option is effective in achieving the objective. It reduces the likelihood of unwarranted inconsistencies between approaches taken by regional councils, but provides regional councils with flexibility to manage for local circumstances</p>	<p>Councils can set the objective and limits for each water body in accordance with the information they have about the existing states and the impacts of activities in their catchments.</p> <p>Councils and their communities may adopt different approaches to other regional communities resulting in different objectives and limit-setting methodologies to manage water bodies for the same values.</p> <p>Objectives and limits based on outdated guidelines or pragmatic decisions made after a prolonged adversarial planning process may not be scientifically robust and so may be set at the wrong level.</p>	<p>✓ Councils that do not use the NOF guidance would be able to take regionally specific approaches.</p> <p>Regional variation in setting objectives for water bodies will result in inconsistent approaches to setting the limits to achieve the objectives (as required under the NPS-FM).</p> <p>Inconsistencies between regions will mean that water bodies managed for the same purposes may be managed to different standards causing uncertainty to industry sectors which operate in more than one region.</p>	<p>✓✓ Councils and communities take a nationally consistent approach to setting objectives based on thresholds that have been assessed and debated nationally by the science community and interested parties. If necessary, councils can still apply additional specific objectives to take local circumstances into account.</p>
<p><b>Equity:</b> The costs and benefits fall equitably between differing resource users and across generations.</p>	<p>All parties in each region will incur costs – councils, iwi, communities – when they debate where to set the minimum acceptable states for water bodies. If objectives are set too low, future generations may face clean up costs, or inherit a permanently degraded water body.</p> <p>Communities and resource users involved in planning processes will bear additional costs each time plans are reviewed, potentially covering the same ground that was debated and resolved earlier.</p>	<p>✓ Councils that use the NOF guidance will not incur costs in determining thresholds for the bottom lines, but there will be costs incurred on the parties other than the councils who decide to contest those bottom lines, during both upcoming and future plan development processes.</p> <p>If the guidance is not used, the equity will be the same as for the status quo</p>	<p>✓✓ Most costs for the scientific and technical work to set thresholds that underpin attribute values are shifted to central government, putting resource users on a more equal footing.</p>
<p><b>Transparency:</b> The impact of objectives and limit setting in plans and of the choice of management approaches/rules for managing within limits is clear and understood by all participants before going in the plan.</p>	<p>Indications from the approaches taken in regional plans to date are that freshwater objectives are often not measurable and may be set without an assessment of the effect on resource users in meeting the necessary limits to achieve the objectives. Resource users can lack understanding of the effect of the objective until they apply for a resource consent.</p>	<p>✓ Councils that use the NOF guidance will enable communities to see the impact of assigning particular values to particular water bodies in the resulting selection of the relevant attributes.</p> <p>If the guidance is not used, the transparency will be the same as for the status quo</p>	<p>✓✓ The method for translating community values into objectives would be specified in the amended NPS-FM.</p> <p>Determining the corresponding resource limits needed to meet that objective at their preferred state (A, B, or C) allows decision-makers and communities to see the impact on resource users of managing their allocation within that limit.</p>
<p><b>Practicality:</b> It will cause the least disruption to current objective and limit setting in plans. It is</p>	<p>The NPS-FM has been in effect since May 2011, and all councils have started the process to give effect to it, either by implementing a policy so that it is fully completed by 31/12/2014,</p>	<p>✓ Plan provisions developed in accordance with the NOF can still be contested through the planning process so there could be some disruption to the limit setting process taken in regions</p>	<p>✓✓ Councils may need to amend their Progressive Implementation Programme (Policy E1 of the NPS-FM) and establish an accounting system. This will vary from council to</p>

Criteria	Status quo	Guidance (Additional guidance is provided about the NOF to assist councils and communities to give effect to the NPS-FM)	NPS-FM (Amend the NPS-FM to include the national objectives framework with bottom lines)
realistically achievable given costs it will incur and the skills and capacity that will be required to implement it.	<p>or by notifying a programme of time limited stages by which it will be fully implemented by 31/12/2030.</p> <p>Continuing with the status quo will not disrupt current work except insofar as some councils are expecting more detailed direction as canvassed in the March 2013 discussion document and will be waiting for this direction to be delivered.</p>	<p>where councils follow the guidance, and more disruption in regions where councils choose not to follow the guidance.</p> <p>All sectors (business, industry, iwi, environmental interests, and ratepayers) will experience ad hoc time delays and expense depending on when and how the council chooses to make use of the guidance.</p>	<p>council.</p> <p>By providing this timeframe, councils and communities can apply the amended NPS-FM methodology and bottom lines in accordance with these planning programmes, generally during their next regional plan reviews, meaning that the skills and capacity to deliver the plan changes is well signalled and can be planned for.</p>
<p><b>Treaty of Waitangi:</b> The option takes into account the principles of the Treaty of Waitangi as required by section 8 of the RMA.</p> <p>The option is flexible enough to allow for variance in viewpoint and values between different iwi and hapū.</p>	<p>Councils will continue to engage and reflect tāngata whenua values as they have done with earlier plan development processes.</p> <p>Feedback from iwi during consultation in March for the freshwater reform was that iwi want better council engagement with Maori in the resource management process, so a continuation of the status quo is perhaps unlikely to adequately provide for Treaty of Waitangi obligations throughout the country. If councils do recognise tāngata whenua values and interests, they will be able to allow for variance in viewpoint and values between different iwi and hapū in their regions.</p>	<p>✓ Better than the status quo because the NOF includes descriptions of tāngata whenua values developed with iwi science advisors contributing to Treaty principles of partnership and good faith.</p> <p>If provided as guidance only, councils and communities may use the national value descriptions as a platform for discussions with iwi in terms of what they want for the water bodies in their rohe. They would be able to allow for variance in viewpoints between different iwi and hapu within a region.</p> <p>The potential for variable uptake of the guidance as a platform for further discussions with the tāngata whenua means that the recognition of tāngata whenua values will vary. Depending on the level of recognition, this may be better or worse than the status quo.</p>	<p>✓✓ Better than the status quo because the amended NPS-FM would include descriptions of tāngata whenua values developed with iwi science advisors contributing to Treaty principles of partnership and good faith.</p> <p>The identified tāngata whenua values of mahinga kai and wai tapu are not mandatory, and so allow flexibility in local application should that be desired by specific tāngata whenua.</p> <p>If provided in the NPS-FM, councils and communities will be required to use these national values as a platform for further discussions with the tāngata whenua and there would be recognition of tāngata whenua values and interests in a way that could better take the principles of the Treaty into account.</p>

### Conclusion for best option to implement the national objectives framework

68. Amendments to the NPS-FM will provide the best net benefit overall for the following reasons:

- It can provide a non-contestable process for how to set effective freshwater objectives (a numeric attribute which will provide for a national value at a desired state)
- It can set a minimum acceptable state for national values – thereby reducing debate through the planning process.
- It can set the thresholds for attributes to use when setting objectives, reducing or avoiding the need for expensive scientific work in each region, which could then have been contested with each plan change (at least 10 yearly) in each of the 16 regions.
- Objective setting would become a more transparent process for the community because the limits required to meet a numeric objective would be more readily identified (eg the amount of nitrate that can be assimilated by a particular water body) and the impacts (social and economic) of that limit will be able to be clearly articulated to the community before a final value and state is selected.
- Communities can still exercise choice about the values and uses they want to assign to each water body (and they can choose others not included in the NPS-FM) but the quantitative thresholds in each attribute will be fixed. This reduces the amount of scientific research required in each region and reduces the debate (and litigation) on the attributes which underpin the values.

69. Consultation on the detail and the impact of amending the NPS-FM is needed before any decisions can be made to proceed with an amendment. It is anticipated that many sector groups will be able to provide additional information about the likely impacts of the national objectives framework as prescribed in a national policy statement now that the detail has been drafted.

## Part 3: Assessment of proposed amendments to the NPS

### Freshwater accounting

#### *Background*

70. Freshwater accounting requires accounting for all water takes (including those allowed by rules in regional plans) and sources of contaminants (including diffuse discharge). Freshwater accounting establishes essential information which councils need in order to develop an effective water management framework. It is fundamental to the processes of setting objectives and limits, and of selecting the methods and tools to manage to them.
71. The first step in accounting is identification and quantification of existing uses of water (using meters and/or models) and current sources of discharges (eg loads from diffuse sources such as land-use; and point sources such as discharges from sewage treatment plants). This information is then assembled into a set of “accounts” for a catchment which is maintained over time.
72. Most councils are accounting for water takes in some form. Consultation with regional councils in March-May 2013<sup>12</sup> indicated that this is with various levels of sophistication, reflecting resource pressures, capability, capacity, and data availability<sup>13</sup>. However, in contrast, most councils are in the early stages of accounting for sources of contaminants.

