

# Essential Freshwater

## Report of the Freshwater Independent Advisory Panel

27 February 2020

## Contents

Contents.....	2
<b>Key recommendations .....</b>	<b>5</b>
General NPS-FM provisions .....	5
Hydro.....	5
National Objectives Framework .....	5
Compulsory and other values .....	5
Attributes .....	6
Wetlands .....	6
Stream loss.....	7
Fish passage .....	7
High-risk land uses .....	7
Intensive winter grazing.....	8
N-loss.....	8
Intensification .....	8
Stock exclusion.....	9
<b>Section 1: Introduction and background .....</b>	<b>10</b>
1. Introductory statement .....	10
2. The Independent Advisory Panel (IAP) .....	12
3. Process .....	12
3.1. Advisory groups .....	13
3.2. Public consultation.....	13
3.3. The role of the Panel.....	14
3.4. Consultation on other matters.....	14
4. Consideration by the Panel.....	15
4.1. Legal criteria.....	15
4.2. Challenges .....	15
4.3. Science and policy principles guiding panel recommendations .....	16
4.4. Summary of proposals – a system view .....	18
4.5. Limitations.....	21
4.6. Meanings and descriptions .....	21
4.7. A note on drafting suggestions .....	22
5. Link between allocation and future work .....	22
<b>Section 2: National direction .....</b>	<b>23</b>
6. Proposed changes to the National Policy Statement for Freshwater Management .....	23
6.1. Major changes from the 2017 NPS .....	23

6.1.1.	Revised NPS-FM structure .....	23
6.1.2.	Te Mana o te Wai.....	23
6.1.3.	Hydro power exceptions .....	24
6.1.4.	Maintain or improve .....	29
6.1.5.	Functions left to regional councils .....	31
6.1.6.	National Objectives Framework – Part 3 NPS-FM.....	31
6.2.	Role of attributes in managing for outcomes .....	32
6.2.1.	Timing (NPS-FM Part 4) .....	33
6.2.2.	Clause 3.5 Overview of National Objectives Framework.....	34
6.2.3.	Clause 3.6 .....	35
6.2.4.	Clause 3.7 Identifying values and environmental outcomes .....	35
6.2.5.	Identifying current attribute states.....	36
6.2.6.	Setting target attribute states.....	37
6.2.7.	Clause 3.10 Identifying limits on resource use and preparing action plans .....	39
6.2.8.	Clause 3.11 Setting environmental flows and levels.....	40
6.2.9.	Clause 3.12 Identifying take limits .....	41
6.2.10.	Clause 3.13 Monitoring.....	42
6.2.11.	Clause 3.14 What to do if environmental outcomes are not achieved, or deterioration is detected.....	43
6.2.12.	Information note at 3.14.....	43
6.2.13.	Clause 3.18 Primary contact sites .....	43
6.2.14.	Clause 3.19 Water allocation .....	44
6.2.15.	Clause 3.20 Accounting systems .....	45
6.2.16.	Clause 3.21 Assessing and reporting.....	45
6.3.	Compulsory and other values .....	45
6.3.1.	Compulsory values (Appendix 1A) .....	45
6.3.2.	Summary of changes.....	47
6.3.3.	Other values (Appendix 1B) .....	49
6.4.	Attributes .....	49
6.4.1.	Attribute framework.....	49
6.4.2.	Limit setting attributes.....	51
6.4.3.	Action plan attributes .....	57
6.5.	National target for water quality improvement .....	63
7.	Proposed changes to the NPS-FW, with consequential rules in the NES for Freshwater Management.....	63
7.1.	Wetlands .....	63
7.2.	Stream loss.....	66

7.3.	Fish passage .....	69
8.	Other proposals in the NES-FM.....	72
8.1.	Part 3 Farming provisions .....	72
8.1.1.	Farm environment plans.....	73
8.1.2.	Feedlots, sacrifice paddocks and other stock holding areas.....	81
8.1.3.	Intensive winter grazing.....	82
8.1.4.	Nitrogen loss .....	83
8.2.	Intensification provisions .....	84
8.2.1.	Duration and sunset.....	84
8.2.2.	Moratorium.....	84
8.2.3.	Circumstances requiring resource consents .....	84
8.2.4.	Only over-allocated catchments? .....	85
8.2.5.	Clause-specific recommendations .....	85
	<b>Section 3: Draft stock exclusion Section 360 regulations .....</b>	<b>87</b>
8.3.	Proposals.....	87
8.3.1	Extent of setback.....	87
	<b>Section 4: Appendices .....</b>	<b>91</b>
	Appendix 1 – Terms of reference.....	92
	Appendix 2 – Publications considered during deliberations.....	98
	Appendix 3 – Recommended table of Attributes .....	99

## Key recommendations

### General NPS-FM provisions

1. Add descriptions for the terms mātauranga Māori and Ki uta ki tai to provide clarity to councils.
2. Remove the long-term vision requirement in 3.2 of the NPS-FM to speed the process and reduce administrative burden.
3. Revise the sections on Te Mana o te Wai priorities and obligations to reduce the risk of challenge and remove imperative language, and integrate directions with other requirements on regional councils.
4. Add a clause to the NPS-FM on council process requirements in making decisions under the NPS.
5. Add a clause to the NPS-FM requiring councils to have regard to the effects of climate change.
6. Amend the timing provision to refer to the date of public notification, rather than date of final decisions.

### Hydro

7. Accept the provision allowing councils to make exception for specified hydroelectricity schemes.
8. Restrict the possibility of an exception to the most significant hydro-electricity schemes.
9. Remove the Waikaremoana scheme from the list of schemes that are to be exempted.
10. Clarify within the NPS-FM that the requirement on councils to maintain or improve water quality applies even where an exception is granted.
11. Add a policy to 2.2 of the NPS to the effect that freshwater resources are managed as part of New Zealand's integrated response to climate change.

### National Objectives Framework

12. Remove the requirement at 3.5 in the NPS-FM to consult 'at every stage of the process'.
13. Add a subclause to 3.6 in the NPS-FM to the effect that councils ought to monitor vulnerable sites and sensitive receiving environments, alongside representative sites.
14. Incorporate 'load to come' (or nutrient lag) into current state identification where it is justified.
15. Do not require that action plans be included in regional plans, instead including the clause on council process requirements above.
16. Otherwise, to accept the National Objectives Framework largely as it is, with several amendments resulting from several amendments recommended to the attributes framework (key recommendations for that framework below).

### Compulsory and other values

17. Accept the components of the Ecosystem Health value.

18. Accept the definition of Ecosystem Health, with some drafting changes for clarity and robustness, and to ensure that all components are considered holistically.
19. Elevate Mahinga Kai to the status of a compulsory value.
20. Accept the Threatened Species value as compulsory, with some wording amendments to clarify council responsibilities.
21. Accept the other values as proposed.

### Attributes

22. Amend the attributes framework to include two new classes of attributes: compulsory monitoring only, and 'must consider for use where relevant'.
23. Move the suspended sediment attribute to the action plan class of attributes.
24. Allow visual clarity measure for the suspended sediment attribute, alongside turbidity and direct measurement of suspended sediment.
25. Move the DIN and DRP (rivers) attributes to the action plan class of attributes to allow more flexible management.
26. Move total N and P (lakes) attributes to the action plan class of attributes for consistency with the DIN and DRP (rivers) attributes and allow for situations where lakes may be N or P limited.
27. Move the QMCI and ASPM macroinvertebrate measures to the new 'must consider for use where relevant' class of attributes, leaving MCI as an action-plan attribute.
28. Raise the MCI threshold to the 90th percentile in line with STAG's recommendation.
29. Move lake SPI, lake-bottom dissolved oxygen, and mid-hypolimnetic dissolved oxygen into the new 'must consider for use where relevant' class of attributes.
30. Move Fish IBI and ecosystem metabolism measures to the new 'compulsory monitoring only' class of attributes.
31. Add to the Fish IBI a column for the measurement of salmonids, applying only to specific salmonid fisheries.
32. Raise the ammonia and nitrogen toxicity attributes to the 90th percentile and change 'toxicity' to 'species sensitivity'.
33. Amend the bathing seasons primary contact sites attribute to require weekly monitoring during the bathing season retaining flexibility for regional councils to determine the appropriate bathing season.

### Wetlands

34. Tighten the definition of 'net loss' to remove loopholes.
35. Ensure restored wetlands are not counted as constructed wetlands.
36. Allow controlled activity status for all activities to restore wetlands.
37. To allow for earth disturbance related to the maintenance of drains near wetlands (which has no more than minor effect).

38. Reframe the consenting requirements to criteria rather than conditions, and simplify the scheme, making it effects-based.
39. Ensure that the definition of vegetation clearance clearly excludes customary harvest (in line with Mahinga Kai) and sphagnum moss harvesting where the effects are minor.

#### Stream loss

40. Amend references to 'streams' to read 'rivers', and clearly define 'rivers' as having the same meaning as in the RMA.
41. Amend Policy 9 of the NPS-FM to read: 'there is no net loss of the extent and habitat quality [or ecosystem health] of rivers'.
42. Clearly define 'infilling' to relate it to the use of 'reclamation' in s13(1)(e) of the RMA.
43. Remove the 'no practical alternative' provision allowing discretionary activity status on infilling.
44. Ensure consistency of provisions for 'earth disturbance', infilling and water takes between the Wetlands and Stream Loss sections.

#### Fish passage

45. Clarify the relation between fish passage provisions in the NPS, and those in the Freshwater Fisheries Regulations 1983, and the Conservation Act 1987.
46. Review the drafting of the NPS-FM to relate 'aquatic life objectives' to 'environmental outcomes', and 'work programmes' to 'action plans.'
47. Consider redrafting ss21-24 of the NPS-FM to move technical provisions into external guidance.

#### High-risk land uses

48. Require all farms to have a certified, audited farm plan, according to proposed timelines.
49. Consider an amendment to the RMA to improve ability to enforce that requirement, and include relevant provisions in the farm plans.
50. Add to the contents requirements of farm plans: sacrifice paddocks, wetlands on farms, the use of other stock-holding areas, stock exclusion, and intensive winter grazing. To speed and ease the uptake of farm plans, allow self-registration of farm plans with regional councils where approved industry-developed templates are used.
51. Clarify the accountability structures for farm plans, according to our recommendations below.
52. Look to develop a disputes and complaints resolution process for farm plans.
53. Ensure that existing farm plans which already meet the requirements of this NES-FM do not need to be duplicated or re-written.
54. Support the development of farm plans in Schedule 1 and other high-risk catchments.
55. Consider how to support the establishment and ongoing role of catchment groups in supporting farmers with the development of farm plans.

56. Make allowance for transitional arrangements if existing farm plans do not fully meet the requirements of this NES-FM.
57. Specifically exclude wintering barns from the definition of a feedlot, and clarify that they must be 50 metres away from surface water bodies, not possible groundwater bodies.
58. Limit the application of feedlot provisions to cattle over a certain size and weight to avoid capture of calving sheds and unintended animal classes.
59. Reframe the consent conditions stipulated at 27(3) of the NES-FM as criteria for issuing the consent.
60. Remove clause 28 of the draft NES-FM relating to sacrifice paddocks.
61. Make other stock holding areas a permitted activity if the farm has a farm plan that is compliant with the conditions listed at 29(2) of the draft NES-FM.

### Intensive winter grazing

62. Remove several practice requirements that would be impractical to enforce or monitor, instead requiring farm plans to cover those activities.
63. Limiting permitted activity status to: slope below 15 degrees; an area of 50 hectares or 10 per cent of total contiguous area of farm; an area of 15 per cent of total contiguous area of farm if the farmer has a winter grazing plan; a vegetated strip of 5 metres between the grazed area and surface water bodies; the area is resown within one month or as soon as reasonably practical.
64. The regulation relating to 'pugging' should be removed.
65. Add a new subclause requiring farms to avoid contamination of water with regard to the location and duration of intensive winter grazing.

### N-loss

66. Make allowance for N-surplus or other appropriate measures as an interim measure in catchments where Overseer is not yet prevalent.
67. Consequentially, consider allowing exceptions to the consenting criteria and conditions where the farm can show implemented mitigations.
68. Set the consenting threshold at the 80th percentile.
69. Include arable and vegetable farms in the N-loss provisions, both for counting the threshold and for consenting requirements.

### Intensification

70. Do not add a sunset clause as some submitters call for, as the date of regional plans coming into effect is sufficient sunset.
71. Do not reduce these provisions to apply only to high-risk or highly degraded catchments, as some submitters call for.
72. Do not enact a full moratorium on intensification, as some submitters call for.
73. Reframe the provisions for consent conditions through this part to criteria for granting consents.

74. Allow for reports rather than monitoring when complying with the criteria for granting consents.
75. Delay the enactment of the intensive winter grazing intensification provisions by six months to allow time for farmers to plan for the new provisions.
76. Amend the irrigated farming provisions to apply only to pastoral and arable production.
77. Include clause 36, covering land use change to commercial vegetable production.

#### Stock exclusion

78. Accept the setback distance of 5 metres and 10 degrees as the line between low and non-low slope.
79. Allow existing physical setbacks of less than 5 metres to stand without replacement until the end of their natural life.
80. Specify the criteria for exemption.
81. Add a general exemption where the farm has a certified farm plan that provides for the exclusion of stock from waterways.
82. Amend the carrying capacity threshold to one using actual stock units per hectare.

## Section 1: Introduction and background

### 1. Introductory statement

The Resource Management Act 1991 provides for national policy statements (NPS) to state objectives and policies for matters of national significance that are relevant to achieving the purpose of the Act. It prescribes that the Minister for the Environment will prepare a proposed NPS-FM and after considering specified matters, decide whether to involve a board of inquiry, or to establish and use a process for public submissions, and a report and recommendations on the proposed statement and submissions.

The Minister has then to consider the report and recommendations, make changes to the statement as he or she thinks fit, withdraw all or part of it, evaluate it under section 32 of the Act, and have particular regard to the evaluation when deciding whether to recommend the statement. If the Minister recommends it, the Governor-General in Council may approve the NPS, which the Minister then publishes.

Local authorities are obliged to amend regional policy statements and plans, to give effect to NPSs, or to make their regional policy statements and plans consistent with an NPS.

In 2011, after a board of inquiry process, making changes considered fit, and having particular regard to an evaluation under section 32, the Minister recommended, and the Governor-General in Council approved, a National Policy Statement for Freshwater Management. That statement was duly published and came into effect on 1 July 2011.

In 2014, after public submissions and a report and recommendations as required, the Governor-General in Council on the Minister's recommendation, approved a replacement NPS, which was also published and came into effect on 1 July 2014.

In 2017 the Governor-General in Council, on the Minister's recommendation, approved amendments to the NPS. A reprint incorporating those amendments was published on 10 August 2017.

On 5 September 2019 you, in the company of the Ministers of Primary Industry and of Local Government, published a proposed further replacement National Policy Statement on Freshwater Management, and a proposed Freshwater National Environmental Standard (national direction) under sections 43-44A of the RMA.

You also established an Independent Advisory Panel to consider submissions on these proposed instruments and the subject matter of the national direction, and prepare a report and recommendations according to our terms of reference. You appointed me, the undersigned, as chair of that panel.

Following the public launch of the proposals, officials of the Ministry for the Environment led public consultations, involving meetings and hui throughout the country, as well as more targeted engagement with iwi and hapū, the primary sector and local authorities. Panel members attended those meetings, listened to the issues and observed the responses of those taking part.

We have also been provided with submissions on the proposed instruments, together with analyses of their content in the form of a summary prepared by officials.

We have deliberated in detail on the content of the instruments and the submissions about them. This report sets out the results of our deliberations and our recommendations from them.

A handwritten signature in black ink, appearing to read 'D. Sheppard', with a stylized, cursive script.

David Sheppard QSO

Chair

Freshwater Independent Advisory Panel

## 2. The Independent Advisory Panel (IAP)

The Minister for the Environment has appointed the IAP to prepare a report and recommendations on submissions and the subject matter of proposals, in terms of section 46A(4)(c) of the Resource Management Act 1991.

Membership of the Panel is as follows:

### Judge David Sheppard (Chair)

Judge Sheppard is a retired Principal Environment Court Judge. He has extensive experience as a chairperson, and chaired the Board of Inquiry into the Proposed NPS-FM in 2008 and 2009. He has extensive experience in environmental law and freshwater management, particularly in Canterbury.

### Maree Baker-Galloway

Ms Baker-Galloway is a partner at Anderson Lloyd specialising in environmental management and planning under the Resource Management Act 1991. She has particular expertise, experience and interest in freshwater management, marine issues, tourism development, urban development (including the Housing Accord and Special Housing Areas Act) and natural resource use. She was also on the national executive for the Resource Management Law Association (RMLA) from 2007 to 2017, including as President from 2015 to 2017.

### Tracy Brown

Tracy Brown trained as an agricultural economist and has been dairy farming for 25 years. She has worked with farmers and policy makers to engage people with the process of achieving a more sustainable dairy industry. She has had a range of community, regional and national roles leading environmental change in the dairy sector, including as Chair of the Dairy Environment Leaders Forum.

### Antoine Coffin

Antoine Coffin is the Director of Te Onewa Consultants. He is a Māori Commissioner, specialising in freshwater, wastewater, heritage, and planning. He has experience on numerous community advisory boards and in iwi governance and decision-making. Mr Coffin has knowledge of tikanga Māori and was the Mātauranga Māori Technical Leader for Healthy Rivers Waioara, reporting on factors affecting food gathering, swimming and special characteristics on the Waikato and Waipa Rivers from a Māori perspective.

### Andrew Fenemor

Andrew Fenemor is a senior scientist in hydrology and water management at Manaaki Whenua - Landcare Research in Nelson. He has extensive experience in catchment management, hydrology, water policy and RMA decision-making. He was previously environment manager at Tasman District Council. He is a former president of the NZ Hydrological Society and recipient of its award for outstanding achievement in hydrology. Andrew brings wide technical expertise in land and water management as an RMA Hearing Commissioner, most recently in water planning for the Bay of Plenty and in Canterbury.

## 3. Process

In 2018, the Government agreed to progress the work programme, *Essential Freshwater – Healthy Water, Fairly Allocated*, to:

- stop further degradation of New Zealand's freshwater resources and start making immediate improvements so that water quality is materially improving within five years

- reverse past damage to bring New Zealand’s freshwater resources, waterways and ecosystems to a healthy state within a generation
- address water allocation issues.

The *Action for healthy waterways* consultation occurred in 2019, and included proposals to:

- introduce a new National Policy Statement for Freshwater Management (NPS-FM) to replace the NPS-FM 2014 (amended 2017)
- create a new freshwater National Environmental Standard (NES-FM) and regulation under section 360 (regulation) of the Resource Management Act 1991 (the RMA)
- amend the Resource Management (Measurement and Reporting of Water Takes) Regulations 2010.

### 3.1. Advisory groups

The proposals in the *Action for healthy waterways* consultation were developed by a multi-agency taskforce based at the Ministry for the Environment (the Ministry). The proposals were informed by the views of a network of advisory groups, which provided their own advice to Ministers on the regulatory package set out here and broader issues, set out in their reports.

- the Freshwater Leaders Group (FLG), which brings together expertise and input from leaders across the primary sector and agribusiness, environmental non-government organisations (NGOs), and cross-membership from the other advisory groups
- te Kāhui Wai Māori (KWM), the Māori Freshwater Forum, which brings a broad range of Māori perspectives
- the Regional Sector Water Subgroup (RSWS), which brings the voice and views of regional councils
- the Science and Technical Advisory Group (STAG), which has advised on the technical and scientific basis for proposals.

To view their reports, see the Ministry for the Environment website.

### 3.2. Public consultation

From 5 September to 31 October 2019, the Ministry consulted on a range of proposals to stop further degradation of freshwater resources and begin reversing past damage.

To view all the information on our proposals – including our discussion document, the draft and proposed regulations – see the Ministry’s website: <https://www.mfe.govt.nz/consultation/action-for-healthy-waterways>

The consultation included a roadshow involving 17 general public meetings, another eight for the primary sector and rural community, and 16 hui for iwi/Māori around New Zealand. Panel members attended nearly all of these.

The Government received about 17,500 submissions on *Action for healthy waterways*. Of these, about 3300 were unique, with the remainder based on organisation templates.

The Ministry has prepared a summary of submissions, which will be made publicly available shortly. The Panel had access to all submissions during its deliberations, as well as to the Ministry's summary.

The Panel notes that the programme has been completed promptly at the request of responsible Ministers. As a consequence, many submitters felt there was not enough time and consultation. We note that the timing was particularly problematic for the rural sector. The number of submissions speaks to the importance and substance of the issues. Although the reasons for the timeframe are clear, timing in the farming cycle, and with local authority elections, was problematic. A longer time for consultation and engagement would have been desirable. Still, more than 17,000 people made submissions, many of which were broad and detailed.

### 3.3. The role of the Panel

Under section 46A of the RMA, the Minister for the Environment establishes a process for preparing national direction instruments, either by appointing a board of inquiry, or through a different process. Under s46A(3)(b) of the RMA, any alternative to a board of inquiry must, at least, include:

- i. **Notification** – The public and iwi authorities must be given notice of the proposed national direction, and why the Minister considers the direction to be consistent with the purpose of the RMA.
- ii. **Consultation** – Those notified must have adequate time and opportunity to make a submission on the subject matter of the proposed national direction.
- iii. **Report and recommendations** – A report and recommendations must be made to the Minister on the submissions and the subject matter of the national direction.

Instead of a board of inquiry, an Independent Advisory Panel (IAP) was established as part of the consultation process, to prepare the report and recommendations as outlined above.

Although *Action for healthy waterways* had a range of broader proposals to contribute to the Government's freshwater objectives, the role of the IAP was to consider the national direction instruments.

For the Panel's terms of reference, see appendix 1.

### 3.4. Consultation on other matters

The consultation also sought feedback on wider issues, including:

- a new freshwater planning process under the RMA, to better support the delivery of safe drinking water and improve the management of stormwater and wastewater
- product stewardship
- hazardous substances
- highly productive land
- urban development
- Three Waters.

These proposals were out of the Panel's scope, and separate processes apply.

## 4. Consideration by the Panel

### 4.1. Legal criteria

The Panel has been directed by the purpose and relevant principles in Part 2 of the RMA. Our guiding principle has been to promote sustainable management of natural and physical resources, applying the meaning of sustainable management stated in section 5(2).

We have also been guided by:

- the classification in section 6 of relevant activities as matters of national importance
- the direction in section 7 to have particular regard to other matters
- the direction in section 8 to take into account the principles of Te Tiriti o Waitangi/the Treaty of Waitangi, which we consider of high importance.

The Panel has also considered the proposed direction which includes the NPS-FM, the NES-FM and the proposed regulation; and several reports to you, which are noted in the appendices.

### 4.2. Challenges

Some submitters suggested that there had been inadequate time for consultation, considering the importance and substance of the issues, and their complexity. The multi-stakeholder Land and Water Forum (LAWF) started addressing these issues in 2009. Shortly after the final LAWF report to Ministers in June 2018, the current government launched its *Essential Freshwater* work programme (in October 2018) after careful Cabinet consideration. A network of specialist advisory groups was set up – the Freshwater Leaders Group (FLG), Te Kāhui Wai Māori (KWM), and the Science and Technical Advisory Group (STAG), as well a Regional Sector Water Subgroup. Their deliberations and officials work culminated in an *Action for Healthy Waterways* discussion document in September 2019, which was put out to widespread public consultation for eight weeks. Also the IAP was appointed to consider the submissions received (over 17,000) and has provided its own advice to the Government.

For reasons that you made public, as authorised by section 46A of the Act, you made a decision on the process to be followed for the formal process of developing national direction, including the establishment of this Panel. You also fixed the time for delivery of this report, and you responded to feedback by extending the time for lodging submissions. We accept that the reasons for promptness were plain, and note that there was dedicated and specific engagement with iwi. In the end, more than 17,000 individuals and organisations were able to make their submissions, and many addressed numerous topics in detail.

We acknowledge that we have had limited understanding of the effect of the instruments on the social and economic wellbeing of people and communities. A report on the risk impacts was not available to us before the time for presenting this report. It is not within the Panel's terms of reference, nor the expertise of all its members, to make a formal cost and benefit evaluation such as required under section 32 of the Act.

We do not consider it feasible to convincingly quantify the environmental value of the proposed measures in monetary terms. Based on the reports and submissions, we have made assumptions and expert judgements. We find that there will be substantial value for the environment, and undoubtedly substantial cost for the economy and local authorities, and possibly social and cultural impacts too.

In considering the financial implications, we have tried particularly to stay aware of the potential costs of inaction – both in terms of environmental degradation, and the costs of remediation rather than prevention. We also acknowledge that costs could vary considerably, depending on which policies and timeframes are adopted.

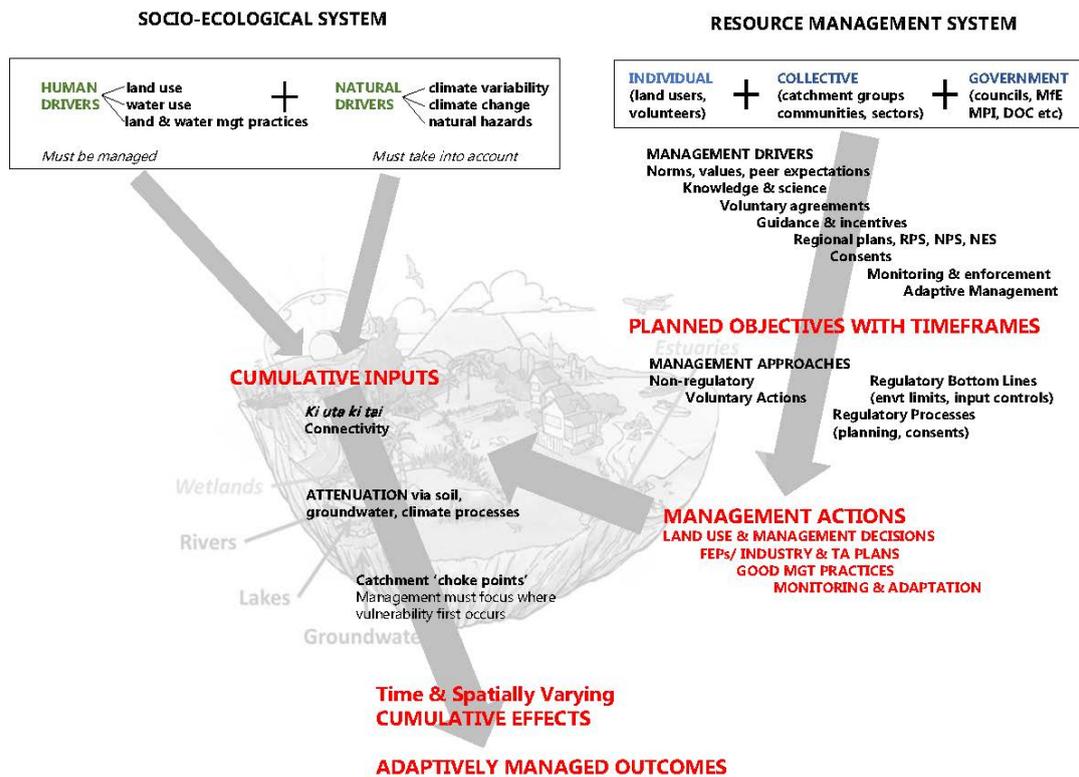
#### 4.3. Science and policy principles guiding panel recommendations

In making our recommendations, we considered these important technical and policy principles:

**CONSISTENCY** – To minimise disruption and additional costs from adapting to new policy requirements, we tried to avoid changes between the draft regulatory instruments and the 2017 iteration, wherever they have not been the subject of submissions, or it has been apparent that they are currently working well.

**SYSTEMS** – We believe the policy infrastructure for managing freshwater and associated natural resources must respond to the inherent complexity of the natural world. For example, human actions in one part of a catchment may have effects a long way downstream. Global experience indicates that freshwater policy is more effective when based on catchment management systems. Using this model, we progressively come to understand the cause-and-effect complexity of the biological, physical, social, economic and cultural factors at play, in order to make effective management decisions. This implies support for understanding those systems informed by science, mātauranga Māori and local knowledge. It implies policy and actions which work at varied scales, but mainly from property to catchment to region and national scales.

Figure 1 shows a catchment systems model, with some of the factors we considered.



Fenemor  
Dec2019

Figure 1: A catchment management systems model

Points in this systems model that are most relevant to the Essential Freshwater proposals:

- **CONNECTIVITY** – Upstream water bodies affect those downstream, therefore managing connectivity is important. Water managers should identify ‘choke points’ or sensitive downstream environments such as an estuary, lake or spring, where tipping points or breaches of limits will first occur, which will not necessarily be in the upstream water body under consideration.
- **SCALE** – Freshwater management should focus at the catchment scale, ki uta ki tai (from the mountains to the sea). Although Freshwater Management Units (FMUs) may be defined for catchments or sub-catchments, planning will also need to account for differences at other scales including among water bodies and freshwater ecosystems.
- **HUMAN IMPACTS** – Human activities (land and water use and their management) are amenable to policy/rules/action, while natural events (mainly climate) can only be factored into management.
- **CUMULATIVE EFFECTS** – Collective management will be needed to achieve catchment scale outcomes because of the cumulative effects of a mosaic of land uses and practices. The

same land uses applied in two different patterns will produce different downstream flows and water quality.

- ENGAGEMENT – Decisions should encourage land user engagement yet recognise the need for regulatory vs non-regulatory action, depending on the catchment and stakeholder setting. Buy-in by land users into sometimes difficult decisions requires a level of trust.
- POLICY SCALE – Some national interventions may be more effective than regional or catchment variations, to avoid the inefficiencies of reinventing the wheel.
- SUBSIDIARITY – This concept (noted by the regional sector) supports a catchment community-led approach. Decisions about land and water management are devolved as closely as practicable to those causing the environmental effects (land user, town or catchment group, region then national). This requires good management practice (GMP), farm planning, and investment in ageing infrastructure, underpinned by limits and regulation, as many submitters advocated.
- INTEGRATION – This approach focuses on integrated outcomes and targets for the attributes most relevant to agreed environmental outcomes (catchment management objectives). The approach should also focus on remedying water bodies in a degraded state, and those with deteriorating trends. In contrast, an overly reductionist and hence inefficient planning approach divides the environment into separate parts, each requiring limits or targets for every attribute.
- OUTCOMES – Implementability and cost-effectiveness of the policy package are critical considerations in the short to long term – including cost, timeframes and a focus on reaching environmental outcomes.

#### 4.4. Summary of proposals – a system view

The two diagrams below (figures 2 and 3) summarise our understanding of the building blocks and of the high-level processes to implement the Essential Freshwater package.

The vision is:

- within five years: material improvement in water quality
- within a generation: restoring New Zealand's waterways to a healthy state.

This vision would be delivered through five aspirations for 2025 and beyond. These are to:

1. Halt water body degradation (hold the line).
2. Begin cleaning up degraded water bodies (reverse past damage).
3. Improve freshwater ecosystem health.
4. Develop catchment-specific solutions.
5. (Later) Improve New Zealand's system of water allocation.

Importantly these initiatives are developed under the korowai (cloak) of Te Mana o te Wai, the Maori concept in which the health of our waters is paramount.

Fig

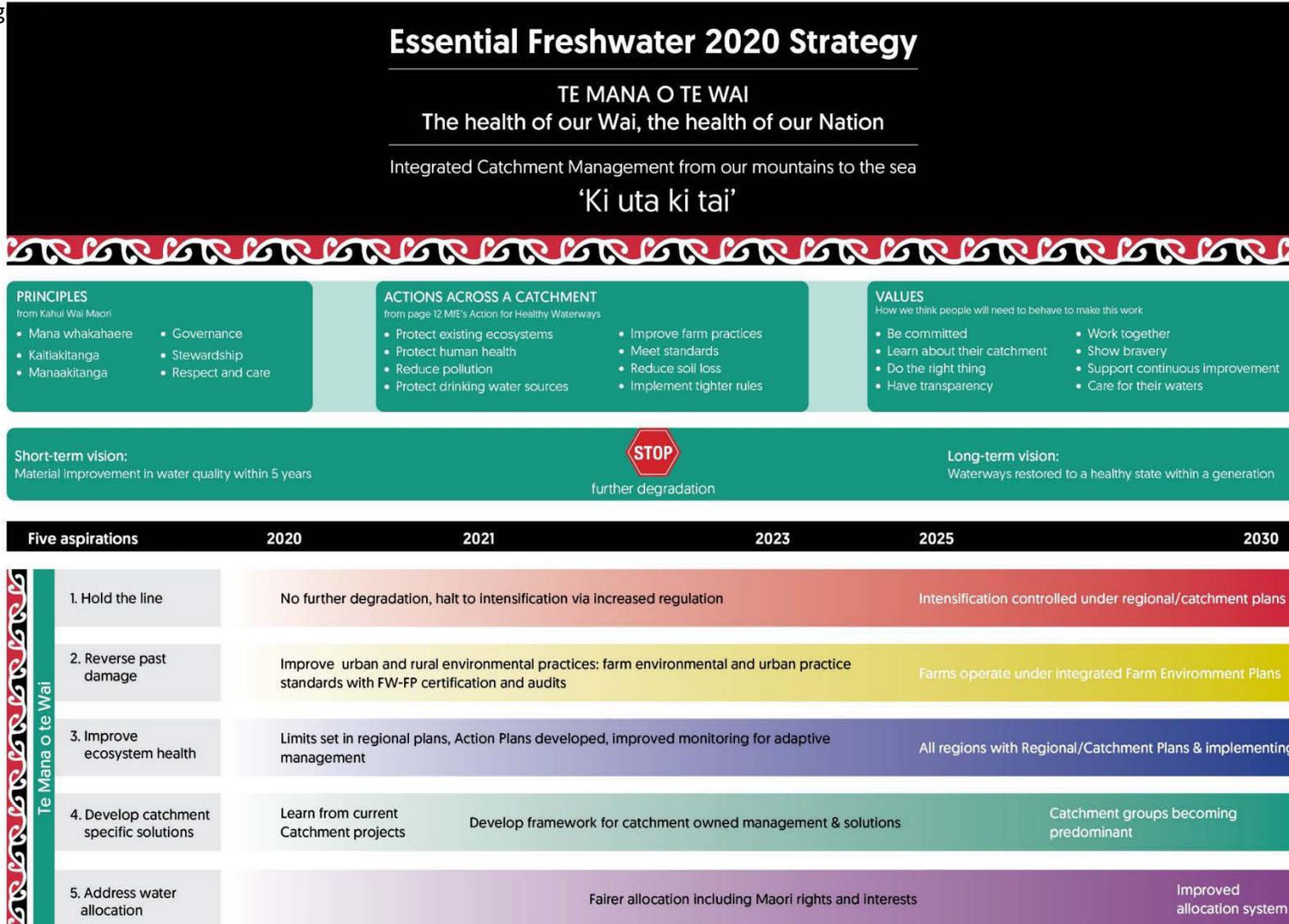


Figure 2: A conceptualisation of the Essential Freshwater initiatives

## Process Model – *Essential Freshwater Proposals*

### Principles for policy design

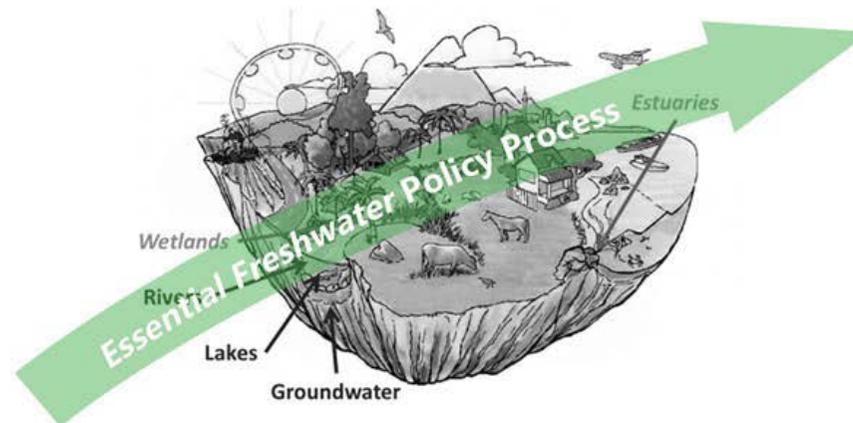
- Design for implementation success
- Outcomes-focussed
- Evidence-based, but precautionary
- Adaptive management
- Systems-focussed (especially catchment scale)
- Subsidiarity principle for implementation

### Vision

1. Stop degradation and improve water quality within 5 years
2. Reverse damage to achieve freshwater healthy state within a generation
3. [Water allocation reforms- to come]

### Current context

- Water body state and trends
- Catchment and policy history
- Institutional, legislative and governance settings (unchanged)
- Status of NPSFM 2014 and 2017 implementation



### Constraints & Opportunities

- Community, sectoral and individual buy-in needed
- Capacity and capability (including cost) to implement
- Feasible transition pathways and timing
- Legislative and planning tools integrated
- Facilitate better Māori participation

Figure 3: A process model for the *Essential Freshwater* policy process

#### 4.5. Limitations

Several constraints and limitations affect the rigour and content of the Panel's recommendations.