#### *Status quo and problem definition specific to freshwater accounting*

73. Under the NPS-FM, regional councils must avoid over-allocation of both quantity (water takes) and quality (contaminants)<sup>14</sup>. They must establish a method in their regional plan by which existing over-allocation is phased out and targets achieved. But to do this, councils will first have to account for all water used, and identify the sources and volume of contaminants.
74. A stocktake of regional plans (as at 30 April 2013) indicated 58% have quantity limits (minimum flow and allocable limit). This situation is partly because councils have needed information on existing takes in a catchment when assessing applications for new consents to take water. It is also because the Resource Management (Measurement and Reporting of Water Takes) Regulations 2010 require qualifying consent holders to meet minimum requirements to measure their water takes and to report water-use data to regional councils. As a result, regional councils are increasingly accounting in various ways for water takes, especially in catchments that are close to full allocation or over-allocated. For example, the Waikato Regional

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<sup>12</sup> NIWA, 2013. *Regional Council Freshwater Management Methodologies: accounting and limit setting*. Report prepared for the Water Directorate

<sup>13</sup> Accounting for metered water takes will become increasingly accurate as the requirements of the Resource Management (Measurement and Reporting of Water Takes) Regulations 2010 progressively take effect from 2012 to 2016

<sup>14</sup> In most cases, available assimilative capacity is not formally allocated in New Zealand. However the NPS-FM uses the term “over-allocation” for water quality (e.g. Objective A2(c)), defining it as a situation where the resource is “being used to a point where a freshwater objective is no longer being met”

Council found that when stock-water and dairy wash-down takes were accounted for, some of their catchments were over-allocated. A range of accounting approaches and practices have been developed by individual councils to serve catchment and regional needs.

75. But while more than half the surface water bodies have limits that allow quantities of water to be allocated from them, only 4% of rivers and streams, 18% of wetlands, and 23% of lakes throughout New Zealand have quality limits (which include 'natural state' and cumulative load limits set for at least one nutrient).<sup>15</sup> This means few councils have experience with accounting for sources of contaminants to underpin limit-setting decisions. In addition, diffuse discharges (including from pastoral farming or runoff from urban areas) are not usually subject to a consent regime, so accounting for them as part of a consenting regime has been unnecessary in most catchments. For example, in the Manawatu catchment, the regional council found that diffuse sources were a significant contributor to the nitrogen loads in the river, and as a result, their proposed One Plan requires resource consents for some diffuse discharges. Accounting for sources of contaminants, especially for diffuse sources, is more complex than accounting for takes, and capability and capacity are limited in New Zealand. Where one-off source analyses have been carried out, a wide variety of approaches have been used.
76. The problems are:
- a) The current incentives for councils to carry out adequate freshwater accounting are weak, especially accounting for water quality, which is relatively undeveloped in New Zealand.
    - i. Accounting requires time, data, money and skills (especially for sources of contaminants), and these short term costs fall to the council. The costs of inadequate accounting are longer term, and fall on resource users, communities and future councils.
    - ii. There is no clearly stated *legal* imperative for councils to undertake accounting, beyond the general direction in the NPS-FM to avoid over allocation, and the duties imposed on local authorities by sections 35(1) of the RMA, to gather such information as is necessary to carry out their functions under the Act. It would be difficult to impose sanctions on a council for not accounting, when the legal requirement to account is not clear.
    - iii. It is not clear to all councils, nor the wider public, that in order to set and manage within limits successfully and fairly, accounts need to be prepared, especially for sources of contaminants – in part because so few catchments have historically had clear quality limits in place, and because a significant proportion of discharges come from sources that are not subject to a consents regime.

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<sup>15</sup> There is no data available for quality limits for groundwater because the multi-layer nature of groundwater systems and lack of a national dataset means mapping and analysis has not been possible

b) The accounting systems councils have developed to date are inconsistent between regions, and in some cases, between catchments (especially for accounting for quality)<sup>16</sup>. They cannot be compared and consolidated to inform decision-making e.g. investor decisions on catchments where there is “headroom” for development, or government decisions on whether further policy interventions are needed.

77. As a result of weak incentives, councils may not prioritise sufficient additional spending on accounting over existing activities and services. This is particularly a problem for resource and capability constrained councils<sup>17</sup>.

### ***Costs of the status quo – freshwater accounting***

78. Under the status quo, councils will continue with their existing approaches, which vary considerably in sophistication and accuracy. Some councils will budget for additional expenditure on developing the science and models to underpin freshwater accounting under the status quo. For others, existing information may be considered sufficient and no further expenditure deemed necessary.

79. The variability of approaches and methods that regional councils are currently using for freshwater accounting increases the likelihood of ineffectiveness and inefficiency. For example:

- a. objective and limit setting decisions may be made with inadequate or incorrect accounting information on existing water takes and sources of contaminant, resulting in poorly informed limits being set e.g. the economic consequences of a particular objective and limit may not be understood;
- b. decisions on approaches to managing within limits may be ineffective if they are based on inaccurate accounting information, resulting in limits being breached (or targets not achieved) e.g. if a particular source of contaminant is targeted for reductions when it is not a major source;
- c. the economic costs of meeting targets may be distributed inequitably e.g. if sources of contaminants are incorrectly identified and one sector carries more than a proportionate share of the required reduction in takes or discharges;
- d. information on resource availability (“headroom”) across different catchments may not be available for potential investors e.g. an investor may buy land in a catchment with a view to intensifying land use but find this is impossible because assimilative capacity and/or water are not available;
- e. if accounting methods are inconsistent, they cannot be easily consolidated to provide a regional or national picture to guide further management or policy interventions if required.

80. The costs associated with the status quo vary from catchment to catchment e.g. in the Taupō catchment, breaching nitrogen limits has significant monetary and non-monetary

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<sup>16</sup> Ibid. The report outlines the range of accounting systems and reports across 5 councils. All are different.

<sup>17</sup> Ibid. All the councils reviewed in the report noted that councils face challenges in: financing system upgrades to collect and manage data, resource constraints e.g. staff to carry out data entry; and collecting scientific information on existing water use and discharges, as well as attenuation factors and lags (p. 101)

costs associated with declining water clarity in the lake, because of the importance of the lake to the tourism and recreational fishing sectors.

### **Objective – freshwater accounting**

81. The specific objectives for the freshwater accounting proposal are to ensure:
- catchment-based freshwater accounts are developed that are fit-for-purpose to enable effective and efficient decisions to be made on objectives, limits and management within them
  - freshwater accounts are more consistent, and regularly updated once limits are in place, to provide information for potential investors on catchments where water resources and assimilative capacity are available, and to enable regional and national aggregation of the data.

### **Options identification – freshwater accounting**

82. Two options were considered for ensuring regional councils carry out adequate freshwater accounting to underpin limit setting and management decisions: Guidance only or regulation with guidance.
83. The guidance only option would provide guidance material to regional councils on the benefits of accounting, and methods for doing so. This option is expected to have a small net benefit as it clarifies that in order to set and manage within limits successfully and fairly, accounts need to be prepared. However, given there is no legal imperative, and the cost of collecting and modelling the necessary data for accounting systems is substantial, uptake of the guidance is likely to be partial at best. In addition, it is likely that only some catchments will have accounts prepared for them (e.g. where resource pressures are high), and the accounts prepared are less likely to be regionally and nationally consistent, with guidance only. Table 5 (below) provides an impact assessment for guidance provision.

**Table 5: Impact of guidance on accounting against the status quo**

<b>Costs</b>			
<b>Costs</b>	<b>Magnitude</b>	<b>Falls to</b>	<b>Rationale</b>
Guidance preparation	Low	Central government	Costs to research and develop national guidance.
Consultation	Low	Stakeholders/ Regional Councils participating in consultation	Costs to participate in consultation
Technical, scientific and modelling work, development of accounting systems	Medium	Regional councils	Some councils will respond to the guidance by improving their accounting systems including the underpinning science and modelling required. Costs occur in the initial phase.
<b>Benefits</b>			
<b>Benefits</b>	<b>Magnitude</b>	<b>Falls to</b>	<b>Rationale</b>
Planning outcomes	Medium	Māori/iwi, business, communities, general public, exporters and tourism sector	In those catchments where guidance is adopted: <ul style="list-style-type: none"> <li>Decisions on limits will be better informed</li> <li>management actions to achieve targets or manage within limits will be better focused</li> <li>responsibilities to reduce discharges will be assigned more equitably</li> <li>investment decisions will be better informed as</li> </ul>

			information on headroom will become available for investors Benefits accrue over time.
<b>Assumptions and risks</b>	Assumes that most councils respond to the guidance for some catchments (those subject to highest resource pressures) and improve accounting practice above the status quo		
<b>Net Impact</b>	Slightly better than the status quo as benefits (to community) are likely to outweigh costs of developing and implementing the guidance in those regions where councils adopt guidance (Government). Accounts will not be developed everywhere, and are unlikely to be regionally and nationally consistent.		