First, despite the Ministry's systematic submission analysis software, the level of detail in more than 17,000 submissions (some of more than 300 pages) is that our analysis cannot realistically identify and accommodate every suggestion made. However, Ministry staff will redraft in detail agreed policy proposals, which should take into account suggestions made in submissions. Given the short timeframe for our reporting, the Panel sees its primary role as making recommendations on the overall structure and content of the proposals, rather than attempting detailed redrafting. This report does recommend redrafting certain elements where the revisions may not have addressed all the relevant submission points.

A second limitation raised in many submissions is that achieving healthy waterways depends not only on water quality management: it is also affected by the allocation of 'rights' to use water and land, and potential changes to New Zealand's water allocation regime. The Government proposes to address this in its next tranche of water reform. Allocation comprises the processes not only for authorising water takes, but also for allocating contaminant losses when catchment limits are set on losses such as nutrients. An important allocation issue remaining is addressing Māori rights, interests and responsibilities in water. This affects the extent to which proposals for Te Mana o te Wai can be fully defined, for example governance decisions. Government decisions on water allocation will likely necessitate further amendments to the NPS-FM and the RMA.

#### 4.6. Meanings and descriptions

The Panel agrees that these terms require further clarification in the NPS, and recommends including the following descriptions:

##### Mātauranga Māori

Mātauranga Māori embraces individual, local and collective knowledge, Māori world views, cultural practices, values, perspectives and observations, being traditional, historical and contemporary. Bodies of knowledge can be shared, held collectively by whanau, hapū and iwi. However, there are bodies of knowledge that are held specifically by tohunga (tribal experts) and kaumatua (elders).

##### Ki uta ki tai

Ki uta ki tai is a traditional concept representing kaitiakitanga (guardianship) from the mountains and great inland lakes, down the rivers to hāpua/lagoons, wahapū/estuaries and to the sea. Ki uta ki tai encapsulates the need to recognise and manage the interconnectedness of the whole environment.

##### Water Quality

In addition we note that the term 'water quality' is used rather loosely to encompass water body health and wellbeing, and the achievement of environmental outcomes sought for water bodies. This contrasts with the narrower description of 'water quality' contained within the definition of freshwater ecosystem health contained in Appendix 1A. There is potential for legal uncertainty resulting from such loose terminology. Final drafting of the instruments should include a review of terminology to ensure it is consistent with existing legislation, good planning practice and case law.

#### Definitions of other words

There was general concern from submitters about some of the language in the drafting – including, but not limited to, maintain, degradation, deterioration and improvement. We note that all not specifically defined terms have their ordinary dictionary meaning, and should not present an issue of interpretation. As far as possible, the existing terminology from other previous iterations should be retained.

#### 4.7. A note on drafting suggestions

In parts of this report, the Panel have offered drafting suggestions. Where these are more substantive, we have presented the suggestions in italics, with changes to the consulted drafting indicated with strikethroughs and underlining, where applicable.

### 5. Link between allocation and future work

The Panel recognises that the outcomes sought through these instruments are dependent not only on water quality, habitat and so on, but also on the quantity and levels of water in water bodies, and the flows required to manage ecosystem health. The NPS-FM covers allocation, for example at 3.11, 3.12, 3.19 and 3.20. However, the Panel also understands that substantive discussions of allocation will be the focus of the next part of the Government’s work programme. We understand that this work will focus broadly on the allocation of water and nutrients within the allocation block, and should be considered alongside iwi rights and interests in freshwater.

## Section 2: National direction

### 6. Proposed changes to the National Policy Statement for Freshwater Management

This section deals with findings and recommendations solely related to the draft National Policy Statement for Freshwater Management (NPS-FW).

#### 6.1. Preliminary Sections and Structure of the proposed NPS-FM

##### 6.1.1. Revised NPS-FM structure

The Panel believes that Part 2: Objectives and Policies requires some re-wording. Currently 2.1, although being nominally an objective, reads as a purpose statement rather than an objective. The policies under 2.2 likewise read as a set of objectives and should be renamed as such.

##### 6.1.2. Te Mana o te Wai

The Panel believes that the intended reference to Te Tiriti o Waitangi should be the subject of a separate clause in the NPS, between 1.3 and 1.4.

The Panel considers Te Mana o te Wai a fundamentally important concept that deserves prominence in the NPS.

The Panel believes the hierarchy currently drafted in Te Mana o te Wai is vulnerable to a significant legal challenge. The hierarchy could be viewed as an environmental bottom line, which the Supreme Court has said is part of the purpose of the RMA. We see that the priorities of Te Mana o te Wai overall produce a practice broadly, and arguably, consistent with the priorities of the RMA (human use of water as permitted activity, ensuring no adverse effects). However, in the way it is framed, the application of the bottom line set out by Te Mana o te Wai is much broader than the matters before the Supreme Court when they made that decision, as well as being part of a notably different national instrument.

We have reservations about the way the proposed NPS-FM expresses priorities and obligations (1.5(a)) concerning Te Mana o te Wai. One concerns the relationship between the priorities and the purpose of the RMA, as in the description of sustainable management in section 5(2). Another concerns the relationship between the imperative language of clauses 1.5, 1.6, 2.1, 2.2, 3.2, and 3.5(2) for 'giving effect' to Te Mana o te Wai, and various exceptions to it elsewhere in the drafted NPS. In particular, we note the inconsistency of the first priority, which is read as setting an environmental bottom line, with provisions in subpart 4 which explicitly allow for exceptions to that bottom line. The Panel is also concerned about directive language for 'adopting' and 'giving effect to' the priorities and obligations of Te Mana o te Wai.

The Panel is concerned that these issues would make the proposed NPS-FM vulnerable to challenge.

Further, placement at the front as a single section makes the principle broader, and in some ways weaker than it is intended to be. The principles would be stronger and clearer if they, and the directions in 1.5(b-e), were integrated more clearly into specific required actions by regional councils through the rest of the NPS. As it is, they are left open to interpretation on their own. These would also each be actions which councils would have to give effect to as part of the NPS.

The Panel thinks these sections of the proposed NPS-FM would benefit from revision to clarify the role of Te Mana o te Wai in the management of freshwater resources, reduce the risks, remove the inconsistencies, and reconsider the placement of its operational provisions.

Given the pressing urgency for completion of regional plans, the Panel believes that the current minimum consultation requirements in the NPS-FM as drafted may frustrate that intention – for example, the requirement to engage ‘at every stage of the process’ set out in 3.5(2).

The Panel wishes to emphasise that co-governance, co-management and co-decision making is permissible now under the Act. Although submitters would like this to happen more, and many assert that such activities would be required to fully give effect to the principle of mana whakahaere under Te Mana o te Wai, the proper place for greater requirement of such arrangements would require amendment to the RMA, which is outside the scope of this panel.

We also recommend removing the requirement to produce a long-term vision set out in 3.2(5), (6), and particularly (8), as this is overly bureaucratic, and burdensome. Producing a long-term vision risks spending valuable time and resources on an instrument with potentially little real impact, rather than carrying out regional plans which effectively incorporate clear directions giving effect to Te Mana o te Wai.

The Panel supports the desire expressed by iwi submitters to be involved in monitoring. We view this as supporting consideration of mātauranga Māori in monitoring, and consequentially recommend an amendment to 3.3(2)(c); after ‘management of’ insert the words ‘monitoring, and’ and the word ‘relevant’ before ‘water bodies’.

### 6.1.3. Hydro power exceptions

Clause 3.22 of the draft NPS-FM would apply to:

- ☐ six named hydro-electricity schemes
- ☐ structures in which at least some parts were first operational before 1 August 2019
- ☐ any subsequent maintenance, repair, or like-for-like replacement works.

Subclause (2) would direct that in taking certain actions required by the NPS-FM (setting limits, developing action plans, and making plan changes) regional councils are to consider the importance of not adversely affecting a scheme’s generation capacity, storage and operational flexibility.

Subclause (3) would allow regional councils to set target attribute states below national bottom lines for water bodies of freshwater ecosystems that are adversely affected by structures that forms part of any scheme, to the extent of the impact.

However, subclause (4) directs that councils must still set target attribute states that, to the extent possible, improve any water body or freshwater ecosystem affected by a scheme.

We note that the provision does not itself create an exception. Rather it confers authority for a regional council to do so, within the limits prescribed. In deciding whether to do so, the council would have to consider the importance of not adversely affecting the features of the scheme described in subclause (2).

#### Support for the exception

Some submitters acknowledged the national importance of renewable energy, including in addressing climate change. However, many opposed open-ended exemptions, and asserted that all

efforts should be required to protect and improve natural resources, and hydro operators should be required to mitigate or offset adverse impacts.

Supporters submitted that without it, the resulting reduction of renewable energy generation and flexibility would imperil achieving the country's renewable energy targets and transition towards zero greenhouse gas emissions and a zero-carbon economy. Some also invoked the NPSREG on the national significance of renewable electricity and maintaining or increasing its capacity while avoiding, reducing, or displacing greenhouse gas emissions, through avoiding, remedying or mitigating adverse effects of their activities.

Anticipating submissions stating that small reductions in the impact of hydro schemes would not adversely affect generation capacity and output, some submitters referred to cumulative effects across a scheme and the electricity supply network.

In summary, the main grounds for supporting the exception were that:

- a. It would protect the efficient, flexible and sustainable renewable generation on which the nation's climate change commitments depend.
- b. It would allow for a continued, efficient and reliable supply of electricity, including its significant contribution to peaking and baseload supply by hydro schemes, which are resilient to intermittent wind and solar generation.

These are interdependent.

#### Extending the exception

A few submitters called for extending the exception beyond the six hydro schemes to other schemes, generators and national infrastructure. They stated that limiting the provision to the six schemes would create 'an uneven playing field' that would not be consistent with the scheme of the RMA. It would create a distortion in a competitive market, would not be fair in a competitive sense, and would raise the issue of objectivity in regulation.

Anticipating such a proposal, another submitter opposed it while acknowledging that a significant number of smaller schemes contribute to the renewable electricity supply. Their reason for not extending the scope was that the exception should not be general, but confined to the six largest schemes, the next largest making a much smaller contribution to the total amount of hydro-electricity. The draft NPS-FM narrows and focuses the scope of the exception to just the largest and most important hydro infrastructure, consistent with a balance between addressing the country's climate change obligations (to which the largest hydro schemes make a major contribution), and maintaining and improving freshwater quality and ecosystem health throughout the country.

Other submitters opposed extending the exception, arguing that it should be refined and narrowed, to where the water body is currently below the national bottom line, or where that line cannot in practice ever be met.

#### Opposition in principle

Numerous submitters opposed the proposed exception, and urged that it be omitted from the NPS-FM. In summary, the grounds of opposition are:

- a. Open-ended exemptions should not be provided.
- b. The scale of the adverse impacts of the large hydro schemes require an unimpeded ability to apply a local solution that would allow for all the values of the catchment to be met, and also takes account of considerable impact on other water users.

- c. The exception would fail to give effect to Te Mana o te Wai, and would undermine the objective to stop further degradation and loss.
- d. Allowing exceptions does not effectively balance freshwater needs and climate change obligations.
- e. The exemption would diminish the rights and powers of a wide community of stakeholders in maintaining adequate freshwater quality and quantity.
- f. The exception would remove any compulsion or incentive for key hydro-electricity generators to improve water quality (such as increasing minimum flows and flushing flows), and would perpetuate the current state of affected rivers.
- g. The hydro schemes can responsibly contribute to meeting the goals for the freshwater policy, and the exception is not justified as the transition away from fossil fuels needs to occur within environmental bottom lines to be sustainable.

#### Constraining the exception

Some submitters contended that if the provision for exceptions is retained, its scope should be constrained by stipulating:

- a. That proposals for exceptions should be specific about the particular existing structures and exact locations, and the bottom lines they would apply to; and demonstrate that it is not possible to maintain renewable generation capacity if the bottom line is to be met.
- b. That exceptions should be conditional on making all efforts to improve the river system (such as increasing minimum flows and flushing flows) or if impracticable then provision of offset mitigation to meet all the values of the catchment.
- c. That the requirement to improve the health of the water body or freshwater system should remain and hydro operators must provide mitigation to assist with that.
- d. That the NPS-FM should stipulate that a proposal for an exception is to be assessed against stated criteria, focusing on actions available, and an action plan approach used to implement limits and make improvements where possible.

#### Consideration

The six hydro schemes have high value to the community in providing a substantial component of a reliable, flexible and resilient supply of electricity for both peaking and baseload needs. In total they provide a high proportion of the nation's energy. Relevantly, as renewable operations, they are a major contributor to meeting its climate change commitments.

Even so, and particularly because hydro schemes involve major interference with natural waterways by dams and canals, there is now general acceptance that they should mitigate or offset adverse impacts of their operations on the environment to an extent that does not adversely affect their capability, storage, operational flexibility, and output.

Some submitters challenged the exception provision as an open-ended exemption, lacking requirement for mitigating and offsetting. However, those submissions are not persuasive. Clause 3.22 of the draft NPS-FM explicitly limits exceptions, and stipulates improving a water body or freshwater ecosystem affected by a scheme. That clause responds to a reality of hydro schemes – that they interfere with natural waterways; it responds to their high value to the nation; it constrains the extent of exceptions that may be granted; and it retains a policy of improving any such water body or ecosystem.

We are aware of submissions from other operators of water storage including local authorities and irrigation companies, who may also be affected by bottom line attributes. However, we believe that the number of exceptions should be kept to a minimum, and should reflect the climate change mandate to support renewable energy.

Limiting the exception to the six largest hydro schemes responds to it providing only for true exceptions. The more classes of infrastructure that can benefit from such a provision, the less it becomes an exception. If available for smaller hydro schemes, other electricity suppliers, and other national infrastructure, it would call in question the general application of the bottom lines. A limit is needed.

The selection of the largest hydro schemes for exceptions retains the exceptional nature of the provision. Although in a rhetorical way it could be criticised as unfair to other hydro generators, there is no basis for supposing an exception for the largest schemes would substantively disadvantage the others. Because of the weight of submissions opposing exceptions, we have reviewed the list of schemes in 3.22(1). Waikaremoana is the sixth scheme listed in descending order of capacity. Despite its large water storage capacity, it has so much less generating capacity, it is our opinion that it should not qualify for the exception. The five largest are a reasonable and appropriate policy choice.

Submitters seeking omission of the exception altogether refer to an open-ended exemption, but the terms of the clause do not support that ground. In that they refer to an unimpeded ability to adopt a local solution, the hydro schemes, and the management of the freshwater that they affect, are significant nationally as well as locally and regionally. Even so, the draft provision would confer authority on regional councils to set exceptional target attribute states. There is no impediment to their ability to consider local solutions.

The submissions for constraints on exceptions (such as stated criteria and that exceptions should only be granted where the water body is currently below the national bottom line, or where that line cannot in practice ever be met), deserve consideration in the drafting context. More specific criteria for setting target attribute states could help to align the exception with the purpose of the RMA described in section 5, in terms of how communities are enabled.

#### [Drafting improvements](#)

We suggest a number of amendments to the provision as drafted.

#### **New Policy 14**

To link an existing objective and other provisions (including subclause 3.9(6)(a)(i) with clause 3.22, add to subpart 2.2 a new Policy 14: 'Freshwater resources are managed as part of New Zealand's integrated response to climate change.'

We believe this would be a valuable addition to the instrument.

#### **Amendment to heading to 3.22**

Amend the heading by inserting after the word 'large', the word 'renewable'.

#### **Amendment to cl 3.22(1)**

Amend cl 3.22 (1) by omitting (c), Waikaremoana Power Scheme.

#### **Amendments to cl 3.22(2)**

To ensure subclause 3.22(2) is not limited in application to regional councils setting limits, developing action plans, or changing regional plans, but applies to other relevant actions (such as setting environmental flows and levels, or responding to flow variability or deterioration of water quality, or responding to threat of climate change), amend that subclause by omitting the words ‘When setting limits or developing action plans, and when making plan changes required by’, and substituting ‘When giving effect to’.

Also add to 3.22(2) ‘nor effects on freshwater health and local catchment values’.

### **Amendments to cl 3.22(3)**

We are not persuaded by submissions seeking to extend the exception to other relevant actions (such as setting environmental flows and limits, responding to flow variability, or responding to the threat of climate change).

To ensure decisions are based on consideration of particular structures and locations, we recommend amending this subclause to be more specific about them.

Include suggested criteria for setting target attribute states below the national bottom line, by adding at the end of 3.22(3) ‘including effects on river health and local catchment values’.

### **Amendments to cl 3.22(4)**

Where improvement is not possible, add a requirement for offsetting adverse effects by adding to (4): ‘or, where that is not possible, require offsetting of impacts’.

### **Amendments to cl 3.22(5)**

To clarify the structures to which subclause (5) is to apply, omit from that subclause the words ‘structures that were first operational as’; and after the words ‘part of any Scheme’ insert the words ‘that was first operational’.

## **Section 3.22 including all above changes**

### *3.22 Exception for large hydro schemes*

*(1) This section applies to the following five hydro-electricity generation schemes (referred to as Schemes):*

- a. Waikato Hydro Scheme*
- b. Tongariro Power Scheme*
- c. ~~Waikaremoana~~*
- d. Waitaki Hydro Scheme*
- e. Manapouri Power Scheme*
- f. Clutha Hydro Scheme.*

*(2) Regional councils may set target attribute states that are below national bottom lines in respect of water bodies or freshwater ecosystems that are adversely affected by particular identified structures that form part of any Schemes, to the extent of such an effect, but in no case may the target attribute state be set below the current state.*

*(3) Despite subclause (2), regional councils must still set target attributes states that, to the extent possible, improve any water body or freshwater ecosystem affected by any Scheme or, where that is not possible, require offsetting of effects.*

*(4) When setting target attribute states under subclause (2), and when making plan changes required by this NPS, regional councils must have regard to the importance of not adversely affecting the generation capacity, storage and operational flexibility of a Scheme, and to effects on environmental outcomes to be achieved under clause 3.7(2) for affected water bodies.*

*(5) Subclause (1) only applies to part of any Scheme that was first operational on or before 1 August 2019, including any subsequent maintenance, repair or like for like replacement works.*

#### Advice to Ministers

On the draft provision for exceptions for certain hydro schemes, the Panel offers the Ministers the following advice:

In general the NPS-FM should provide for exceptions for the five hydro schemes along the lines of Clause 3.22, and incorporate amendments along the lines of those listed above.

#### 6.1.4. Maintain or improve

##### Values implicit in NPS-FM compared with RMA

Some submitters questioned whether the NPS-FM sufficiently responds to Part 2 of the Act, which provides for social, economic and cultural wellbeing.

The NPS-FM addresses an important part of the definition of sustainable management and matters of national importance. The King Salmon decision<sup>1</sup> clarifies the ability to set bottom lines. While the Panel notes that improving ecosystem health inevitably places some constraint on other things, we consider that the freedom to do one is limited by the duty to do the other.

The NPS-FM mechanism is there to clarify how to manage water quality and ecosystem health, and is consistent with Part 2 of the Act. We are not persuaded by the submissions that the NPS-FM is legally at fault because it fails to match Part 2. All decisions under the NPS-FM must be a balance of technical expertise, and the accommodation of community values, through regional councils.

##### Allow for strategic trade-offs between water quality and economic benefits?

Submitters, particularly councils, sought the flexibility to make strategic trade-offs with regard to water quality, and were concerned that a hard requirement to maintain or improve would unduly restrict any or all future development that might affect water quality.

Any national policy constrains freedom to have trade-offs. Having been through the detail, we believe there is enough flexibility within the scheme as drafted. This is partially achieved by action plans, and by council discretion about time limits to achieve targets. The Panel does not agree that further economic development should be to the detriment of the environment. We note that the requirement to maintain or improve applies to 'the health and wellbeing of waterbodies and freshwater ecosystems' (Policy 2), a term that needs to be made as an overall judgement across indicators. This includes the state of relevant individual attributes, but is not limited to them individually, requiring a more holistic judgement. This needs to be reflected in references throughout the NPS-FM (Policy 2, 3.9(2)(b), and 3.13 and 3.14).

---

<sup>1</sup> Environmental Defence Society v The New Zealand King Salmon Company Ltd [2014] NZSC38

The Panel's view is that the freedom for strategic trade-offs is limited by the extent that they are consistent with Part 2 of the Act, and processes in accordance with the Act, and with instruments under it. We also note that co-operatives of various kinds, best practice, ingenuity and technical advances, and land use change, may well lead to accommodation for growth and adaptation.

#### [Past and current progress and offsetting](#)

The Panel recognises that many individuals and organisations have taken positive steps towards improving their impact on water quality. We believe it is important not to disadvantage early adopters, as this would minimise incentives for positive behaviour in the future. This applies to individuals, sectors and organisations such as regional councils. The Panel has considered this through its recommendations on individual policy areas.

Particularly relevant are voluntary actions, non-regulatory initiatives, and regional plans that address previous national direction. The Panel believes the focus should be on degraded catchments first, with priority given to these catchments, while recognising past efforts.

#### [Require improvement, rather than maintaining](#)

Some submitters thought that maintaining water quality is not sufficient, and that we should be requiring improvement. The Panel's view is that a national requirement for improvement in all circumstances would be too general, and more specific requirements for improvement are appropriately within the jurisdiction of regional councils. We make detailed comment on this below in respect of clause 3.9 of the NPS.

#### [Spatial and temporal scale at which water quality is maintained or improved](#)

A number of submissions questioned the spatial and temporal scales at which water quality is maintained or improved.

The unit of management prescribed in the NPS-FM is the freshwater management unit (FMU). This may contain part of a water body, or one or more water bodies (rivers, streams, lakes, aquifers, wetlands) or freshwater ecosystems. Discretion is given to regional councils in clause 3.6 to identify their own FMUs for planning and monitoring, and to identify 'representative' monitoring sites under 3.6(4). We take this to mean sites which represent an average state for the FMU or part thereof. This does not prevent regional councils from also selecting other monitoring sites. Indeed, it is desirable in our view to also monitor at sites and times to identify vulnerabilities requiring adaptive management responses. Selecting a representative monitoring site is made more difficult when, for example in the proposed sediment attributes, the River Environment Classification is used, with various REC classes occurring within a single FMU. However we believe this level of decision-making is best left to the discretion of the regional council. In our view, the appropriate spatial scale at which water quality should be maintained or improved is water bodies and their catchments and subcatchments. We note that this is complex and challenging, but the scale needs to be appropriate and manageable, otherwise it misses connectivity between water bodies.

The use of the FMU framing in the NPS-FM needs to be reviewed to ensure that flexibility. This ties to the Panel's recommendations on section 3.6 of the NPS-FM.

In terms of the point in time from which current state should be measured (clause 1.7(2)), the Panel noted a number of suggestions. We do not consider 1991 a realistic reference. This would impose an undue burden on regional councils to establish the state of water quality 29 years ago. Also, if water quality was worse (which would be the case in at least some areas), this date does not allow for halting degradation. While 2011 is more realistic, it still carries risks of uncertainty about data. The

Panel considers 2019 an appropriate date. Attributes were introduced with the NOF in 2014, and five years of monitoring makes it possible to start establishing trends.

#### Provision for under-developed Māori land

There are a number of circumstances where there is undeveloped or under-developed land and the lack of availability of water or assimilative capacity make development difficult. This particularly applies to land that has been returned through a Treaty settlement, where it has been received in a poor state, or where economic development is constrained.

The answer is not straightforward, and is tied to issues of water allocation. The Panel notes that the responsibility lies with the Crown as a Treaty Partner, and cannot be resolved through a national direction instrument. This is outside the scope of the Panel's terms of reference, although we have considered it when deliberating on relevant topics. However, we bring it to the attention of the Crown as a matter of considerable importance.

#### 6.1.5. Functions left to regional councils

We recommend adding a clause in Part One of the NPS-FM to require councils to exercise their functions in a way that records the reasoning for the decision and ensures the public is informed. This is particularly important to address submitters' concerns about action plans. Such a clause may usefully specify the decisions and judgements to which it applies, and be worded similarly to the following:

*“Wherever by or under this national policy statement any function is left to the judgement (or ‘discretion’) of a regional council, to make clear that the judgment (whether to take action or to not take action) should be explicitly and publicly made in a rational and justifiable way, identifying what options, and summarising what advice (which may be from engagement with tangata whenua and communities) and evidence, were considered, and stating the substantive reasons for the conclusion reached, clearly showing that it was based on being the most efficient and effective for achieving the objectives and enabling the policies of the NPS-FM.”*

#### 6.1.6. National Objectives Framework – Part 3 NPS-FM

##### NOF process of Part 3 Subpart 2

Subpart 2 is a refinement of Part CA National Objectives Framework (NOF) of the current 2017 NPS-FM. Apparent changes in emphasis are:

- Reference to the principles and hierarchy of obligations of Te Mana o te Wai in 3.5(2) clarifies the intent of that fundamental concept.
- Changing from setting freshwater objectives to environmental outcomes (3.7(2)), although these must still be set in regional plans as objectives (3.7(5)).
- More explicitly requiring regional councils to identify current state of every attribute (3.8).
- Requiring setting of interim targets if long timeframes for achieving target attribute states are being set (3.9(5)).
- Changing the considerations when setting target attribute states, eg, to include climate change and water body connectivity, but no longer mentioning socio-economic consequences, scale and values trade-offs (for example).
- Explicitly categorising attributes requiring limits to be set in regional plans (appendix 2A attributes) and those where action plans are required (appendix 2B attributes) (3.10(1) and (2)). We note the distinction between limits and action plans appears not to provide for the imposition of mitigations as a method of limit setting in respect of appendix 2A limits (we address this below).

- Action plans are a more prescribed tool in 3.10.
- 3.11 is a clearer prescription of environmental flows and levels, but the definition of these has been removed.
- 3.12 is a clearer prescription of the setting of water take limits.
- Remedying MCI state or trend (in old Policy CB3). This is now broadened to apply to any non-achievement (attribute, environmental flow or level, environmental outcome) but confusingly labelled only as ‘deterioration’ in the heading for 3.14, rather than also non-achievement of target state or outcome.
- For monitoring primary contact sites (3.18), the summer sampling period is now prescribed whereas previously old appendix 5 gave councils discretion to set suitable dates.
- Dropping reference to economic wellbeing as a consideration in water allocation (old policies B2 to B6 carry into the new 3.19 clause, but policy B8 does not, nor does B7).
- More specific requirements for freshwater accounting systems for both freshwater quality and quantity developed from old Part CC to new clause 3.20.
- More specific and prescriptive reporting requirements on freshwater management required of regional councils in 3.21 compared to old policy CB4, including annual data reporting and five-yearly synthesis reporting.
- The Progressive Implementation Programme required under old Policy E1 is not in the new NPS-FM, perhaps because there is now an absolute 2025 delivery date for decisions on regional plans.

## 6.2. Role of attributes in managing for outcomes

Central to the NOF is the concept of adaptive management (see our figure 1). Monitoring selected indicators – labelled in the NOF as attributes – determines what and where management actions should be applied. These actions may be set as limits on resource use, or via action plans to maintain or improve water body health. Below is a summary of the logic of the proposed NOF process:

1. A target attribute state must be identified for every attribute (clause 3.9(1)).
2. Regional plans must include limits on resource use, to achieve target attribute states for appendix 2A attributes (clause 3.10(1)).
3. Action plans must be prepared for achieving target attribute states for appendix 2B attributes (clause 3.10(2)). Limits may also be set in a regional plan for appendix 2B attributes, to achieve target attribute states. Action plans may be non-regulatory.
4. Methods for monitoring progress towards target attribute states must be established (and must include measures of health of indigenous flora and fauna, and mātauranga Māori) (clause 3.13(1)).
5. An action plan must be prepared if there is a decline in any attribute state (clause 3.14(1)).
6. Accounting systems must account for loads and concentrations of contaminants relevant to target attribute states, to (among other things) ascertain if there is over-allocation (clause 3.20(2)). ‘Over-allocated’ means that the exceedance of *any* target attribute state renders a water body (or that part of a water body above a monitoring site) over-allocated. Over-allocation is something that a regional council must phase out (if it exists) or avoid.
7. There must be reporting of monitoring results and assessment of whether target attribute states are being achieved.

Below we outline:

- ☐ the timing constraints on implementing the NOF
- ☐ the detailed components of the process

☐ a clause-by-clause commentary and recommendations on the NOF.

These are followed by recommendations on the values, attributes and targets described in the NPS-FM appendices.

#### 6.2.1. Timing (NPS-FM Part 4)

Many submissions, especially from parties charged with implementing the Essential Freshwater proposals, expressed concern about their ability to meet the timeframes. For the NPS-FM implementation via regional plans, local government considered it impractical to pull back the date for operative regional plans for managing all FMUs across New Zealand from 2030 to 2025.

We understand you wish to see the plans and policy statements in place by 2025; clause 4.1 (2) of the draft NPS-FM refers to ‘final decisions’ being notified no later than 31 December 2025. The Panel understands there will be significant challenges in complying with this deadline, nationwide. The industry that supports the necessary plan changes (planners, ecologists, water quality experts, agriculture experts, mātauranga Māori experts) has a limited capacity to service multiple plan changes nationwide. The necessary engagement with iwi will take time. Even if the RMA is amended and there are more confined opportunities for appeals to higher courts, it will still be possible to challenge decisions on policy statements and plans for an indefinite period that could easily exceed 2025.

Any rules notified in plan changes intended to give effect to the new NPS-FM will have immediate legal effect pursuant to section 86B (3) (a), as they will protect or relate to water. Accordingly the Panel’s view is that rather than imposing the deadline by which all decisions must be issued and appeals resolved, it would be more effective to direct the date by which plans must be notified, so that rules have legal effect by that specified date.

We agree there will be challenges meeting the new deadline, however this is consistent with the greater urgency needed to halt the decline in water quality across New Zealand. One way to achieve it is through better prioritisation of catchments, while proceeding apace with implementing existing regional plans, recognising the good progress already made with planning in some regions.

#### Catchment categories

Figure 4 shows our concept of three categories of catchment which regional councils could consider when prioritising resource investigations and planning efforts:

1. Under-allocated: water quality limits (if they existed) are unlikely to have been reached.
2. Over-allocated but with notional limits likely to be met if current land uses and discharges met GMP standards.
3. Over-allocated but with notional limits NOT likely to be met even if GMPs were implemented. Change in land use will likely be needed.

**CATCHMENT MANAGEMENT SYSTEM: 3 categories of catchment  
[GMP means Good Management Practice]**

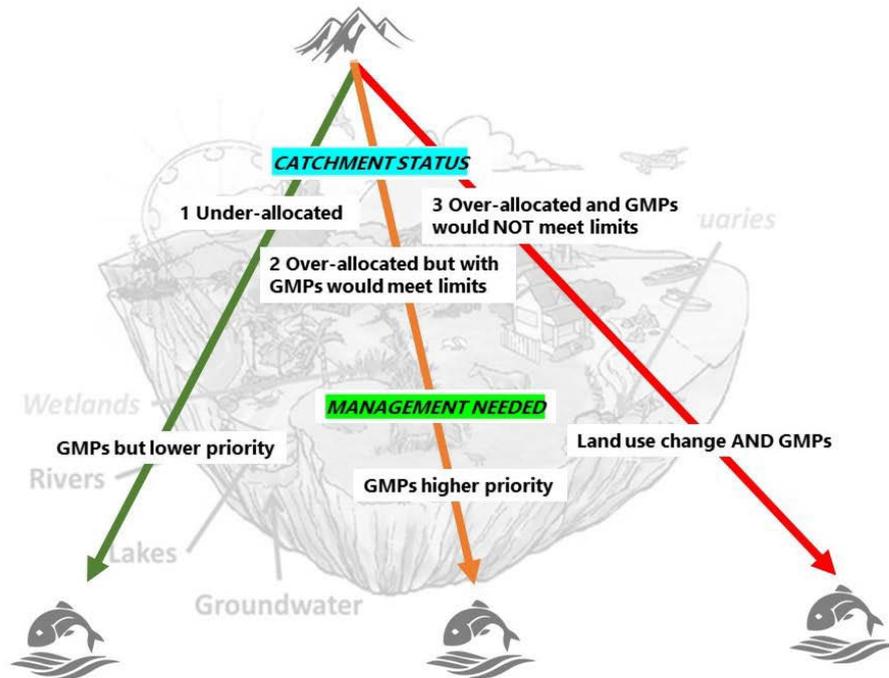


Figure 4: Prioritising catchments for action

Aside from the prioritisation already required of Schedule 1 catchments with excess nitrogen in rivers, we suggest that regional and unitary councils urgently document the major catchments (or FMUs) that are likely to fall into categories 2 and 3 above, including for contaminants other than nitrogen. They should then focus on bringing into effect rules and water quality limits in regional plans by the 2025 deadline. The rules and associated limits will have immediate legal effect in accordance with section 86B(3) upon notification. Resolving appeals by 2025 then becomes less of an issue. Councils may also need to package currently planned sub-regional (or catchment or FMU scale) plan changes into an omnibus plan change, to meet the 2025 deadline.