84. The guidance only option would enable some progress to meeting the first objective (development of accounts to underpin decision making) in regions and catchments where the guidance is used, but little towards the second (consistent and regularly updated accounts available for each water management unit). Guidance alone would give councils flexibility in scheduling the necessary work to underpin accounting e.g. the collection of data (especially for sources of contaminants), and the development and calibration of catchment-scale models for high-risk catchments.

### *Regulation with guidance*

85. This option would regulate to require councils to carry out freshwater accounting. Guidance material would also be provided by way of on accounting methods, models and databases. Where councils do not comply, there are existing provisions for Ministerial intervention, including requiring a plan change (RMA s. 25A), and referral to the Environment Court (RMA s. 82 - these intervention powers may be strengthened in the upcoming amendment to the RMA). This option is expected to meet the objective and have a significant net benefit, resulting from better-informed limit setting and management decisions. Regulation would make it clear that accounting must be carried out despite the cost to regional councils, and ensure consistent methods of accounting.
86. One regulatory approach considered was to use section 360 of the RMA, but these regulation-making powers do not enable the specification of a requirement to account. The recommended option which is being consulted on is to amend the NPS-FM to require accounting, with accounting methods outlined in guidance material. The RMA does not allow methods to be specified in a national policy statement.
87. The additional cost of accounting to regional councils is hard to estimate. It is difficult to separate the extra costs associated with accounting from those associated with objective and limit setting; and costs vary depending on the level of sophistication of accounting methods used. Most councils are already accounting for takes<sup>18</sup>, and some will carry out source analysis as part of their limit setting process with or without the proposed amendments. The region-wide costs also vary depending on the number of water management units (WMU), since accounting is to be carried out at WMU scale.
88. Recent council estimates are for \$0.15 million for basic source accounting for a catchment, and \$1.2 million for scientific data collection and modelling for large complex water management units. As noted earlier, this modelling goes beyond the

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<sup>18</sup> IBID.

accounting requirements of the proposed amendments, and is used for scenario testing of potential limits.

89. The costs to councils for fresh water accounting would be spread over time as the objective and limit setting requirements of the NPS-FM are progressively implemented. The proposed changes to the NPS-FM will require councils to have an accounting system in operation for a water management unit prior to limits being set, but the requirements do not become operative for a two year period from the gazetting of the amendments, to allow systems to be established. Council scheduling of the initial round of limit setting indicates a peak workload between 2016 and 2020. Introducing the accounting reforms in 2014 with a lead-in time of two years would enable councils to collect the necessary data prior to setting these limits.
90. In addition, the progressive implementation period is necessary to overcome the New Zealand-wide capability constraints for scientific data collection and catchment modelling.
91. Table 6 (below) provides an impact assessment for regulation through the NPS-FM with accompanying guidance.

Table 6: Impact of regulation (plus guidance) for accounting against the status quo

Impacts			
Costs	Magnitude	Falls to	Rationale
Regulation preparation	Low	Central government	Costs to prepare regulation and implementation national guidance –short term cost
Consultation	Low	Stakeholders/ Regional Councils participating in consultation	Costs to participate in consultation –short term cost
Reporting	Low	Resource users/Regional Councils	May be some additional reporting requirements on business for accounting in some catchments e.g. councils may need to conduct one-off surveys of businesses to inform modelling of un-metered takes or diffuse discharges. Councils will need to have ongoing accounting information for water management units where limits have been set - ongoing cost
Technical / scientific/ modelling work and development of accounting systems	Medium	Regional councils/ ratepayers/ central government <sup>19</sup>	Significant extra effort required in some regions to develop the scientific and modelling inputs required for accounting, especially for contaminant sources –short term cost.
Benefits	Magnitude	Falls to	Rationale
Information to guide investment	Medium	Resource users	Regional and national consistency of accounting provides information for investors on areas with “headroom”. Long-term benefit
Planning outcomes	High	Māori/iwi, communities, general public, exporters and	In all catchments: <ul style="list-style-type: none"> <li>Limit decisions will be informed by accounting information</li> <li>management actions to achieve targets or manage</li> </ul>

<sup>19</sup> Councils may re-prioritise existing funding to meet the accounting requirements. The proposed review of the Water Research Strategy outlined in the Governments *Freshwater Reform* document released in March 2013 may result in some central government science funding for this work

		tourism sector	<p>within limits will be better focused</p> <ul style="list-style-type: none"> <li>responsibilities to reduce discharges will be assigned more equitably</li> <li>investment decisions will be better informed as information on headroom will become available for investors in all catchments over time,</li> <li>consistent information will, over time, become available for regional and national decision making</li> </ul> <p>Benefits accrue over time.</p>
<b>Assumptions and risks</b>	Councils will need time to collect/ develop the necessary data and models for accounting, especially for sources of contaminants. Estimated two years for simple accounting, longer for full catchment modelling (where required). Accounting methods will be more consistent than the status quo, but some variation will remain as the methods are provided as guidance only.		
<b>Net Impact</b>	Much better than the status quo as benefits to communities significantly outweigh costs of developing and implementing the accounting requirement		

### *Summary and recommendations for freshwater accounting*

92. Regulation plus guidance better meets the objectives for the proposal than guidance alone. The combination will ensure that accounts are prepared for all water management units prior to limit setting and that they are regularly updated, resulting in better informed decision making. Regional and national consistency will improve as a result of the guidance provided on methods for accounting and reporting.

## National Bottom lines

### *Problem definition - why have national bottom lines?*

93. In achieving the purpose of the RMA, councils are required to safeguard the life-supporting capacity of water and ecosystems, and sustainably manage resources in a way that enables people and communities to provide for their health and safety. Councils choose how they give effect to the RMA, resulting in inconsistent approaches to achieve the same outcome.
94. Currently resource users and communities have little certainty about the scientific limits that should apply to water bodies to achieve life-supporting capacity and provide for human health. They can expend resources arguing over what is appropriate because there is no nationally agreed scientific bottom line for the values they assign to the water bodies.
95. Additionally, where a range of local interests is at stake in a regional decision-making process, there is potential for broadly held national values to be overlooked or to be given less than their due weight. LAWf recognised this and recommended that bottom lines for a limited range of freshwater state objectives should be provided to support regional decision-making in meeting the narrative requirements of the RMA and the NPS-FM.<sup>20</sup>

### *What is being proposed?*

96. LAWf recommended making the values of human health and ecosystem health compulsory and providing minimum numeric thresholds for them, thus removing the ability to debate and litigate decisions about whether narrative values have been met.
97. National bottom lines are proposed for two compulsory values within the national objectives framework. These will be set at a point below which a water body cannot be said to provide for ecosystem health (at 80% species protection) or be safe for secondary contact recreation. This is represented in the framework by the bottom of state C. We propose to consult on numeric bottom lines including:
  - ecosystem health, to provide for an eighty per cent species protection level (nitrate and ammonia toxicity starts impacting regularly on the twenty per cent most sensitive species).
  - human health, to provide for a moderate to low risk of infection (between one and five per cent risk) from exposure to water through secondary contact.
98. National bottom lines will not be standards that have to be met immediately but will be used by councils to guide and set objectives. Water bodies that do not currently meet bottom lines would be identified and management options, including long timeframes, which minimise the impacts can be assessed and decided with the community during the preparation of regional plans. The Government will partner with councils to provide support and guidance on the timeframes for meeting objectives.

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<sup>20</sup> Recommendation 4, Second report of the Land and Water Forum,

### **Where would bottom lines apply?**

99. The NPS-FM directs freshwater objectives and limits to be set for all bodies of fresh water (Policy A1). A water body is defined in the RMA as *fresh water ... in a river, lake, stream, pond, wetland or aquifer*<sup>21</sup>. While the national values descriptions apply to all water body types, attributes for the bottom lines are currently only proposed for rivers and lakes because attributes with accompanying numeric states have not yet been developed and tested for other water bodies.
100. What is being proposed now represents a good start but there is more that can be provided. There are some attributes that are still being worked through for rivers and lakes, such as sediment and macroinvertebrates, and some water bodies – such as wetlands and groundwater – for which attributes are yet to be developed. These outstanding matters are planned to be progressively addressed and introduced at specific review points over the next two to five years.

### **When would national bottom lines apply?**

101. There is no required timeframe within which bottom lines must be met. Its intended that any water body that is below the bottom line can have a management regime put in place – determined through the regional planning process by the council and community – to move any water body currently in a D state toward the bottom line over time. In this way the costs incurred to meet the bottom line can be spread over time and between resource users. Iwi in particular see costs of rehabilitation as not being a reason for water bodies not to meet bottom lines – reasoning we should not give up on severely degraded water bodies, and if cost is an issue intergenerational time frames should be used.

### **Bottom lines - how were they selected?**

102. The attributes which underpin the values have been selected on the advice of experts in water science. They were selected by specialist science panels for rivers, lakes, groundwater and Iwi science consisting of participants from leading research institutions and regional councils<sup>22</sup>. All recommendations from the science panels were overseen by a Science Review Panel, who developed criteria or ‘gateways’ for selecting which attributes would be used. The criteria are:
- that the science underpinning the bands for the states and bottom lines is robust and sufficiently mature, and;
  - there is sufficient monitoring data and/or modelling to assess the current state of these across New Zealand and assess the impact imposing them would have.

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<sup>21</sup> A river is “a continually or intermittently flowing body of fresh water; and includes a stream and modified watercourse; but does not include any artificial watercourse (including an irrigation canal, water supply race, canal for the supply of water for electricity power generation, and farm drainage canal)” (RMA Section 2)

<sup>22</sup> Cawthron Institute, NIWA, GNS Science, Opus, Aqualinc, ESR, Golder, University of Canterbury, Otago and Waikato; ECan, Environment Southland, Waikato Regional Council, DOC, Te Arawa, Te Aromarama

103. The possible attributes then had to be supported by sufficient consensus with the relevant science panels, then approved by the Science Review Panel and supported by the National Objective Framework Reference Group<sup>23</sup>. This group considered among other things: do regional councils currently monitor the attribute and if not should they? The science panels started with a list of 51 attributes covering all water bodies, those attributes that could not meet the criteria were discarded or deferred for further work. The level at which they are set is based on scientific thresholds that represent a change in state. Some attributes where the science is not sufficiently mature or are unable to be nationally modelled, for example, sediment, can be developed and included in the NPS-FM at set review periods.
104. The options being consulted on here do not extend to the full range of attributes that could be used. But views *are* being sought on whether to have bottom lines, the level at which they might be set, as well as general comment on the attributes proposed. Attributes have been selected through rigorous scientific analysis led by national expert science panels and they are considered the key attributes that will work together to achieve the value.

### **Why ecosystem health?**

105. The NPS-FM already contains a narrative<sup>24</sup> requirement in Objective A1 and B1: *to safeguard the life-supporting capacity, ecosystem processes and indigenous species including their associated ecosystems of freshwater*. Having bottom lines for ecosystem health would assist with fulfilling the NPS-FM requirement (and RMA Part 2 requirements) to safeguard the life-supporting capacity of water and ecosystems.
106. The attributes proposed for ecosystem health agreed to by the science panels are:
- Chlorophyll a, total nitrogen and phosphorus (for lakes)
  - Nitrate toxicity and ammonia toxicity (for lakes and rivers)
  - Periphyton (for rivers)
  - Dissolved oxygen (downstream of point source discharges in rivers)
107. Meeting these bottom lines alone will not achieve the NPS-FM objectives for ecosystem health. Additional attributes will be incorporated over time and councils may include attributes which address particular ecosystem requirements in their region.
108. By having specific *numeric* water quality attributes for the compulsory value, the point at which the water body is no longer providing for ecosystem health is measurable and explicit. This brings clarity for all and means this aspect of the plan cannot be contested through the plan development process.

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<sup>23</sup> Fifteen stakeholders from regional councils, NGOs, Ngai Tahu, Horticulture NZ, Federated Farmers Straterra, Scion, DairyNZ, Mighty River Power, Department of Conservation, NIWA and Ministry for Primary Industries

<sup>24</sup> *Narrative* in this sense means a broad description of the desired outcome in words rather than a specific numeric bottom line that explicitly describes a minimum state.

### ***Why human health (for secondary contact recreation)?***

109. Fundamental to all human interaction with fresh water, including for ceremonial and recreation purposes, is the safety of water for human health. When managing the use and development of the resources in their regions, regional councils must do so in a way which allows people to provide for their social, economic, and cultural wellbeing, and for their health and safety (section 5 of the RMA). Recreational and cultural practices bring people into contact with freshwater in rivers, lakes and wetlands and in some circumstances this contact may adversely affect their health.
110. The key risk factors are concentrations of pathogenic microorganisms (disease causing organisms), and toxic contaminants such as heavy metals, organic compounds and toxic algae. These contaminants come from both urban and rural sources.
111. Various exposure thresholds were considered to determine what level of protection of human health would be appropriate to apply nationally. Improving water in *all* water bodies to a potable water standard was found to be expensive and impractical. For example, if the NES for Sources of Human Drinking Water were to apply to communities of 25 people and above (approximately 95% of New Zealanders) the estimated cost is \$200.4 million over 20 years (the NES currently applies to communities of 500 or more, and requires source water to be able to be treated, not that it is already potable<sup>25</sup>).
112. If protecting human health during primary contact (swimming) was to be the national bottom line, modelling showed that approximately 62% of water bodies nationally would fail at the 95<sup>th</sup> percentile (or, 95% of the time, 62% of water bodies would fail). The impact of improving those water bodies was thought to be unacceptably high, given that not all water bodies are used for swimming, and even those that are, are generally used only for parts of the year.
113. A lower level of protection – called secondary contact recreation – was supported in feedback to the March 2013 discussion document<sup>26</sup> (see consultation section). The proposed bottom lines for microbial contamination (*E.coli*) are based on a reduced exposure risk during wading or boating than occurs during swimming and other forms of recreation where people tend to ingest or inhale water. The thresholds were derived using the same Quantitative Microbial Risk Assessment model as that employed by national guidelines<sup>27</sup> for recreational waters used for swimming.
114. Measured data from regional councils reveals that of the sixteen regions, six currently have some sites that would fail the bottom line proposed for human health (for secondary contact recreation). Three of these regions are predominantly urban

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<sup>25</sup> See section 32 report for the National Environmental Standard for Sources of Human Drinking Water

<sup>26</sup> “We support “human health” being calibrated to secondary contact recreation [wading or boating]. We note the proposed National Objectives Framework will provide a useful reference against which to calibrate the “state of the play”; and especially to help prioritise where concerted efforts are needed to improve water quality”. (submission to discussion document, March 2013, Federated Farmers)

<sup>27</sup> Ministry for the Environment and Ministry of Health (2003) *Microbiological Water Quality Guidelines for Marine and Freshwater Recreational Areas*

(Auckland, Wellington and Nelson) the remaining three are Canterbury, Waikato and Southland.

115. Modelling using the measured data mentioned above showed the number of surface water bodies that would fail to meet the secondary contact recreation threshold is much lower than for swimming. For example, at a 5% infection risk, 2% of nationally monitored sites for rivers fail the proposed bottom line and at 1% infection risk, 6% of monitored sites are likely to fail.<sup>28</sup> (See Appendix 1 for maps showing the percentage of water bodies that currently meet proposed bottom lines.)
116. Table 7 below shows the percentage of monitored sites in New Zealand that would currently fail proposed bottom line for secondary contact recreation at 1 and 5 percent infection risk<sup>29</sup>. The results are based on 'median' measurements, meaning that samples from the water body fail the bottom line half of the time to varying degrees.

Table 7: Options for where the human health bottom line might be set (see Appendix 1; Figure 2).

Human Health bottom line	Option 1	Option 2
Infection risk for <i>E.coli</i> from secondary contact does not exceed:	1%	5%
% monitored sites of rivers to fail the bottom line	6%	2%

### Implementation options

117. Options for implementing bottom lines were considered, including a phased in approach and setting a time frame for when bottom lines should be met. The biggest issue with setting a time frame is that it cannot easily allow for lag times in water quality from historical practices or legacy issues. For example, groundwater with high nitrate levels may continue to affect hydraulically connected surface water for decades. Setting no time frame allows councils to determine how to phase in meeting bottom lines, in the most suitable and cost effective way for their region. For example, the least cost could be done first and the others approached over time.

### Monitoring objectives

118. National expectations for monitoring and reporting are prescribed in section 35 of the RMA which requires councils to monitor and report on the state of the environment and the effectiveness of planning documents. A clarification regarding monitoring is a proposed amendment for the NPS-FM. The amendment provides an approach for monitoring progress against freshwater objectives over time. Regional councils already have state of the environment monitoring networks in place and would continue to use these, but the proposed changes make it clear that regional councils do not need to monitor every drop of water. The changes require regional councils to identify a range

<sup>28</sup> Percentage is out of 737 sites which represents the full data set of regional councils' state of the environment monitoring network. A 5% infection risk for *E.coli* is 1000/100mL and 1% 540/100mL

<sup>29</sup> 1% and 5% represent the World Health Organisation's standard statistical methodology for assessing infection risk

of representative sites at which to monitor progress towards (or achievement of) freshwater objectives. The additions also recognise that water quality needs to be monitored for changes using long-term trend analysis.