This would require some revision of NPS-FM Part 4 Timing.

**6.2.2. Clause 3.5 Overview of National Objectives Framework**

With the earlier observations about Te Mana o te Wai, the Panel thinks that, to meet the 2025 deadline to implement regional plans setting water quality limits, efficiencies will be needed with consultation, collaboration and engagement with communities and tangata whenua. Rather than requiring this 'at every stage of the process', regional councils should have discretion to tailor consultation so that they can meet the 2025 deadline.

Many submitters familiar with RMA policy processes were concerned about the new terminology and unnecessary new language in the NPS-FM, which will invite legal debate. Parliamentary drafting processes will resolve some of these.

Redrafting should, as far as possible, aim to use terms that already have an established legal, policy or technical meaning. An example in 3.5 is the new word ‘interventions’ which using RMA terminology would be more appropriately labelled ‘methods’.

We note that as the changes to RMA s7(i) require decision-makers to have particular regard to the effects of climate change, it would be appropriate to require this explicitly in the NPS-FM. We recommend adding a policy, included below as 3.5(3).

Amend clause 3.5 as follows:

*(1) The national objectives framework requires that every regional council identifies values for each FMU in its region; sets target attribute states, and flows and levels, for waterbodies; develops methods ~~interventions~~ (limits specified in rules, or action plans) to achieve the target attribute states, flows, and levels; monitors water bodies and freshwater ecosystems; and takes steps if deterioration is detected.*

*(2) ~~At every stage of the process,~~ Regional councils must engage with communities and tangata whenua to identify values, and to inform the setting of objectives, policies, limits, rules and methods, consistent with ~~in order to give effect to Te Mana o te Wai, as required by clause 3.2.~~*

*(3) Regional councils shall have regard to the effects of climate change when identifying environmental outcomes, target attribute states, environmental flows and methods.*

#### 6.2.3. Clause 3.6

The Panel sees there are many reasons for monitoring, and some submitters raise good reasons to monitor beyond representative sites. Catchments often have sites that are more vulnerable than representative sites, which can act as early indicators of degradation, or nearing tipping points. We recommend adding a new clause to the effect that councils ought to monitor not only representative sites in FMUs but also their own discretionary monitoring of sensitive receiving environments especially (labelled ‘choke points’ in our figure 1). This would improve their understanding of cause and effect, facilitating regional and action planning.

#### 6.2.4. Clause 3.7 Identifying values and environmental outcomes

Clause 3.7 requires Environmental Outcomes to be described as ‘an objective’ in the regional plan. Appendix 1A also introduces five components for ecosystem health, without defining anywhere else the meaning of ‘component’. There may be components for values other than ecosystem health. We think the definition of component should be clear throughout the document – clause 3.7 has one of 40 instances of the word in the document.

While we agree with subclause (4) that attributes should be specific, in order to be replicable and enforceable, we do not consider it necessary to require this in subclause (4). Indeed, some values, including for tangata whenua, may not be quantifiable. We also note that clause 3.7 as drafted does not explicitly refer to the obligation for regional councils to decide on appropriate attributes to monitor progress towards identified values.

Amend clause 3.7:

*(1) Every regional council must identify the values that apply to each FMU, as follows:*

*a) the compulsory values as set out in Appendix 1A;*

- b) any of the other values set out in Appendix 1B that the council considers applies;
- c) any other value and component as the council considers, after consultation with its community and tangata whenua, applies.

(2) For each FMU, or for individual waterbodies or freshwater ecosystems within an FMU, the regional council must describe as an objective in the regional plan, the environmental outcomes that it wants to achieve for:

- a) the value Ecosystem Health, and each of its components; and
- b) the value Human Contact, and each of its components; and
- c) the value~~s~~ ~~of~~ Mahinga Kai or Tangata Whenua;
- d) the value ~~and~~ Threatened Species; and
- e) any other values and components the council identifies.

(3) A regional council must identify relevant attributes for monitoring achievement of environmental outcomes

(4) ~~A regional council may identify additional components and attributes for any of the compulsory values, and components and attributes for any additional values identified.~~

~~(4) Any attributes developed by councils must be specific and, where possible, be able to be assessed in numeric terms.~~

~~(5) Regional councils must include the environmental outcomes identified or described under this clause as an objective in their regional plans.~~

#### 6.2.5. Identifying current attribute states

Clause 3.8 requires councils to identify the current state of each attribute. Consequential upon our recommendations on attributes (below), this applies to any attribute either required or adopted by the regional council from appendix 2 or any other unlisted attribute as relevant to the water body, freshwater ecosystem or FMU.

Some submitters thought that current state must take into account any 'load to come', ie, lags in the hydrological system, and unexercised consents defined as part of the 'existing environment'. We consider lagged contaminants already in the system (eg, increased nutrient levels in aquifers yet to reach downstream rivers) a valid consideration. Unexercised consents are a much more nuanced issue best left to the judgement of the council and legal interpretation. These matters, along with scientific and measurement uncertainties, require precaution. We have recommended some amendment of clause 3.8 to recognise this, while noting that these matters are more relevant to limit setting than current state.

Clause 3.8(1) states that water quantity does not have attributes, when environmental flows and levels (clause 3.11) could really be regarded as attributes. To avoid the implication that councils cannot set attributes for water quantity, we recommend removing the bracketed statement in 3.8(1). In fact, water allocation is nowadays commonly built on the three attributes of water allocation limits, environmental flow limits (previously more narrowly labelled 'minimum flow(s)') and security (reliability) of supply.

Amend clause 3.8:

*(1) Every regional council must identify the current state of each attribute at each relevant monitoring site (~~noting that water quantity does not have attributes – see clause 3.11~~).*

*(2) The current state need not be a single measure but may take into account lags in the hydrological system, natural variability and sampling error.*

*(3) If a regional council does not have ~~complete and~~ scientifically robust data on which to establish the current state of an attribute, it must use its best efforts to identify a current state using the information that is available, including partial data, other relevant information, local knowledge, and expert opinion, taking into account uncertainties and applying the precautionary principle ~~information obtained from other sources~~.*

#### 6.2.6. Setting target attribute states

We have noted the interconnectedness among many attributes and the lack of direct cause-effect linkages between single attributes and the environmental outcomes for each freshwater value. In our view, limit setting to reach target attribute states should only be mandatory for compulsory values (appendix 2A). For other values, regional councils should decide the methods to achieve attribute states, informed by the science for that attribute along with community and tangata whenua views. This is consistent with the action planning approach built into clause 3.10.

Clause 3.9(2) requires that for attributes relating to Human Contact, every target state must be 'above the current state'. For all other attributes, the target state must be 'at or above the current state'. It is unclear why it is proposed that all Human Contact attributes always require improvement. We recommend that this not apply if the current state is already in the A-band. It is unnecessary to expect councils to manage Human Contact attributes to below background levels.

We understand that some environmental outcomes may be unachievable except over a very long period (eg, 80 years in the Waikato for Plan Change 1). In such cases, requiring interim targets every 10 years is unlikely to assist management planning. The Panel considers one 10-year interim target sufficient in clause 3.9(5)(b).

Additionally, the drafting of clause 3.9(1) will require some amendment to reflect new appendices of monitor-only and optional monitoring attributes (new appendices 2C and 2D), which we recommend below.

Amend clause 3.9:

*(1) In order to achieve the environmental outcomes described under clause 3.7, every regional council must set a target attribute state for every relevant attribute in Appendix 2A and 2B, ~~as~~ at each relevant monitoring site identified in clause 3.6(4).*

*(2) Every target attribute state must:*

*a) for attributes relating to the value Human Contact, be above the current state of that attribute as determined under clause 3.8, unless the current state is in the A-band; and*

*b) for all other attributes, be at or above the current state of that attribute as determined under clause 3.8.*

(3) However, if the current attribute state is worse than the national bottom line for that attribute (as identified in Appendix 2A or 2B), the target attribute state must be set at, or better than, the national bottom line (see subpart 4 for exceptions to this).

(4) Every target attribute state:

- a) must specify a timeframe for achieving the target attribute state; and
- b) must be set for relevant attributes for compulsory values, ~~be set~~ in terms of the requirements of Appendix 2A or 2B, as appropriate; and
- c) may be set for any other attribute for any other value(s), including those in Appendices 2C and 2D, ~~be set~~ in any way appropriate to the attribute.

(5) Timeframes for achieving target attribute states:

- a) may be of any length or period; but
- b) if timeframes are long-term, they must include at least a 10-year interim targets (updated at least every 10 years) ~~(set for intervals of not more than 10 years)~~ to be used to assess progress towards achieving the target attribute state in the long term.

(6) When setting target attribute states, interim target states and associated timeframes, regional councils must:

- a) have regard to the following:
  - i. the foreseeable ~~impacts~~ effects of climate change;
  - ii. ~~the long-term vision set under clause 3.2;~~
  - iii. ii. the achievement of the environmental outcomes set under clause 3.7(2);
  - iv. iii. the connections between waterbodies, including sensitive downstream receiving environments;
  - v. iv. the connection of waterbodies and the coastal environment ~~water; and~~
  - vi. any reduction in state that may be anticipated as a result of lags in the hydrologic system and already authorised further discharges;
  - vii. the limits that would be required, in accordance with clause 3.10, to achieve the target attribute states;
  - viii. any implications for resource users, people and communities arising from the target attribute state and associated limits, including implications for social and economic wellbeing
- b) use the best information available at the time; and
- c) not delay making decisions because of uncertainty about the quality or quantity of the information; and
- d) take into account results or information from freshwater accounting systems; and

*e) consider the requirements of all other national directions.*

*(7) If an attribute applies to more than one value, the most stringent target state that is required to achieve the environmental outcomes described under clause 3.7 must be applied wherever that attribute applies.*

#### 6.2.7. Clause 3.10 Identifying limits on resource use and preparing action plans

Clause 3.10 is the fundamental prescription in subclause (1) for setting limits in a regional plan for attributes in appendix 2A, and in subclause (2) for preparing action plans for attributes in appendix 2B. We later recommend moving some attributes into new appendix 2C, which would be mandatory monitoring attributes, and into appendix 2D, which would be optional attributes for monitoring if relevant. Appendix 2C and 2D attributes may have target attribute states set by the regional council but this would not be mandatory – responses to exceedance of such targets would also be up to the regional council.

Clause 3.10 refers to setting ‘limits’. There is a circular reference back to clause 3.10 (presumably subclause (4)) from the definition of ‘limit on resource use’. We have a concern that setting a limit on resource use (eg, land use, water take), by itself, may not be enough to effectively achieve a target attribute state. This depends on whether ‘limit’ could include mitigations such as land management actions. The 2017 NPS-FM used this definition of limit, which is not carried into the proposed NPS-FM:

**‘Limit’** is the maximum amount of resource use available, which allows a freshwater objective to be met.

If this definition is used, it would not include prescribing mitigation measures. Therefore we recommend in subclause (1)(a) that limits must ‘contribute to’ achieving the target attribute state.

In any case we recommend that limits and action plans must reasonably be expected to achieve environmental outcomes which we have indicated with amendments to 3.10(1) and (2).

Some submitters wanted action plans to have statutory force by being included in regional plans. We consider this a barrier to prompt development of action plans and recommend against that. Instead, we have elsewhere drafted a policy obligation that when drafting and implementing action plans, regional council processes allow public input.

Subclauses (1)-(3) state that councils may impose conditions on resource consents. Some submitters rightly point out that this may imply an obligation to grant consents when limits and action plans at some level should preclude granting resource consents.

Amend clause 3.10:

*(1) In order to achieve the ~~target attribute states~~ environmental outcomes through the target attribute states for the attributes in Appendix 2A, every regional council:*

*a) must identify limits on resource use that will contribute to achieving the target attribute state; ~~and~~*

*b) must include the limits on resource use as rules in its regional plan; ~~and~~*

*c) may prepare and publish action plans; and*

*d) may impose conditions on granting resource consents.*

*(2) In order to achieve the environmental outcomes through the target attribute states for the attributes in Appendix 2B, every regional council:*

*a) must prepare an action plan for achieving the target attribute state within the specified timeframe; and*

*b) must publish the action plan; and*

*c) may identify limits on resource use and include them as rules in its regional plan; and*

*d) may impose conditions on granting resource consents.*

*(3) In order to achieve any other target attribute states, a regional council may do any or all of the following:*

*a) identify limits on resource use and include them as rules in its regional plan;*

*b) prepare and publish action plans;*

*c) impose conditions on granting resource consents.*

*(4) Limits on resource use may:*

*a) apply to any activity or land use practice; ~~and~~*

*b) apply at any scale (such as to all or any part of an FMU, or to a specific water body or individual property); ~~and~~*

*c) be expressed as an input control (such as ~~an~~ amount of fertiliser that may be applied) or an output control (such as a volume or rate of discharge); and*

*d) describe the circumstances in which the limit applies.*

*(5) In setting limits on resource use, regional councils must:*

*a) use the best information available at the time (which may include measured, modelled or estimated data); ~~and~~*

*b) take into account results or information from freshwater accounting systems; and*

*c) describe how they expect the limits, together with methods in any action plan, to achieve the environmental outcomes described in clause 3.7.*

*~~(6) Action plans may be published either by including them in a regional plan, or by being published separately.~~*

#### 6.2.8. Clause 3.11 Setting environmental flows and levels

Clause 3.11 updates objective B5 Policy B1 of the existing NPS-FM. 'Environmental flows and/or levels' is defined in the current NPS-FM but not in the current proposal. We suggest the definition be retained.

We also suggest some minor amendments for clause 3.11 which include accounting in subclause (3) for discharges when setting environmental flows and levels, and providing for any connected waterbody including other aquifers (not just surface waters) when managing groundwater levels:

*(1) Every regional council must set environmental flows and levels for each FMU, and may set them for individual water bodies or parts of water bodies in an FMU.*

*(2) The environmental flows and levels must be developed to support achievement ~~on the basis of the environmental outcomes identified under clause 3.7.~~*

*(3) The environmental flows and levels must be expressed in terms of the water level, flow rate and variability of flow (as appropriate to the water body) at which:*

*a) for flows and levels in rivers, the taking, damming, ~~or diverting~~ or discharging of water meets the environmental outcomes for the river and any connected waterbody; and*

*b) for levels of lakes, the taking, damming, ~~or diverting~~ or discharging of water meets the environmental outcomes for the lake and any connected waterbody; and*

*c) for levels of groundwater, the taking, damming, or diverting of water meets the environmental outcomes for the groundwater and any connected ~~surface water~~ waterbody.*

*(4) Clause 3.9(6) applies when regional councils are setting environmental flows and levels.*

#### 6.2.9. Clause 3.12 Identifying take limits

Take limits are defined in the definitions but with a circular cross-reference to clause 3.12.

Relating to our general comment about ensuring consistency of language throughout the NPS, we note that take limits are commonly set for water bodies rather than at FMU scale. We suggest that the definition of 'take limit' be modified to: **take limit** means a limit on the amount of water that can be taken from an FMU, or individual water bodies or parts of water bodies.

We propose some minor amendments for clause 3.12, noting as we did earlier, that water takes are not a sole determinant of environmental outcomes:

*(1) In order to meet environmental flows and levels, every regional council:*

*a) must identify take limits for each FMU, and may do this by setting them for individual water bodies or parts of water bodies in that FMU; and*

*b) must include the take limits as rules in its regional plan; and*

*c) must state in its regional plan whether existing water permits will be reviewed to comply with environmental flows and levels; and*

*d) may prepare and publish action plans; and*

*e) may impose conditions on resource consents.*

*(2) Take limits must be expressed as a total volume or total rate at which water may be taken from each FMU, or from individual water bodies or parts of water bodies in parts of an FMU, and must state the circumstances in which the take may occur.*

*(3) Take limits must be identified at levels that:*

*a) provide for flow or level variability that support achievement of the environmental outcomes for ~~meets the needs of~~ the relevant water body and connected water bodies, and their associated ecosystems; and*

*b) safeguard ecosystem health from the effects of the take limit on the frequency and duration of lowered flows or levels; ~~and~~*

*c) provide for the lifecycle needs of aquatic life; ~~and~~*

*d) provide for the essential health needs of people; and*

*e) ~~take into account~~ contribute to achieving the environmental outcomes applying to the relevant water bodies and any connected water bodies (such as aquifers, ~~and~~ downstream surface waterbodies, and the coastal environment), whether in the same or another region.*

*(4) Clause 3.10(5) and (6) apply when regional councils are identifying take limits.*

#### 6.2.10. Clause 3.13 Monitoring

Monitoring required under clause 3.13 should link to the attributes selected under clause 3.7. We are unsure why monitoring of indigenous flora and fauna is singled out in subclause (2). If this is intended to support the compulsory value Threatened Species, this should be stated. We note that monitoring of threatened species will need to occur in conjunction with DOC, and of mātauranga Māori in conjunction with relevant iwi and hapū, although we have not recommended any change to wording to this effect.