119. The proposed table of attributes which form part of the framework provide consistency for measuring and monitoring by providing the relevant statistic for each attribute (for example, an annual median value). Guidance on monitoring will also be provided in the context of the Ministry for the Environment's broader national environmental monitoring and reporting initiative. The new requirement in the NPS-FM links to this monitoring initiative and can be integrated with councils' existing monitoring programmes. The results of the monitoring will also aid public understanding of the existing states of water bodies in terms of the national bottom lines, and the progress over time of maintaining or improving the quality of water bodies in their regions.

#### ***Impacts - current state comparison with proposed bottom lines***

120. An indication of the number of rivers in New Zealand that have water quality below proposed bottom lines is given in Appendix 1. Table 8 (below) presents an assessment of the current state of New Zealand's rivers against the proposed bands (and bottom lines) using both model predictions and measured data. These show that the model predictions are largely consistent with the measured data, albeit with the model predicting better water quality than measured in some D state sites. However, the measured sites are typically biased towards productive lowland areas (dairying) and so are likely to overstate the problem when extrapolated nationally. These results are shown visually in Figure 1 and Figure 2 in Appendix 1.

#### ***Human health (for secondary contact recreation) - E.coli***

121. Table 8 below shows that if the bottom-line is set at a 5% infection risk<sup>30</sup> for secondary contact recreation (eg wading and boating, except boating where there is a high likelihood of immersion), we expect that up to two percent of rivers by length might be in the D state, approximately three quarters will be in A-state and most of New Zealand's productive lowland catchments will be in either B or C state (see Appendix 1: Figure 2 for a visual representation).
122. Using measured data from regional council's state of the environment monitoring reveals that just six regions contain some sampling sites that currently would fail the bottom line proposed for *E.coli*. Three of those regions are predominantly urban (Auckland, Wellington and Nelson). The remaining three are Southland, Canterbury and Waikato.

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<sup>30</sup> A bottom line of 5% infection risk was suggested by the NOF Reference Group as it aligns with the infection risk for the 'fair' grade in the existing guidelines that are used for swimming sites.

### **Ecosystem health for rivers - Nitrate toxicity**

123. Measured data using the 95<sup>th</sup> percentile from regional council's state of the environment monitoring reveals that out of all regions in New Zealand just two regions have sites that would fail the bottom line for nitrate toxicity. Canterbury has five monitoring sites and Southland has one that would currently fail the bottom line<sup>31</sup>.
124. Using a bottom line for nitrate toxicity set at an 80% species protection level,<sup>32</sup> modelling shows that nationally less than 0.5 percent (0.5%) of rivers will be in D-state or below the bottom line. In contrast, more than 80% are in A-state and again, productive lowland is in either B or C-state (see Table 8 below).

*Table 8: Percentage of river length in the proposed bands of the NOF (current state)*

Band	Ecological health – Nitrate Toxicity 80% species protection		Human health (during secondary contact) – <i>E. coli</i> : 5% infection risk	
	Modelled prediction %	Measured (2011) %	Modelled prediction %	Measured (2011) %
A	92.4	83.0	87	73.8
B	7.3	12.2	12.6	17.6
C	0.3	4.3	0.4	6.2
D (bottom line)	0	0.6	0	2.3

125. It is important to note that the percentage of impacted rivers presented here is based on modelled information from current measurements and does not take into account objectives *already* set by regional councils, or that are likely to be set under the NPS-FM (which, as current plan provisions indicate, may be more stringent than the proposed national bottom line (see section on costs of meeting bottom lines below).

### **Ecosystem health for lakes - current state comparison with proposed bottom lines**

126. Table 9 below shows the number of lakes in each band for chlorophyll-a, total phosphorus and nitrogen. There isn't the information available to allow modelling to predict current state in all lakes, so the assessment is based on monitoring data from 112 lakes throughout New Zealand. This covers about 3% of the nearly 4000 lakes larger than 1 hectare. Like river monitoring, lake monitoring tends to focus on large or at risk lakes, so percentages may overstate the proportion of all lakes in D-band. Some notable lakes in D-state include lakes Hayes, Okaro, Horowhenua, Rotorua and Forsyth. The bottom line tested and set for this is at a level where lake ecological

<sup>31</sup> This is using the 95<sup>th</sup> percentile, if a median value is used, a total of just 4 sites nationally fail – all in Canterbury.

<sup>32</sup> At this level there starts to be regular impacts on the 20% most sensitive species (12% reduction in growth).

communities are stressed from nutrients and occasionally experience algal bloom. See appendix 1 table 3 for a visual representation of chlorophyll-a.

*Table 9: Number of monitored lakes in the proposed bands*

Band	Chlorophyll-a	Total phosphorus	Total nitrogen
A	38	42	34
B	29	21	30
C	17	33	24
D	24	18	26

### **Impacts – costs of meeting bottom lines**

127. The costs for councils to meet bottom lines do not suddenly appear with the advent of them in regulation. Regional councils are already required to safe-guard the life supporting capacity of freshwater – it's just not explicit how they do so. The vast majority of water bodies in New Zealand are well above the proposed bottom lines (see Appendix 1). Additionally, the NPS-FM does not prescribe *when* bottom lines (or any objective) must be met – this decision is made during the regional plan development and can be within a short or long term timeframe (intergenerational if the community agrees) to reduce undue costs to specific sectors.
128. Likewise, the tools that councils have at their discretion for water bodies to meet bottom lines span the full range of regulatory and non-regulatory options from farm scale to region wide rules. In pastoral farming catchments with high bacterial contamination it may be best achieved by fencing and planting rivers and streams to exclude stock<sup>33</sup> or it may require more sophisticated tools such as cap-and-trade to manage nutrients. What is finally chosen will reflect the amount of improvement that is required and will likely be a mix of mitigation strategies<sup>34</sup>. The important point is that communities and councils can work out how to meet it together, with costs explicitly recognised in their decision-making process.
129. Analysis of existing regional plan provisions that equate to the attributes for proposed bottom lines (in some form) indicates that where councils have already set numeric objectives, they are as stringent or more than the proposed national bottom lines. For example, analysis indicates that for periphyton, the majority of regional councils<sup>35</sup> that have set numeric objectives for periphyton have chosen what would be the B-state - well above the bottom line which is considered the point between C and D state. Because of this, the marginal impact on resource users of having national bottom-lines is likely to be low for most catchments.

<sup>33</sup> <http://www.boprc.govt.nz/sustainable-communities/funding-and-awards/lake-rotorua-nutrient-reduction-fund/>

<sup>34</sup> *Assessment of Strategies to mitigate the Impact or Loss of Contaminants from Agricultural Land to Freshwaters* (June 2013). Unpublished report for MfE from NIWA, AgResearch and Waikato University.

<sup>35</sup> Five out of six regional councils. Nelson City Council has set a numeric objective which is slightly less stringent than the proposed bottom-line (allowing 60% cover rather than the recommended maximum of 55% cover).

### Three catchment specific case studies

130. Economic impact studies have been carried out in Southland, Canterbury and Waikato.<sup>36</sup> The three regions were selected because they:
- a. face challenges with water quality
  - b. are at an appropriate stage of developing regional plan changes
  - c. have significant dairy expansion underway
  - d. are likely to be the most impacted by proposed national bottom lines.
131. The Southland study provides information on the impact of national bottom lines for both ecosystem health and human health through the attributes of periphyton (slime), nitrate toxicity and microbial contamination (*E. coli*) in rivers. The study evaluated the potential impacts on the agricultural sector, the municipal and industrial sectors and on non-market values. For agriculture, the Southland study tests various scenarios against a 2037 baseline of forecast growth in total agricultural production and in dairying, without action to reduce nutrient leaching. Results of the Southland study indicate the following:
- a. The proposed national bottom lines for ecological health in rivers that were tested in Southland do not impose costs. Water quality will be maintained above bottom lines for periphyton (slime) and nitrate toxicity under all scenarios tested (including scenarios that expand dairying).
  - b. The status quo requires councils to maintain or improve overall water quality for their regions. Maintained or improved water quality would be achieved under all scenarios tested. Dairy growth can be achieved while maintaining or improving water quality.
  - c. The proposed national bottom line for human health in rivers (5 per cent or greater risk of infection during secondary contact recreation) is breached at seven per cent of the monitoring sites tested for *E. coli*. In Southland mitigation measures only on dairy farms will not be sufficient to ensure the *E. coli* national bottom line is met. However, mitigation such as fencing rivers and lakes on sheep and beef farms as well as on dairy farms, would address *E. coli*. The majority of costs for mitigation would be met by sheep and beef farms, because most dairy farms already have fencing in place.
132. In Canterbury, the Hinds and Selwyn-Waihora zones were studied. The proposed human health national bottom line can be met in both zones without undue cost. However, three water bodies in Hinds currently fall below the nitrate toxicity national bottom line.
133. The Hinds zone has the most significant breaches of the nitrate toxicity bottom line in the country and has five of the six sites (of all monitored sites in New Zealand) that currently breach the proposed threshold<sup>37</sup>. Meeting national bottom lines in Hinds will require a 45 percent reduction in nitrate leaching after (the currently planned) future expansion of irrigation in the zone, including with dilution through the release of water

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<sup>36</sup> The economic impact studies were a joint venture funded between the Ministry for the Environment, Ministry for Primary Industries and the Department of Conservation.

<sup>37</sup> Using the 95<sup>th</sup> percentile statistical measure.

from the irrigation scheme into the catchment. The modelled cost of meeting the proposed national bottom line by 2038 in the Hinds zone is estimated to be \$22 million per annum from 2038 or 7 percent of the zone's agricultural net income. This is based on a policy of nutrient trading. Less efficient policies would increase the cost although extending the timeframe would decrease costs. On farm mitigation is insufficient to meet the restrictions imposed by the proposed bottom line threshold, so it's likely this will drive land use change with some anticipated dairy conversion/intensification not proceeding.

134. In Selwyn-Waihora current plan proposals are consistent with meeting nitrate toxicity national bottom lines.
135. The impacts of national bottom lines in the Upper Waikato catchment will be minimal. The national bottom line for *E. coli* (human health) is currently met in all but one monitored site in the Upper Waikato, where *E. coli* concentrations cannot be solely attributed to losses from land.
136. The current objectives in the *Waikato River Vision and Strategy* (including swimability and mahinga kai) will also likely be more stringent than national bottom lines for the region. The Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010 states at section 12(1)(a) that the *Waikato River Vision and Strategy* prevails over any inconsistent provision in a national policy statement.

#### **Conclusions from the case studies**

137. These regional studies provide valuable information on the likely impacts in a given catchment, but the information is difficult to extrapolate to a national figure. They do show however that in over-allocated catchments the proposed national bottom lines will drive changes in the way the primary sector uses water. Decisions about what choices they make will be made when councils consult with the communities about setting objectives and limits in their regional plans. At that time, councils will be able to establish acceptable timeframes to work towards meeting the bottom lines, taking into account the industries and activities responsible for the contaminant loads on the water body, and the likely and possible changes that may happen in those industries and activities in the short to medium term.
138. Under the status quo, the NPS-FM requires over allocation of both quality and quantity to be addressed and water quality to be maintained or improved. Regional councils need to address the current state of water bodies and allocate contaminant loads among resource users. Therefore even without bottom lines opportunity costs may be incurred.

## Conclusion for bottom lines

139. The level at which bottom lines should be set is underpinned by robust science but it is also partly a value judgement. Consultation on the proposed changes to the NPS-FM seeks public feedback on whether bottom lines should be set at all and at what level. The feedback received will be part of the final RIS which will inform final Government decisions.
140. Prescribing bottom lines in a national policy statement will provide benefits in the following ways: clarity and national consistency on the acceptable minimum state required of all freshwater bodies and reduced debate on the technical background to the content of plans. A key outcome of this is better management practices that will reduce future clean up costs for degraded water bodies.<sup>38</sup>

## Exceptions to bottom lines

141. There is a wide range of options available for councils and communities to manage to bottom lines, including technology transfer, land use rules, allocation-based methods, catchment mitigation and good management practice. Despite the management options available, and the discretion councils have on timeframes to meet the objectives, there are circumstances where national bottom lines may not be achievable and the need for an exception to a bottom line may be valid.
142. Exceptions are proposed on the following grounds:
- A. where **natural conditions** fall below a bottom line for a water body; or
  - B. where **historical activities** have created impacts and the reversal of those impacts is not reasonably practicable, either physically or ecologically, even in the long term.
  - C. Where the effects of **significant existing infrastructure** would not be able to fulfil its purpose if bottom lines had to be met.
143. Because objectives are set on an attribute basis for each value, exceptions will only apply to individual attributes. In some cases only one attribute may not be able to meet bottom line requirements, but in other cases it may be several. If an exception were to apply, this would only remove the requirement for the particular attribute to be managed to the bottom line level. Objectives would still be required to be set for the remaining attributes above the bottom line and management measures applied that reflect current best management practice. That is, it would not be an excuse to manage the other attributes down to their applicable bottom line.

## Exceptions for natural conditions

144. Providing for exceptions on the grounds of natural conditions would allow a freshwater objective for a water body to be set below a bottom line where the natural conditions cause the water body to fail a bottom line for a water body's class. The decision to

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<sup>38</sup> More than \$450 million has been committed by the Government to cleaning up our most iconic rivers, lakes and wetlands: Regional contributions are in addition.

apply this type of exception would be evidence based. Councils would be expected to provide evidence of:

- I. the naturally-occurring condition;
- II. which bottom lines are failing; and
- III. the causal link between the natural condition and failure to meet bottom lines.

145. An example of this type of exception is where part of a river is below a bird nesting colony of high value, causing levels of E. coli to exceed the bottom line threshold for human health. The exception in this case would allow a freshwater objective for E. coli in that reach of the river to be set below the bottom line.

### ***Exceptions for historical impacts***

146. Exceptions could also be provided where historical activities have created impacts such that the reversal of those impacts is not reasonably practicable, either physically or ecologically, even in the long term and remediation would cause more harm to the environment than leaving the situation in the current state.

147. As with the exception for natural conditions, it is proposed this be an evidence-based decision, taking into account the following considerations:

- I. Timeframe – whether the water quality can be improved to the level of bottom lines over a longer timeframe, given the ability to take a long-term approach to freshwater management.
- II. Harm to the environment from remediation – if remediation would cause greater harm to the environment than leaving it in its current state.

### ***Decisions on exceptions for on grounds A and B***

148. The decision to apply the exceptions on ground A and B listed above could be made by councils through the usual planning process (either Schedule 1 of the RMA or the new collaborative process). Alternatively, it could be made at the national level, for example as a matter of national significance under s140 of the RMA and be heard by a board of inquiry or the Environment Court. Either way councils would need to provide the evidence to support the proposal for having an objective below a bottom line in a plan.

149. It is proposed that for exceptions on grounds A and B the checks and balances of the procedures required under Schedule 1 (including the alternative planning option) and the RMA requirement in section 32 to assess and evaluate options provide a sufficient level of oversight to determine whether an exception is acceptable or not. Feedback is being sought on who the decision maker should be on these two grounds through the discussion document and consultation process.

### ***Exceptions for significant existing infrastructure***

150. This ground, unlike the natural and historical grounds for exceptions, involves a value judgement on the extent to which the benefits from significant existing infrastructure mean a water body should not have to be managed to national bottom lines over time.

151. This is being considered to acknowledge that there are some situations where it may be in the national interest to allow infrastructure to fulfil its purpose rather than meet bottom lines. The types of situations may include nationally significant hydroelectricity generation dams that result in a failure to meet bottom lines due to dewatering of a water body below a dam.

### ***Policy objectives for exceptions significant existing infrastructure***

152. There are several options for how exceptions might operate under this ground. Table 10 sets out a range of options (i-iv) and assesses them against a range of policy objectives or considerations. The options are for the mechanism through which exceptions would be provided. Further detail of the options follows below.

*Table 10: Assessment of options against policy objectives*

Policy Objectives	(i) Status quo	(ii) Criteria for regional planning	(iii) Criteria for national decisions	(iv) Exceptions listed in a schedule
Incentivises best environmental outcomes	✓	✗	✓	✓
Provides for significant economic benefit	✗	✓	✓	✓
Flexibility	✗	✓	✓	✓
Certainty of outcome and reduced litigation	✓	✗	✗	✓
Efficient for central government	✗	✓	✗	✗
Efficient for local government	✓	✗	✓	✓

#### *(i) Status quo, do nothing*

153. Under this option there would be no provision for exceptions. Freshwater objectives for all water bodies will be required to achieve bottom lines (over long timeframes if necessary). This option will incentivise good environmental outcomes but may come at a high cost (depending on the infrastructure).

154. In exceptional circumstances, special legislation could enable a development and associated plan change to allow a freshwater objective to be set below bottom lines. However, this would come at a cost to central government for each instance. The process would also be cumbersome because legislation does not allow for a rapid or easy response to situations where an exception is desirable.