A minor amendment:

*(1) Every regional council must establish methods for monitoring progress towards achieving target attributes states and identified environmental outcomes ~~for values and components~~.*

*(2) The methods must support development and reporting of:*

*a) measures of the health of indigenous flora and fauna; and*

*b) Mātauranga Māori monitoring in the region.*

*(3) Monitoring methods must recognise the importance of long-term trends in monitoring results, and the relationship between results and their contribution to evaluating the environmental outcomes set under clause 3.7(2).*

#### 6.2.11. Clause 3.14 What to do if environmental outcomes are not achieved, or deterioration is detected

Some submitters were concerned that clause 3.14 misses the step of investigating the cause of a declining trend, prior to preparing an action plan. We have suggested an amendment to address this.

Some also sought guidance on what constitutes a trend. We consider this a technical matter best left to scientific judgement on a case-by-case basis. We recognise that the text in 1 and 2 is somewhat repetitive, and may need clarification as to how they work together.

The title for this clause is also misleading as the content refers not only to deterioration but also to non-achievement of desired environmental outcomes.

*(1) If a regional council detects a trend indicating a deterioration in any attribute state, or if it eventuates that an attribute is below the bottom line, or there is a failure to achieve identified environmental outcomes for values or components, the council must investigate the cause. Then, except in cases where clauses 3.23 or 3.24 apply, it must prepare and implement an action plan for halting, and if possible reversing, the deterioration.*

*(2) The action plan must include actions to identify the causes of the deterioration, methods to address those causes, an evaluation of the effectiveness of the methods, and processes for regular review and adjustment.*

*(3) Where a target attribute state, environmental flow or level, or environmental outcome is not being met, the regional council may take any other steps, which may be regulatory (such as making rules or implementing methods), non-regulatory, or both, to assist the ~~improvement of water quality~~ achievement of environmental outcomes, and avoid over-allocation, within defined timeframes.*

#### 6.2.12. Information note at 3.14

The table summarising the NOF attributes on pages 14-15 of the draft NPS-FM is not helpful. We think a table similar to the Recommended Attribute Table in our appendix 3 would better summarise which attributes are subject to which rules.

#### 6.2.13. Clause 3.18 Primary contact sites

Clause 3.18(2) requires monitoring of any site identified in an FMU as a primary contact site. This is in addition to the requirement in 3.6(4)(a) to identify a representative monitoring site in each FMU. Clause 3.18(3) then specifies that monitoring of primary contact (bathing) sites must be weekly between 1 November and 31 March each year. This is a change from the current NPS-FM, which leaves discretion with councils to determine the period of the bathing season.

Some submitters thought that the regional council should have the discretion to determine when their swimming season begins and ends, as this varies across New Zealand, and depends not just on weather but on water temperature. Others pointed out that this requirement imposes significant costs on councils, with remote primary contact sites requiring weekly visits, even though they may be relatively low risk. They suggest allowing discretion to spend scarce funds on remedial actions at higher risk and non-compliant sites, rather than on the extra monitoring required under clause 3.18. We agree. Unless there is a statistical rationale not to do so, the regional council should retain discretion not to sample in any week when river flows make primary contact (mainly swimming)

unlikely, for example during floods or extremely cold weather. We propose reverting to wording similar to that in Appendix 5 of the current NPS-FM.

Some councils are changing from the surveillance monitoring approach implied by Table 23 to a modelling approach based on a relationship with rainfall or river flow and *E.coli* levels, using several years of data. We believe that monitoring is still required to support and improve modelled projections, and the modelling approach is not precluded by clause 3.18 if the more flexible approach suggested above is adopted.

Submissions also suggest referencing the Ministry's 2003 guidelines in clause 3.18, as these fully describe responses to breaches of limits. We understand this includes clarifying that district health boards or district councils (not regional councils) are responsible for notifying the public when exceedances have been found through the regional council sampling.

Amend clause 3.18:

*(1) Regional councils must manage primary contact sites for:*

- a) their risk to human health; and*
- b) their suitability for the activities that take place in them, in terms of, for example, the absence of slippery or unpleasant weed growth, and the visual clarity of the water.*

*(2) For every primary contact site in an FMU, regional councils must:*

- a) identify the date range or date ranges and flow conditions within which it is or would be used for primary contact; and*
- b) identify a sampling site or sites representative of the primary contact site or a number of primary contact sites.*

*(3) For each sampling site, and within the date range or date ranges and flow conditions identified in (2) Between 1 November and 31 March each year, every regional council must undertake weekly sampling for E. coli, unless:*

- a) a single sample from the sampling site is greater than 260 E. coli per 100 mL, in which case:
  - i) sampling frequency must be increased to daily, where practicable; and*
  - ii) the regional council must take all reasonable steps to identify potential causes of microbial contamination; or**
- b) a single sample from the sampling site is greater than 540 E. coli per 100 mL, in which case the regional council must ~~take all reasonable steps~~ to notify relevant health authorities and territorial councils so that the public, and keep them are immediately informed that the site is unsuitable for primary contact, until further sampling shows a result of 540 E. coli per 100 ml or less.*

#### 6.2.14. Clause 3.19 Water allocation

Clause 3.19 simplifies the policies B2 to B6 of Objective B5 of the current 2017 NPS-FM, but excludes policy B8, which allows councils to take into account economic factors, and policy B7. For

consistency, it could cross-reference the criteria in clause 3.9(6). However we have not tracked such a change here. We have assumed that the simplification of 3.19 is a consequence of the decision to address water allocation in more detail in a subsequent phase of the Essential Freshwater programme.

#### 6.2.15. Clause 3.20 Accounting systems

Clause 3.20 elaborates on freshwater accounting requirements in Part CC of the current NPS-FM. We note that in subclause (5) relating to freshwater quality accounting, the methodology states ‘where possible’. However, some contaminants are not ‘conservative’, ie, they may transform into other chemical compounds, or degrade (eg, pathogen die-off). So freshwater accounting requirements may be better met through catchment or water body modelling. However, no change to 3.20 is necessary.

#### 6.2.16. Clause 3.21 Assessing and reporting

Clause 3.21 prescribes annual and five-yearly reporting by regional councils.

Some submitters were sceptical about the practicality, defensibility and value of the requirement in subclause 4(b) to provide a single ecosystem health score, particularly at the scale of an FMU. We have similar doubts, but understand the Cawthron Institute is developing such a scoring system, which may prove useful.

We recommend only the deletion of reference to the long-term vision for waterbodies, consistent with our recommendation on Te Mana o te Wai, and the amendment of 3.21(4)(b) to read:

*b) where practical, provide a single ecosystem health score (by reference to the five components of Ecosystem Health) for each FMU in the region.*

### 6.3. Compulsory and other values

Appendices 1A (Compulsory values) and 1B (Other values that must be considered) describe the water body values which must be considered when implementing the NOF process.

Four compulsory values are proposed: Ecosystem health, Human contact, Threatened species and a relevant tangata whenua value.

#### 6.3.1. Compulsory values (Appendix 1A)

The 2017 NPS-FM is structured so that Appendix 1 prescribes two compulsory national values (Ecosystem Health and Human Health for Recreation). The proposed NPS-FM replicates this in Appendix 1A with the addition of Threatened Species and Mahinga Kai.

##### Ecosystem Health

The Panel supports the five components of freshwater ecosystem health (FEH). However, this does not mean that we recommend each component must have an attribute, nor that a report card scoring each component would adequately represent ecosystem health.

It is also important to recognise that FEH is an environmental outcome or state, whereas a DPSIR system model (Driving force – Pressure – State – Impact – Response) would suggest that monitoring not just state but stressors/drivers like land use, land use change and management practices is also

important, especially to be able to respond in advance of long-duration impacts. We do not recommend additional attributes but simply note that there will be many more attributes than those listed in the NPS-FM which may be relevant depending on the management situation facing a particular catchment or FMU. This is of course also the precise rationale that councils have the freedom to add additional attributes relevant to their catchments beyond those mandated by the NPS-FM.

If the purpose of monitoring a particular attribute is to trigger actions, an understanding of attribute causation on FEH is needed. Monitoring data already show that it is possible to have a good state of FEH when some attributes may – including due to naturally occurring processes – not be at an individual level labelled ‘good’.

Correlated attributes do not mean causation, nor do they necessarily represent a sole driver of an environmental outcome. Correlated attributes may actually be inter-related, so monitoring both may be unnecessary.

FEH is a long-run water body state, which is why we consider integrative attributes like MCI and mahinga kai useful measures, whereas attributes like nutrient levels could be described as intermediate indicators of ecosystem health.

We also note that there are riverbed sources of contamination (eg, *E. coli*, sediment), not just water column sources represented by water quality attributes.

Primary contaminant categories for management are nutrients, sediment and pathogens, but aquatic habitat factors such as stream shading and presence of pools are also a strong influence on FEH. Primary issues vary from one catchment or water body to the next, so managers need to focus on the particular issue in each.

In the Appendix 1A description of FEH, ‘habitat’ is defined in a way which only applies to rivers and lakes, so we recommend broadening its description so that it applies also to wetlands and aquifers.

‘Water body’ includes a river, lake, wetland or aquifer. ‘Flow’ is relevant mainly to rivers, whereas ‘level’ is more appropriate as a management control for lakes, wetlands and aquifers (eg, the RMA s30(1)(e) refers to ‘levels or flows of water’). So the NPS-FM should use the terminology ‘levels or flows’ where relevant, for example under 2 Human Contact, which may apply also to lakes.

#### [Mahinga Kai](#)

The Panel has concerns that the two separate mahinga kai definitions from the 2017 NPS-FM may raise questions about whether one or both have to apply. This should be clarified in the definition. Alternatively, the two definitions could be refined for consistency with the wording of other definitions in Appendix 1A of the draft NPS, which allows either or both of the current definitions to apply in a water body. The current definitions will also require careful guidance to make clear to councils how they can account for this value. We consider the definitions should refer to water bodies rather than FMUs as this is likely more meaningful for iwi and hapū. We also note that diadromous fish species are not present in a water body during all life stages so have recommended deletion of that reference in the definition.

We wish to highlight the importance of considering capacity and capability in regard to mahinga kai. The number of practitioners both in councils and te Ao Māori is finite, and often the individuals with knowledge of mātauranga able to identify and evaluate the Mahinga Kai value are already busy. Requiring councils to consider this value for all individual water bodies in a region may not be easily achievable within the timeframe. As compulsory values commit councils to review all water bodies

for the value, there is the risk of creating a significant bottleneck. One possible option is incorporating a time setback for staging identification and review of water bodies, based on importance of this value to iwi and hapū in particular water bodies.

Despite these concerns, the Panel recommends that the Māori value of Mahinga Kai be adopted as a compulsory value. In part this is due to the value being the preference of Kahui Wai Māori, as other Tangata Whenua values have yet to be developed and have not been consulted on. The elevation of Mahinga Kai to the status of compulsory value (Appendix 1A) not an 'Other Value' (Appendix 1B) would also be consistent with the elevation of Te Mana o te Wai as an overarching principle. We believe there is significant value in including attributes for Mahinga Kai to improve and drive community action. As FEPs become more widely implemented, policy settings would drive greater connectivity between farm owners and tangata whenua as sites are identified and monitored.

### Threatened Species

There was support from submitters for adding the Threatened Species values to Appendix 1A.

Some submissions pointed out that it is not an RMA function of councils to manage threatened species *per se*, but it is a council function to manage ecosystems and biodiversity. The attribute over which councils have control is riparian and aquatic habitats, as reflected in clause 3.6 (3c) (location of habitats of threatened species). Proposed revised wording in Appendix 1A(3) clarifies council responsibility. Classes of threatened species are not described in the text but would logically include any species dependent on water bodies (fish, birds, plants, insects).

#### 6.3.2. Summary of changes

Below are tracked changes to Appendix 1A, showing how our recommendations above may affect the section:

##### *Appendix 1A: Compulsory values*

##### *1 Ecosystem health*

*In relation to a water body in an FMU, ecosystem health refers to the extent to which the FMU supports an ecosystem appropriate to the type(s) of water body (eg, river, lake, wetland or aquifer).*

*There are five biophysical components that contribute to freshwater ecosystem health, and it is necessary that ~~all of them~~ they are managed collectively. They are:*

*Water quality – the physical and chemical measures of the water, such as temperature, dissolved oxygen, pH, suspended sediment, nutrients and toxicants.*

*Water quantity – the extent and variability in the level or flow of water.*

*Habitat – the physical form, structure and extent of the water body, and its connectivity with land and other water bodies~~its bed, banks and margins, riparian vegetation and connections to the floodplain.~~*

*Aquatic life – the abundance and diversity of biota including microbes, invertebrates, plants, fish and birds.*

*Ecological processes – the interactions among biota and their physical and chemical environment such as primary production, decomposition, nutrient cycling and trophic connectivity.*

*In a healthy freshwater ecosystem, water quality, quantity, habitat and processes are suitable to sustain appropriate indigenous aquatic life, as would be found in a minimally disturbed condition (before providing for other values).*

*In a healthy freshwater ecosystem ecological processes are maintained, there is a range and diversity of indigenous flora and fauna, and there is resilience to change.*

## *2 Human contact*

*This refers to the extent to which water bodies in an FMU support people being able to connect with the water through a range of activities such as swimming, waka, boating, fishing, harvesting mahinga kai, and water skiing, in a range of different flows or levels.*

*Matters to take into account for a healthy water body for human contact include pathogens, water clarity, deposited sediment, plant growth (from macrophytes to periphyton to phytoplankton), cyanobacteria, ~~and~~ other toxicants and litter.*

## *3 Threatened indigenous species*

*This refers to the extent to which an FMU that supports a population of threatened indigenous species has the conditions necessary to support the continued presence and survival of the threatened species. ~~The basic conditions relate to aquatic habitat, water quality, and flows or water levels, but may also include specialised habitat or conditions needed for only part of the life cycle of the threatened species.~~ In FMUs that support a population of threatened species, the extent and quality of aquatic and riparian habitat for that threatened species is not reduced. This includes water quality, flows or water levels and aquatic and riparian habitat for specific life stages.*

## *4 [Placeholder for possible Mahinga Kai (described below) or Tangata Whenua value]*

*This refers to the extent to which the FMU supports mahinga kai, being either or both of the following:*

***Mahinga kai*** – Kai are safe to harvest and eat.

*Mahinga kai generally refers to indigenous freshwater species that have traditionally been used as food, tools or other resources. It also refers to the places those species are found and to the act of catching them. Mahinga kai provide food for the people of the rohe and these sites give an indication of the overall health of the water. For this value, kai would be safe to harvest and eat. Transfer of knowledge would occur about the preparation, storage and cooking of kai. In water bodies ~~freshwater management units~~ that are used for providing mahinga kai, the desired species are plentiful enough for long-term harvest. ~~and the range of desired species is present across all life stages.~~*

***Mahinga kai*** – Kei te ora te mauri (the mauri of the place is intact).

*For this value, freshwater resources would be available and able to be used for customary use. In ~~FMUs~~ water bodies that are valued for providing mahinga kai, resources would be available for use, customary practices able to be exercised to the extent desired, and tikanga and preferred methods can be practised.*

### 6.3.3. Other values (Appendix 1B)

Little change is proposed to Appendix 1B. Mahinga kai values are deleted as they are now included as a Compulsory Value. Appendix 1B of the proposed NPS-FM contains the wording of all other values as currently included in the 2017 NPSFM, so there is no proposal to change that. However in some copies, the last paragraph under Transport and Tauranga Waka has been omitted. Assuming this is unintentional, we consider it is appropriate to include.

## 6.4. Attributes

We note the importance of modelling, and flexibility to enable councils to use models. They save costs and in some cases time, and some models can be highly accurate.

Some flexibility is required in case attribute states decline in the short term due to decisions which are part of remediation plans. For example, gorse adding nitrogen while being used as a nursery plant for native riparian planting, or sediment increasing as streams erode to a more naturally formed path under new bush cover.

We suggest renaming 'Toxicity' attributes as 'Species Sensitivity', due to the negative connotations of toxicity.

The Panel is in favour of promoting a greater range of holistic outcome indicators among the attributes framework, although we recognise the importance of monitoring discreet inputs.

### 6.4.1. Attribute framework

In the proposed NPS-FM, attributes are divided into two categories:

- ☐ those requiring limits (Appendix 2A, tables 1-12 containing 12 attributes, of which five apply to lakes and eight to rivers)
- ☐ those requiring action plans (Appendix 2B, tables 13-23 containing 11 attributes, of which five apply to lakes and eight to rivers).

Appendix 2C is explanatory material for the limit-setting attribute Suspended Fine Sediment (Table 10) and the action plan attribute Deposited Fine Sediment (table 18).

The following attributes have been carried over from the 2017 NPS-FM:

- Phytoplankton – lakes (table 1 proposed NPSFM)
- Periphyton – rivers (table 2, with minor narrative amendments)
- Total nitrogen – lakes (table 3)
- Total phosphorus – lakes (table 4)
- Ammonia (toxicity) – rivers (table 7, with lakes now removed, possibly in error?)
- Nitrate (toxicity) – rivers (table 8).
- Dissolved oxygen (below point sources) – rivers (Table 9, and new table 19\*, both with 'mean' added to '1-day minimum', probably in error)
- *E. coli* – lakes and rivers (table 11, and new table 23\*\* for primary contact sites in lakes and rivers)
- Cyanobacteria – lakes and lake-fed rivers (table 12).