155. In the worst case scenario, without an exception on this ground some significant existing infrastructure may cease to be viable if required to operate in accordance with bottom lines (even with long time frames).

(ii) *Criteria to guide regional planning*

156. Under this option criteria would be set in the NPS-FM, supported by guidance, to direct councils regarding the circumstances under which they may set objectives for a water body below bottom lines. Councils (and ultimately the courts) would decide how the criteria apply when developing regional plans.

157. This option provides a high degree of flexibility and it would be easy for councils to adapt to exceptional situations in planning using a process similar to that already applied under section 107(2)(a) of the RMA. However, the trade-off is that there would be limited certainty of outcomes and high costs for litigation of each exception provided for in a plan. Regional variation in the application of exceptions may also result and lead to a lack of certainty for investors.

158. Under this option bottom lines may be easily undermined through the backdoor of exceptions. Allowing councils to provide easily for exceptions may be a disincentive for good environmental outcomes. The risk could be mitigated with tight criteria in the NPS-FM for when exceptions may apply.

(iii) *Criteria to guide national decisions*

159. Under this option, criteria would be set in the NPS-FM to direct national level decision-making on when objectives may be set for a water body below bottom lines. Decisions could be made by the Minister for the Environment or a centrally appointed board of inquiry.

160. If the Minister were to make decisions, this could operate in a way similar to exceptional exceedances of the National Environmental Standard for Air Quality. Criteria would be set and the Minister's decisions based on these criteria notified, for example via the *New Zealand Gazette*.

161. Alternatively, guidance would make clear that a plan containing an objective set below national bottom lines would be deemed to be a matter of national significance and called in by the Minister to be heard by a board of inquiry or Environment Court.

162. In either scenario the analysis is similar. National decision-making would provide a degree of consistency and the rigour of a national process would go some way to discourage the use of exceptions and incentivise good environmental outcomes. In addition, a central agency (like the Environmental Protection Authority) could provide advice on the appropriateness of an exception in a given circumstance, in the same way the EPA currently provides pre-application advice for other nationally significant proposals.

163. This would be particularly relevant to exceptions based on existing infrastructure in that these value judgements are routinely made through the matters of national significance process. For the other two grounds the Schedule 1 process will likely provide sufficient checks and balances.

164. Despite these advantages, a national process would be a burden on both central and local government in terms of costs. The expensive and time consuming process would occur on a case by case basis and the resulting delays would further increase costs. Additionally, case by case decision making, even at a national level, would not provide certainty for investors.

*(iv) Exceptions listed in a schedule*

165. Under this option a schedule of the NPS-FM would be developed to list water bodies with exceptions due to significant infrastructure. All other exceptions would be decided through the Schedule 1 process. The list would be compiled through collaboration with councils. Criteria could either be set out in the NPS-FM or simply agreed by Cabinet with the latter providing for increase flexibility at the expense of transparency.

166. The benefit of this option would be the high degree of certainty provided. Decisions would be made by central and local government together and upfront, thereby avoiding case by case decision-making and litigation. The initial schedule could be litigated; however, this would occur once rather than on a case by case basis. Once a schedule was gazetted there would be a high degree of certainty for investors. The list would provide clear direction on where exceptions apply and there would be less perception that bottom lines may be undermined.

167. A schedule would still provide some flexibility because the standard regulatory process in section 46A of the RMA could be used to add to the schedule, if needed, over time. A review of NPS-FM is planned for 2016 and would provide an opportunity to update the schedule if required.

168. There would be initial costs to central government to work with councils to identify situations for schedule. However, those costs would likely be outweighed by the savings afforded by the lack of case by case decision-making and litigation that would result.

### **Conclusion for exceptions**

169. Further detail of what the exceptions framework might entail, and criteria applying to it, is yet to be developed but the concept will be consulted on through targeted questions in the discussion document. Feedback on the three proposed grounds for an exception, and who the decision maker should be, will inform policy development.

## Consultation

170. The proposals to amend the NPS-FM have been developed through the consensus building of the Land and Water Forum, the National Objectives Framework Reference Group and the science panels which developed the detail of the framework ie the national values, attributes, bottom lines and options for what level they should be set at. This has involved stakeholders from industry groups, regional councils, environmental and recreational NGOs, iwi, leading NZ scientists and other organisations with a stake in freshwater and land management. Together they have developed the options for consideration.
171. Public consultation on the first LAWF report revealed wide support for the LAWF recommendations and direction. Subsequent recommendations, which included freshwater accounting and a regulated national objectives framework with bottom lines were described in the *Freshwater Reform 2013 and Beyond* discussion document in March 2013.
172. The comments received on that document generally reflected strong support for the national objectives framework, bottom lines and freshwater accounting. The few comments that did not support the proposals (but were not necessarily against) did so largely on feasibility (see below) rather than philosophical grounds, or because they misunderstood the concept ie, what they sought is what the framework is intending to deliver.
173. There were some specific concerns about how the national objective framework would be implemented and on the detail including:
- i. *That the framework could lead to all water bodies being managed down to the bottom line. There was concern that the numbers being proposed for bottom lines were weaker than those in some existing plans.* To address this, the discussion document for the proposed changes will make it clear that the existing NPS-FM requirement to “maintain or improve” still stands. The proposed process allows councils to set more stringent requirements than the bottom lines depending on the current state, whether the community want the state to be improved from the current state.
  - ii. *That the bands or bottom lines might unreasonably restrict use of water, and there were frequent calls for robust science, and good analysis of the implications of any bottom lines.* Under the proposed changes, there may well be restrictions on the amount of water available – particularly where water is currently over allocated – but adjustment timeframes will allow costs to be spread over time with the allocative quantum being determined using best available science. The derivation of attribute thresholds proposed in the amendments was done by a panel of scientists who are experts in their fields and these thresholds will be subject to comment through the consultation period. The analysis of the implications of the bottom lines has been thoroughly assessed in three areas facing challenges in pressures on water quality and through feedback from the NOF reference group. Further

information on implications is expected to be obtained from stakeholders during consultation.

174. There were calls for the framework to be progressed as soon as possible, but recognition that full population of the framework will take time. Many sought the chance to comment on the detail of the national objectives framework before it is regulated.
175. The March discussion document was reasonably high level and while it talked about a national objectives framework with bottom lines implemented through regulation it was not specific about how this would be achieved (national direction through guidance or a statutory instrument), or the detail of what would be in the framework, including the values that would be adopted, the attributes that would apply to the values, or the level at which bottom lines might be set. The forthcoming consultation on the proposed amendments to the NPS-FM builds on the consultation undertaken in March by providing that detail.

## Conclusions and recommendations

176. Providing a menu of values with related attributes in the NPS-FM would improve the efficiency of freshwater objective setting by reducing the need for each region to conduct technical and scientific work, which is then contested and defended through each regional planning process. Together with supporting tools that are being developed by the Government, communities will be able to determine what limits are needed, and therefore the impacts of the chosen objective and what water quality state that relates to.
177. Requiring the framework to be used for regional plan development improves transparency because the impacts (economic and environmental) of different choices (ie the limits needed to achieve a particular value state) can be tested and clearly articulated before final decisions are made. It also provides national consistency, by ensuring that when water is managed for a national value, the same attributes that contribute to that value are managed, and the thresholds for those attributes are set at the same level throughout New Zealand.
178. On the basis of the evaluation provided in this RIS, amending the NPS-FM to incorporate the national objectives framework and bottom lines with an exceptions regime is the recommended option.
179. We also recommend the NPS-FM be amended to include a requirement for councils to carry out freshwater accounting and reporting, using a range of methods (outlined in the NPS-FM), with a staged compliance requirement.
180. The public feedback on the provisions within the national objectives framework proposed as amendments to the NPS-FM will be analysed before final decisions are made on any changes to the NPS-FM. An assessment of whether the national objectives framework should be progressed as an amendment to the NPS-FM, guidance, or regulation in some other form will be made after that analysis.

## Implementation

181. These proposed changes support and clarify what is already required by the NPS-FM. When introducing these changes the Government intends to provide a comprehensive package of guidance, workshops and technical support to councils to assist with translating objectives to limits. Additionally there will be assistance with options for councils on how to meet bottom lines, including examples of regulatory and non regulatory options.

## Monitoring, evaluation and review

182. A programme-wide monitoring and evaluation plan addressing all aspects of freshwater reform is being developed in conjunction with stakeholders. The plan will be integrated with the *RMA National Monitoring System* requirements, currently being developed by the Ministry for the Environment, and any adjustment to local government reporting required as a result of the *Better Local Government* reforms.
183. A new objective (CB) and policy (CB1) clarifying how monitoring of freshwater objectives should be undertaken is recommended for adoption in the NPS-FM. The new requirement is concordant with other monitoring initiatives that are underway and can be integrated with councils' existing monitoring and reporting programmes. The results of monitoring will aid public understanding of progress toward maintaining or improving the water quality in their regions over time.
184. The Ministry for the Environment has begun monitoring the implementation of the NPS-FM. This work will be updated annually and will capture councils' use of the national objectives framework by analysing the geographical extent and provisions of freshwater objectives and limits in plans.
185. The preamble of the NPS-FM states that the Minister for the Environment intends to seek an independent review of the implementation and effectiveness of the policy in achieving its objectives no later than five years after it comes into force (2016). It also states that collection of monitoring data to inform the review will begin two years prior to the review. Planning for this is in progress.
186. The attribute table to support the national values of the national objectives framework is not yet fully populated. Work is continuing to test the science and impacts of the full suite of attributes and values. Updates to the framework will be progressed at established review periods and councils can adjust plans (if required) at their next scheduled plan change (required every 10 years).

*Appendix 1: Comparison of current state with potential national bottom-lines*

**Figure 1: Modelled and measured current state for nitrate toxicity (ecological health)**

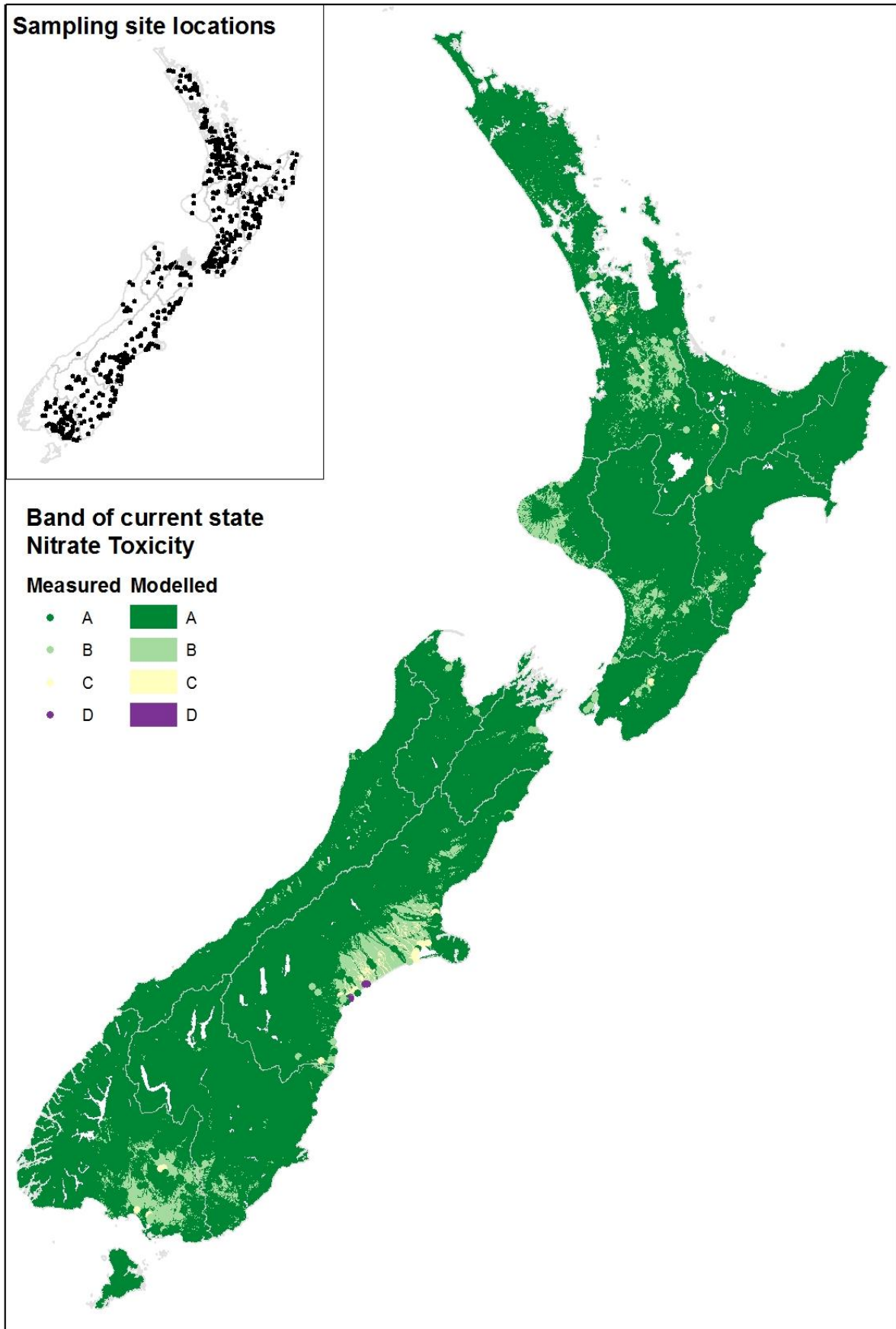


Figure 2: Modelled and measured current state for *E. coli* (human health) at 1% and 5% infection risk

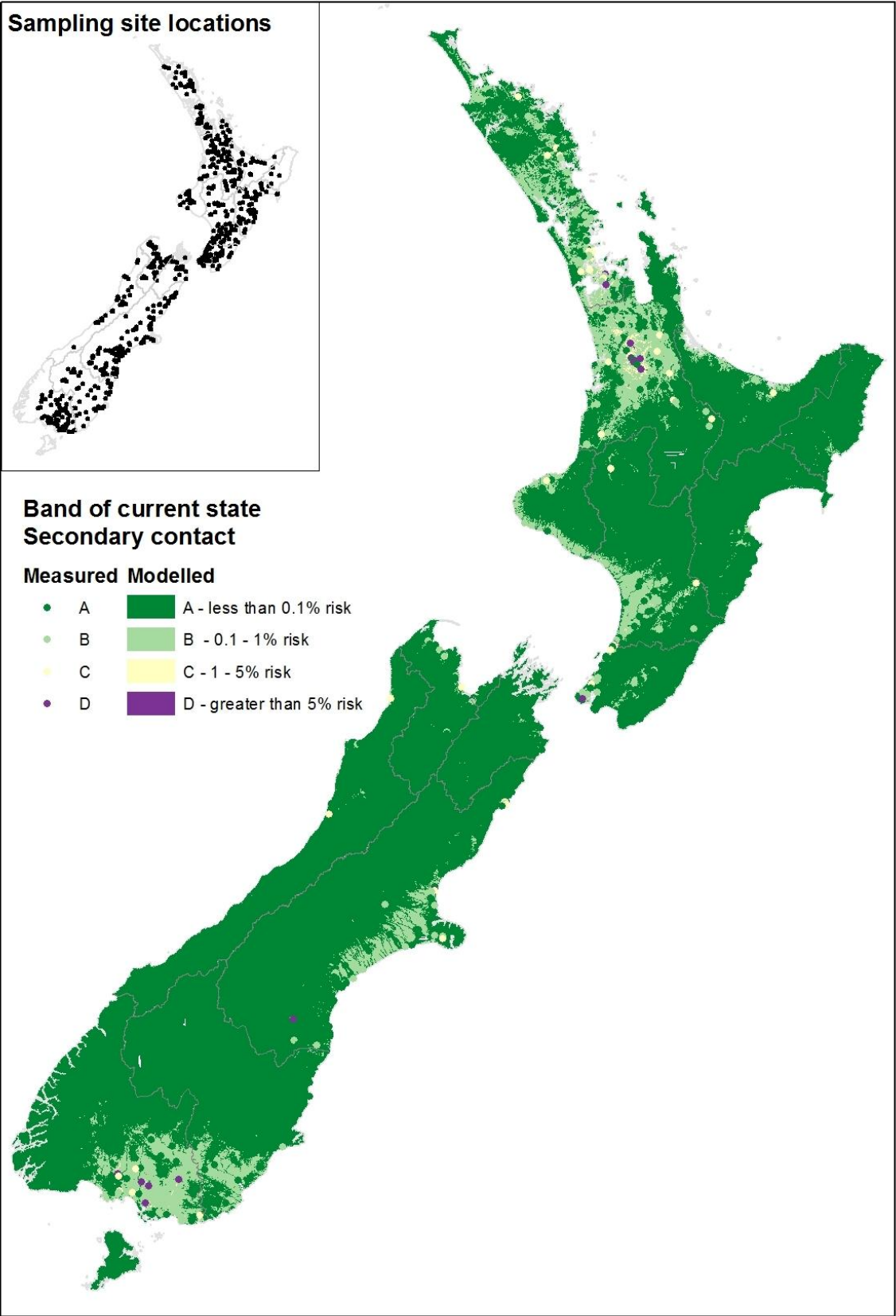


Figure 3: Lake Ecosystem Health for chlorophyll-a