The following three attributes are in the proposal to be added to Appendix 2A as attributes requiring limits:

- Dissolved inorganic nitrogen – rivers (table 5)
- Dissolved reactive phosphorus – rivers (table 6)
- Suspended fine sediment – rivers and streams (table 10 and Appendix 2C)

The following 10 attributes are in the proposal to be added to Appendix 2B as attributes requiring action plans:

- Macroinvertebrates – wadeable streams and rivers (table 13 for QMCI and MCI plus table 14 for ASPM)
- Fish – wadeable rivers (table 15)
- Submerged native plants – lakes (table 16)
- Submerged invasive plants – lakes (table 17)
- Deposited fine sediment – wadeable rivers and streams (table 18 and Appendix 2C)
- Dissolved oxygen – rivers (table 19\* for rivers year-round)
- Lake-bottom dissolved oxygen – lakes (table 20)
- Mid-hypolimnetic dissolved oxygen – seasonally stratifying lakes (table 21)
- Ecosystem metabolism – rivers (table 22)
- *E. coli* – primary contact sites in lakes and rivers during the bathing season (table 23\*\*)

We propose adding two new levels of attributes (Appendices 2C and 2D). New Appendix 2C contains attributes requiring monitoring, but an action plan is not mandatory if bottom lines are breached, because there is insufficient rigour to these attributes and their bottom lines. Appendix 2D contains a non-exhaustive list of attributes for optional monitoring if considered relevant by the council. For example, some of the components of FEH without any current attributes (eg, habitat) are recommended to be included in Appendix 2D. This approach would provide a more comprehensive assessment of achievement of the compulsory and other agreed values, taking into account the specific characteristics of the FMU, catchment or water body. Those attributes may contain triggers for action, but the need for and substance of such action would be at the discretion of the regional council, rather than being a mandatory action plan.

This could be thought of as a streamlined version of Section 32 of the Act, and connects well to Section 35. This would not be a random grab-bag of attributes, but a collection of possible measures for values and Ecosystem Health components.

Although some councils proposed that urban streams be exempt because of compliance difficulties, we consider the exemption within 3.24 a more appropriate method for addressing those challenges.

We agree that Appendix 4 to the NPS-FM is useful, but recommend replacing both references to 'Freshwater Management Unit' with 'freshwater ecosystem' for consistency with the wording of clause 3.24.

Many submitters stated that monitoring protocols such as sampling frequency and statistical metrics should be included for every attribute. We have recommended specific monitoring metrics for most tables, but also that monitoring protocols be documented more exhaustively in guidance material for implementation of the National Objectives Framework (ie, the NPS-FM).

Some councils were concerned at the onerous annual reporting requirements in clause 3.21(1) implied by the much larger range of attributes now proposed. One suggestion was that reporting requirements should be based on risk. Another was that annual reporting be limited to (1) degraded streams only, to determine if intervention is working; (2) automated analysis and reporting systems; and (3) primary contact sites for human health. We favour councils having some discretion while

making all data publicly available, for example through the LAWA and/or council's own website. There is a risk that the NPS-FM requires unbalanced expenditure on monitoring and reporting, compared to efforts to improve the environment.

It is our opinion, based on our conceptual catchment management approach (see figure 1), that rather than developing action plans to improve specific attributes individually beyond their target grades, action plans should seek overall achievement of agreed catchment objectives (using adaptive management where applicable). This would include the compulsory values of Ecosystem Health, Human Health, Threatened Species and Mahinga Kai – that is, catchment action plans rather than attribute action plans. On review of 3.14 we believe the current wording allows this flexibility.

#### 6.4.2. Limit setting attributes

##### Phytoplankton (lakes)

Phytoplankton is a useful integrative measure of plant growth in lakes, similar as an outcome measure to periphyton in rivers. We support its retention as an attribute.

Some submitters note that chlorophyll- $\alpha$  is not always a useful indicator of lake phytoplankton blooms, nor does it correlate well with TN and TP (tables 3 and 4 of the NPS). They suggest removing the Annual Maximum limits, and requested moving table 1 to Appendix 2B. Despite these concerns, we see a need for consistency of approach between lake and river attributes. Below we recommend moving the DIN and DRP attributes to Appendix 2B, while retaining the periphyton attribute table 2. For lakes, consistency of rationale would support moving TN and TP similarly, while retaining phytoplankton table 1.

A minimum number of samples is necessary to calculate a statistically meaningful median and maximum. Some submissions suggested monthly sampling or a rolling median (NIWA). We have insufficient information on seasonal changes in lakes to understand the implications of, for example, irregular sampling periods. We are also conscious of the costs of monthly sampling, especially when a region may have many lakes to monitor. In the interim we recommend Table 1 should specify a minimum number of samples for calculating median and maximum, but expert input is needed on what that number should be.

##### Periphyton (rivers)

The periphyton attribute table is slightly modified from that in the 2017 NPS-FM: wording for grades C and D has been changed, the 2017 version explained the REC classes for productive class, and the monitoring metric is now rolling median over five years, not three. We assume the latter change reflects the larger datasets for periphyton now available to regional councils, so we support five years. NIWA was concerned about how the 8 per cent and 17 per cent exceedance metrics would apply to a rolling median, but we assume this would be based on individual samples so have not recommended a change. Issues with monitoring metrics will require guidance outside the NPS-FM tables, but each table should include the basic criteria.

STAG recommended removing the productive class but the proposal has retained it. Some submissions supported this because it accommodates catchments with soft sedimentary geologies. Others support its removal if the default nutrient criteria table, included in the STAG report but not in table 2, is included and progressively refined. At this stage we have retained the productive class as proposed. If retained, we suggest the description of it in the 2017 NPS-FM should probably be reinserted.

One submission notes that some councils are using the RAM2 method of Biggs and Kilroy (2000) which involves monitoring percentage cover of various types of periphyton at sites where sampling

for chlorophyll- $\alpha$  is of limited value. In those regions, thick mats of periphyton are less common. The RAM2 method matches the previous Ministry guidance for the 2014 and 2017 versions of the NPS-FM. Because of cost and relevance, we suggest including monitoring percentage cover as an alternative. Some submitters also suggest including benthic cyanobacteria cover. The option of assessing percentage cover would also overcome the issue of health and safety risks, which could limit biomass monitoring to wadeable rivers only. However expert advice would be needed to set equivalent RAM2 limits in table 2.

#### Total nitrogen and total phosphorus (lakes)

We recommend that tables 3 and 4 should, for consistency of approach between rivers and lakes, be moved to Appendix 2B as action plan attributes. This is for the same reasons as for DIN and DRP in rivers, below.

Some submissions suggested an exclusion from grading under tables 3 and 4 if the lake is shown to be strongly P-limited (table 3) or N-limited (table 4). We are unsure of the merits of this, so have not made a recommendation. However, this variability in N and P status across a diversity of lakes is an additional reason why we recommend these lake nutrient attributes be in Appendix 2B, with more flexibility for deciding management responses.

The same statistical protocols should apply as in table 1.

#### Dissolved inorganic nitrogen and dissolved reactive phosphorus (rivers)

We note that in a simple sense, there is an optimal level of nutrients to sustain freshwater ecosystem function (ie, neither too much nor too little nutrient). Therefore attempting to reduce nutrients everywhere may not improve FEH everywhere, nor be economically sensible.

We also observe that there is a justifiable mismatch between the drinking water N limit (11.3ppm NO<sub>3</sub>) and a FEH N limit (1ppm DIN proposed). Different effects (human vs ecosystem) are being managed in each case. In addition, hydrological understanding is fundamental for catchment (and water body) management – at low flows, alluvial streams' baseflow is mainly from groundwater, so managing stream nitrogen will entail managing groundwater nitrogen adjacent.

The Panel acknowledges that eutrophication caused by excessive nutrients is an ecosystem health condition that must be managed. However, many submissions challenged the science underpinning the proposed national bottom lines for DIN and DRP, based on lack of correlation of these attributes with ecosystem health measures such as Macroinvertebrate Community Index (MCI). Eutrophication and MCI are driven by multiple factors, including flow regime, nutrient concentration and physical habitat which are all variable between catchments. Despite the STAG report supporting DIN and DRP bottom lines, they do concede (p 55) that nationally correlative relationships do not always translate to site-specific thresholds. We were also advised that there was not unanimous support from STAG members to the DIN and DRP proposals.

Examples were provided in submissions of groundwater-fed streams, such as spring-fed lowland streams across New Zealand, where MCI or fish IBI indicate a healthy ecosystem, yet DIN or DRP are below proposed bottom line limits. Other examples were soft-bottomed streams and rivers with similar ecosystem function. Eutrophication in those streams is dominated by plants rooted in the streambed and banks, and those plants take up nutrients mainly from the sediment, not the water column. In those situations, a more effective management option is limiting sediment inputs, using shade and changing physical habitat to improve ecosystem health.

Some submitters noted that as the primary ecosystem health effect of high nutrients is periphyton (algal) growth, the periphyton attribute already addresses this effect. However this is not the case for soft-bottomed streams, as in many North Island catchments, where periphyton cannot establish.

We note that the preferred approach of the Land and Water Forum in 2016 was “that the NPS-FM should have a requirement to set in-stream concentrations for dissolved inorganic nitrogen (DIN) and dissolved reactive phosphorus (DRP), as objectives in regional plans, to support the existing periphyton attribute in Appendix 2 of the NPS-FM”. The STAG report (p26) has a table of default nutrient concentrations TN and DRP, corresponding to the periphyton grades A-C, although they caution against using it at the level of regulation without further peer review. STAG has subsequently produced another report summarising the ‘weight of evidence’ approach to support their recommendations for DIN and DRP. The further STAG report was not available to the Panel.

Setting nutrient (DIN and DRP) attribute bottom lines as limits means that remedial and preventative catchment actions may be needed in situations where ecosystem health as judged by other attributes is nevertheless acceptable.

The NIWA submission suggested that target DIN and DRP limits should only apply if target ecosystem health attribute states are not being achieved.

There were various other options suggested for addressing these concerns, encapsulated as those suggested by LGNZ:

- Remove the DIN and DRP tables; or
- Identify nitrogen and phosphorus in the NPS-FM as drivers of eutrophication, and require limits to manage for eutrophication (as in 2017 NPS); or
- Where the nutrient concentrations are greater than the proposed national bottom lines, regional councils must follow a process to ensure improvements in overall ecosystem health; or
- Exempt spring-fed and soft-bottomed streams/rivers to allow setting a DIN or DRP limit greater than the national bottom line, provided there are clear plans to improve the overall ecosystem health outcomes (the latter option could include managing nitrogen via the nitrate toxicity attribute).

We were also concerned about the validity of setting separate nitrogen and phosphorus limits when both nutrients are known to contribute together to eutrophication, along with others such as potassium. This is evidenced by science (including in planning and Environment Court hearings) indicating that N-limited streams are less sensitive to increases in phosphorus, and conversely with P-limited streams. Therefore the management focus should mainly be on the limiting nutrient. A STAG representative pointed out to us that the links are complex (for example, nutrient limitation in a stream may flip during a year) but that STAG’s separately proposed limits for N and P are a conservative approach aimed at reducing nutrient losses across New Zealand.

We note that consideration of socio-economic consequences of proposed limits was expressly outside STAG’s brief. We also agree with the comment in the Discussion Document (p 46) that: “we need to understand more about the ecological benefits of limiting nutrients, how this varies between water bodies, and what impacts the proposed bottom lines would have...” which is why we have put considerable thought into the proposed DIN and DRP attributes.

Multiple stressors influence ecosystem health (eg, flow, temperature, sediment, nutrients, habitat) through direct and indirect pathways. Achieving better outcomes will usually require a variety of

actions suited to the local context. The importance of limiting nutrients will vary significantly, so we consider a national limit with such significant socio-economic costs is unlikely to be an efficient regulatory solution.

For DRP, as for DIN, many submissions were concerned about both the implications of setting a national DRP limit, and the choice of 0.018 mg/l as the median bottom line. Some 30 per cent of monitored river sites exceed this threshold. The proposed 0.018 mg/l bottom line for DRP in rivers compares with 0.05 mg/l for TP in lakes (table 4), and we understand a reasonable assumption would be for DRP to be about half of TP. This comparison raises a question relating to connectivity between river and lake limits, ie, whether the same level of precaution is reflected in each limit.

The draft RIS suggests that most North Island rivers would be covered under the exemptions policy of clause 3.23, because they have naturally high phosphate levels. Submissions suggested that DRP concentrations are showing an improving trend in many rivers, suggesting that existing land management actions are having a positive impact.

We have insufficient technical justification to adjust the band or bottom line limits in table 6.

However, given the above issues, the Panel recommends moving the DIN and DRP attribute tables from target-setting attributes (appendix 2A) to appendix 2B as action plan attributes. This allows consideration of catchment- and water body-specific variability. We note that the action plan needs to drive overall improvements in ecosystem health, rather than simply drive reductions in DIN or DRP. This approach would also help address STAG concerns about the use of their proposed default nutrient concentrations for the periphyton attribute (table 2).

The flexibility of action plans would be particularly valuable for urban streams where compliance would require significant removal of existing paved areas and infrastructure. It would allow suitable timeframes to make changes, including via the exception provision in clause 3.24 of the NPS-FM.

LGNZ has proposed a more extensive option (submission, pages 19–20) involving changes to clauses 3.7, 3.9, 3.10 and the tables for periphyton, ammonia and nitrate toxicity. We believe this would also be workable.

The Panel finds compelling the suggestion from NIWA that target DIN and DRP limits should only apply if target ecosystem health attribute states are not being met, and suggest this as an alternative if DIN and DRP are to remain in appendix 2A.

Based on some very thoroughly researched submissions, and review of further STAG documents, we have concluded that the proposed DIN and DRP limits are a blunt tool for reducing nutrient losses. Adopting the proposed DIN and DRP attributes as compulsory will not necessarily improve freshwater ecosystem health in every catchment, and may in some catchments have significant socio-economic consequences for limited environmental benefit. As noted in most submissions, and in our figure 4, there is a need to prioritise efforts to those catchments and water bodies which are most degraded or at risk. We recommend moving the DIN and DRP tables to Appendix 2B.

#### [Ammonia and nitrate toxicity \(lakes and rivers\)](#)

In the NPS-FM 2017 the ammonia attribute applied to lakes and rivers. There is no explanation in the STAG report for a change, so we have assumed this change is an error and that these attributes should continue to apply to both lakes and rivers.

Various submissions suggested tightening the ammonia and nitrate toxicity criteria as an alternative to setting DIN and DRP limits as appendix 2A attributes. We support this, while noting that toxicity

has a connotation that limits are allowing mortality of some organisms. Toxicity criteria should be set which protect even the most sensitive native fish and invertebrates. For ammonia a move from 80 to 90 per cent protection would change the ammonia bottom line from 1.3mg/L to 0.54 mg/L. For nitrate a move from 80 to 90 per cent protection would change the bottom line from 6.9mg/L to 3.8mg/L. We support this and the resulting changes in tables 7 and 8.

Because of the connotations associated with the word 'toxicity', and the fact that setting a 90 per cent level of protection is not intended to result in any loss of biodiversity of aquatic life, we suggest renaming these attributes from (Toxicity) to (Species Sensitivity).

Prescribing a minimum number of samples should apply as discussed for table 1, including for calculation of the 95th percentile. This requires expert advice.

Some submissions note recent research showing that toxicity is reduced considerably for hard versus soft water. A footnote could be added to allow for this, but would also require expert input.

Tables 7 and 8 may also apply where a particular aquifer is known to contain sensitive stygofauna, or be hydraulically connected to a lake or river. However, this needs consideration on a case-by-case basis.

#### [Dissolved oxygen \(below point discharges in rivers only\)](#)

We assume table 9 has been kept separate from the similar table 19 because table 9 is an Appendix 1A limit-setting attribute, whereas table 19 is an action plan attribute. If those assignments are changed, the tables could be merged.

Some submissions queried whether dissolved oxygen (DO) below point source discharges should be limited to summer only. We understand the risk of low DO is higher with higher water temperatures. It would be open to a council to apply the DO attribute for a longer period if the local conditions supported that. No change is needed to allow that.

NIWA suggested that the table should stipulate the use of continuous DO measurements, to ensure that diel fluctuations are measured and to enable determination of 1-day minima. We think this is self-evident as a preferred option, but need not be explicitly mentioned in the table.

Some submitters suggested that the table should prescribe (as the RMA does in s69(3) and 70(1) and Schedule 3) that measurements are to be carried out at a location below the point source which allows for reasonable mixing of the discharge with the receiving water having occurred. We support noting this in a footnote.

#### [Suspended fine sediment](#)

There was considerable concern expressed in submissions about the complexity of the proposed Suspended Fine Sediment and Deposited Fine Sediment attributes, and expected difficulties in achieving compliance across the variety of terrains occurring in NZ catchments.

The proposal is to include suspended fine sediment as a limit-setting attribute, measured using turbidity as a proxy for direct laboratory assessment of grab samples. An advantage of turbidity is that it can be measured continuously at a site with a turbidimeter, whereas water clarity – commonly measured by councils using the black disk method – is a spot measurement.

There are a number of factors the panel took into account when considering sediment. Sediment movement in rivers is highly episodic; stored sediment from one storm can take many subsequent storms to move through the system. Therefore effects of climate variability must be taken into account both in the monitoring regime and in the catchment management response. One solution to

sediment non-compliance may be dredging it out, especially in smaller streams and drains, so there is a need to allow for both the recovery time and ability to do that via a consent.

The Panel's view is that suspended sediment requires an attribute in the NPS-FM but that the thresholds and measurement of suspended fine sediment are both complex and uncertain. Submissions raised many complex issues about (for example) the practicalities of monitoring, the compliance metrics, the lack of flushing of sediment in spring-fed streams, differentiating the impacts of sediment concentration versus load, and the need for table 10 limits to apply only during baseflow conditions (which we support). However, we note that suspended sediment concentrations during storms can have long-lasting impacts on freshwater ecosystem health. These are acute as opposed to chronic, and would not be identified by a baseflow suspended sediment attribute.

One suggestion was to set bottom lines at an increase of 5 NTU relative to a reference state (ie, 0.5 to 2.5 NTU). This would produce turbidity bottom lines of 5.5 to 7.5 NTU, which are consistent with the global average extirpation thresholds for macroinvertebrates in Franklin et al. (2019) Appendix H, the text which recommended the proposed bands and bottom lines.

In light of the complexity of this attribute, we consider suspended fine sediment more suited as an action plan attribute in appendix 2B rather than a limit-setting attribute in appendix 2A. The STAG's original report stated (p 38) that there is no need to include both visual clarity and turbidity as indicators of suspended sediment, and that turbidity is the preferred indicator based on currently available science. However, since then, NIWA has published work showing that the measurement of turbidity is sensitive to the type of instrument used and therefore national attribute states could be breached through instrument changes, not just changes in upstream land management. The natural colour of water can also influence turbidity, which makes the correlation between turbidity and suspended sediment less accurate.

We recommend allowing the implementation of table 10 in terms of direct measures of suspended sediment. We also recommend allowing the alternative metrics of turbidity (NTU), turbidity (FNU) or black disk visual clarity. This would allow use of the most discriminating metric for a given catchment, wherever an acceptable relationship with suspended sediment concentration can be shown and has been documented. However, we note that this will require an alternative table of thresholds, conversion to the visual clarity metric, or some directive not to change the baseline visual clarity by more than a stated amount. To do this, we support the NIWA recommendation to use a combination of approaches, namely, national scale regression models and the proposed visual clarity attribute table. This was derived from national visual clarity and ecological response datasets in the NIWA technical report used to develop this attribute (Franklin et al, 2019).

We suggest the table include footnotes along the following lines:

<sup>1</sup>Suspended sediment concentration may be modelled where an adequate statistical relationship ( $r^2 > 0.8$ ) with a proxy attribute such as turbidity (NTU), turbidity (FNU) or black disk water clarity has been established for the site.

<sup>2</sup>The minimum record length for grading a site is two years of at least monthly samples (at least 24 samples) and site grading shall be based on the two-yearly rolling median value.

#### [E. coli \(lakes and rivers – human contact\)](#)

There is an apparent overlap between table 11 (year-round *E. coli* in lakes and rivers) and table 23 (*E. coli* in primary contact sites during the bathing season, associated with monitoring protocols in

clause 3.18). This has been seen as unnecessary repetition by some submitters. Some suggested that having *E. coli* as both a limit and action plan attribute would be confusing, but given the current structure of the tables, we accept the need for two tables. However, both tables include limits for the 95th percentile of data. The national bottom line for primary contact has a 95th percentile of 540, which corresponds to A-band in table 11 – there are two different 95th percentiles to be calculated. If Appendices 2A and 2B are restructured it may be feasible to merge tables 11 and 23.

To avoid confusion about multiple *E. coli* attributes, table 11 should include a note cross-referencing to table 23 and Appendix 3.

#### Cyanobacteria (planktonic)

Submissions noted that there are several sampling protocols for cyanobacteria and for selecting an appropriate sampling location. For example, some guidelines recommend composite sampling along a transect through a bloom or likely bloom area; other protocols recommend a single depth integrated sample. A footnote referencing the method would help.

#### 6.4.3. Action plan attributes

Action plans are a form of adaptive management which received reasonable submitter support. Some submitters were concerned that their development may not allow public input into their content and therefore they should be included in regional plans. These concerns could be mitigated by making them public, or requiring a resolution. We note that Bay of Plenty Regional Council has undertaken a lot of public engagement in the development of action plans for Rotorua Lakes.

The Panel believes that action plans should sit outside the regional planning process, for agility and flexibility. However, councils need to consult with their communities, and action plans should be published.

The NPS-FM is not the place for prescriptions about the design of monitoring networks, nor of investigation protocols such as for synoptic surveys versus trend detection. Rather, there needs to be independent guidance, and flexibility within the NOF (NPS-FM attributes) to use them and other relevant attributes for understanding catchment functioning and vulnerabilities for limit-setting. For example, some submissions favour the flexibility of the Australian sustainable rivers audit approach, which is similar to the synoptic surveys approach used by some regional councils. The Australian audit allows three-yearly intensive monitoring of a range of attributes to allow detailed trend detection, rather than annual monitoring.

Among other points made in submissions, we recommend that the action plan review period should be 10 years rather than five, to better correlate with the 10 year review required in the RMA for regional plans, and to address issues which may take longer to resolve.

It is our opinion, based on our catchment management approach (see figure 4), that rather than seeking to improve individual attributes beyond their target grades, action plans should aim to meet overall catchment objectives (using adaptive management where applicable). This would include the compulsory values of Ecosystem Health, Human Health, Threatened Species and Mahinga Kai – in other words, catchment action/water body plans rather than attribute action plans. On review of 3.14 we believe the current wording allows this flexibility.

#### Macroinvertebrates

Most submitters support having a measure for macroinvertebrates.

Various submissions pointed out that having three attributes for Macroinvertebrate Community Index (MCI) creates uncertainty as to how to set a site grading if some results fall into different bands for the same site.

As stated in the protocols for sampling macroinvertebrates in wadeable streams (Stark et al, 2001) quantitative sampling is most suited to compliance monitoring or AEEs. It is generally not necessary for state of the environment monitoring. Dr Stark recommends using only the base MCI metric in the NPS-FM.

Some submitters suggested an alternative to absolute numeric grades for MCI. Dr Canning in a 2019 report has recommended grades based on percentage reduction in MCI compared with predicted reference MCI for that site. Estimating reference MCI has its own challenges so we have not recommended that as a better option.

NIWA queries the footnote to table 13 attributed to Clapcott et al. They suggest that the guidance needs to distinguish between soft-bottom streams that occur naturally and those that would be hard-bottom (and subject to more stringent MCI requirements) under natural conditions. NIWA also states that the numeric attribute states for each band differ from those in the cited references. For example, Stark and Maxted (2007) regarded MCI > 119 as 'Excellent' or 'Clean water' but in the proposed macroinvertebrate attribute table, an MCI score of 119 is in the B band, indicating mild organic pollution. These matters require expert advice prior to table 13 being finalised.

The additional costs for the quantitative assessments for the QMCI and ASPM metrics, and lack of existing data for those metrics in many regions, suggest that not all of the three metrics should be mandatory. We recommend reducing table 13 to include only MCI, and including two macroinvertebrate tables in the new Appendix 2C. One would have the QMCI metrics and gradings, and the other the ASPM 'ecological integrity' text, metrics and gradings, with no mandated national bottom lines. These new tables would function as guidance at the discretion of councils.

The bottom line for MCI has been raised from 80 to 90 in the draft NPS-FM, because it was seen as unacceptable to be setting a national bottom line which corresponds with a highly degraded state. A bottom line of 90 will require some 'stretch' to achieve in some catchments. Some submitters considered that especially in highly modified and lowland stream environments, MCI of 90 is not achievable. Some urban councils expressed concern that wherever the bottom line is set, it may be difficult to achieve in stormwater-dominated urban catchments because of the large amount of impervious surface limiting mitigation options. Compliance may require significant removal of existing paved areas and installation of improved stream habitat. However, in our view the action plan approach would allow suitable durations for achieving the necessary changes. We recommend adopting the proposed bottom line MCI of 90.

We recommend that the relevance of the footnotes in table 13 be checked to ensure they apply to the MCI metric.

NIWA and Cawthron state that while MCI is a general indicator of degradation, it cannot be used to distinguish causes of degradation. This makes it more complex to develop action plans, due to uncertainty about the stressors requiring management actions. However, we do not see this as insurmountable if an adaptive management approach is adopted, as envisaged in the NPS-FM.

#### Fish IBI

A fish index is desirable as an integrative measure of aquatic life. However, there was concern among submitters about the validity and robustness of fish IBI across all rivers. Some note that the

value of monitoring depends on the management responses available. For example, presence/absence, diadromous fish extent, population dynamics and recruitment potential may require variations in the monitoring approach.

We understand IBI compares the fish species found at a site with those expected to be present, based on the actual data available. One submission suggested using 'observed over expected' as the most appropriate metric, but in some catchments there are difficulties in estimating what index grade would be 'expected'. They also note the importance of habitat monitoring as this ultimately governs fish species and numbers present.

Another submission queried whether fishing pressure distorts the index value. We note that the exclusion of salmonids may reduce this effect, but also query whether whitebaiting may have an effect on the calculated number, as may barriers to fish passage.

NIWA submitted that fish IBI may be unsuitable as an NOF attribute, due to naturally low site-specific fish diversity and the prevalence of migratory fish species in New Zealand rivers. However they say the fish IBI may be adequate in the interim until an alternative metric is developed, if two methodological problems are addressed:

1. Apply a quantitative objective method, to be able to reproduce the fish IBI described in Joy & Death (2004) which is currently subjective.
2. Provide an ecologically justifiable basis for the thresholds described in Joy & Death, used to define metric scores.

NIWA suggests that longer term, metrics that incorporate fish abundance will be more sensitive to environmental changes than those based on presence/absence. But they advise against pursuing derivation of a fish IBI with abundance metrics without first evaluating its suitability in the context of the objectives of the NPS-FM.

We note the comments of regional councils' fisheries scientists, who support the fish IBI as an initial indication of fish community condition, while acknowledging that resulting action plans may rely on better indices over time.

These scientists note that due to the ecology of New Zealand's native fish species, inland sites tend to have limited diversity – often three or fewer native species. This results in a trout excluded fish IBI being determined by a small number of species with low ecosystem health requirements (eg, upland bully) despite the presence of a species with higher water quantity, quality and habitat requirements (trout). They have major reservations about the robustness of the proposed IBI for New Zealand fish communities when:

- native fish diversity is low
- communities are naturally composed of a low abundance of transitory individuals
- trout have negative impacts on indigenous fish communities.

In our view the fish IBI is not appropriate as a limit setting attribute, and is insufficiently tested, especially with salmonids excluded. We recommend moving fish IBI to the new Appendix 2C as an attribute to be monitored, subject to updating of the bands as the underpinning science improves. As suggested by Fish & Game, in light of trout and salmon habitat being recognised in s7 of the RMA, we also recommend adding a column with IBI bands which allow for salmonids, which would only apply within water bodies identified as salmonid fisheries in a sports fishing management plan.

### Lake macrophytes

We understand tables 16 and 17 are a disaggregation of the Lake SPI metric described by Clayton and Edwards (2006). One submitter questioned why the Lake SPI had been turned into two attributes, and suggested that a single Lake SPI attribute would be adequate. In view of the importance of native aquatic species, including threatened species as a new compulsory value in this NPS-FM, the Panel supports the separation of Lake SPI into native and invasive plant categories, as drafted.

Rather than requiring repeated and expensive lake SPI monitoring, NIWA suggests that lakes at risk of pest plant invasion or habitat degradation be identified by deteriorating water quality or new records of invasive pests. If an interim assessment method were developed for use by councils, then a 5-10 yearly timeframe could be suitable for Lake SPI assessments of low-risk lakes.

Some submitters raised a more fundamental objection: that requiring the use of Lake SPI in degraded shallow lakes will not provide useful data. Vegetation cover is a critical aspect of lake ecosystem health, but the Lake SPI method is not designed to robustly assess vegetation cover. It is designed to assess vegetation composition (native versus exotic) and growing depth (an integrated picture of water clarity). It is not well suited to many of the shallow lakes that are in the worst condition, because growing depth is irrelevant when the maximum depth is 1-3 metres.

A related concern is what action can be taken when the submerged plants (invasive species) bottom line is breached. Removing invasive plants may lead to a long period of phytoplankton dominance before any natives recover, and poor water clarity may well impede any native recovery (even if the seed bank is still viable). Another submitter noted that Lake SPI is heavily influenced by pest fish. An action planning response may need to include 'do nothing', as the effects of invasive macrophytes (for example) may be better than having no macrophytes at all, or they may require biosecurity action, particularly for achieving compliance with table 17.

In light of these concerns, we recommend moving tables 16 and 17 to the new Appendix 2D as attributes to be used where applicable, but subject to updating as the underpinning science improves. We also recommend amendment to the effect that where used, the monitoring frequency for tables 16 and 17 should be every three years.

### Deposited fine sediment (rivers)

There was considerable complexity and detail in submissions on this attribute (table 18 of the NPS-FM). Some suggested that it include a single sample exceedance metric. However, for consistency with table 10 we have recommended the rolling two-year median, which better allows responses to deteriorating trends rather than short-term impacts.

Others suggested monitoring re-suspendable solids (sediment assessment method 4), stating that despite more onerous sampling requirements, SAM4 is better correlated with invertebrate impacts. We support the use of alternative methods (considering things like cost, convertibility of data) where they may be more appropriate.

We commented for suspended sediment table 10 that a simplified number of classes was desirable. This is the case for table 18 also. One submission suggested three simple bottom line classes which merit consideration:

1. Naturally low deposited fine sediment (eg, <20 per cent) then bottom-line either absolute value of 30 or <15 per cent increase on background.

2. Naturally moderate levels of deposited fine sediment (eg, 20-50 per cent) then bottom line of 60 per cent deposited fine sediment.
3. Naturally high levels of deposited fine (ie, >50 per cent, or soft-bottom), excluded from attribute.

Deposited sediment could be more stringently controlled in sensitive reaches such as fish spawning sites. We recommend that the deposited sediment bands should be simplified. Deposited fine sediment should remain as an Appendix 2b attribute subject to caveats (eg, not for use in soft bottom streams).

#### Dissolved oxygen (rivers)

Submissions called for guidance on representative monitoring. They noted the cost of continuous monitoring and maintenance, and the need for more granularity in bands for different ecosystem types. There is general support for this attribute from science submitters and others.

Some submissions raised the question of groundwater fed streams, which can have low DO. The intent is that this would be captured by the naturally occurring processes exception.

One submission noted that it is often hard to get a full seven-day deployment in between storms or floods, and suggested allowing for a three- or four-day limit with the numeric attribute state between the one- and seven-day limits. We do not consider this level of detailed adjustment necessary. However, these types of comment highlight the importance of allowing flexibility in monitoring design and interpretation to accommodate local variability, where scientifically justifiable.

Hawkes Bay Regional Council suggested this attribute needs to better account for different oxygen states in depositional rivers with naturally low oxygen at depth. While this is relevant, we consider it unlikely a representative FMU site would be selected at such a location.

Hawkes Bay Regional Council also presents cogent arguments supporting oxygen saturation as the metric rather than mg/L, because temperature and salinity (reflected in oxygen saturation) play a role in oxygen demand by aquatic organisms. Expert advice is needed on this matter.

The panel recommends retention of this dissolved oxygen attribute.

#### Lake-bottom DO and mid-hypolimnetic DO

Submissions were more limited on lake attributes as this is an area of limited and specialist knowledge. We understand some lakes can have naturally low dissolved oxygen levels. We suggest moving tables 20 and 21 to the new Appendix 2D as potentially useful attributes in appropriate circumstances.

A footnote on monitoring metrics is needed to determine how to calculate the annual minimum.

#### Ecosystem metabolism

Ecosystem metabolism is a recently developed integrative attribute representing the fifth component of freshwater ecosystem health, cited in Appendix 1A. It is the only attribute proposed for that component.

Some submitters argued that there is uncertainty about assessing river system metabolism: they questioned the confidence in the numbers, suggested there is difficulty in knowing what level is normal for different classes of river, remarked that they don't know how to respond to a declining trend, and asserted that this is not developed enough to be used as an attribute.

We note that the band gradings recommended by the STAG have not been carried through to the proposed NPS-FM because of uncertainty about the representativeness of those values across New Zealand streams. STAG was unable to propose a national bottom line for ecosystem health, for the same reason.

One submitter pointed out that ecosystem metabolism may be affected by climate change, making it difficult to separate and manage the land use influences on metabolism.

However, we think there would be advantage in using ecosystem metabolism as an attribute because (unlike some other ecosystem health attributes) it can be measured in all rivers. A measure of the rate of ecosystem health is worth having as a functional indicator of stream health, and it would reflect interactions between different components of ecosystem health.

So we conclude that ecosystem metabolism is suitable as an attribute which, if appropriate, a regional council may choose to monitor, but not be obliged to respond to in an action plan due to the current uncertainties with bottom lines.

We agree with many submitters that ecosystem metabolism should not be an Appendix 2B attribute. It requires further research to demonstrate its response to drivers including land use and climate change, and its relationship with organic load and periphyton biomass.

Because of the relative ease of monitoring this attribute, and the Panel's view that holistic outcome attributes (of which this is one), there must be a requirement to at least be monitored, although without the requirement to create an action plan (Appendix 2C).

In the STAG table (p 23) the footnote states that the objective applies year-round, whereas the footnote to proposed table 22 refers to data collection during summer. We are unsure whether one or both of those caveats applies.

#### [E. coli at swimming sites](#)

Table 23 is supported by the provisions of clause 3.18 discussed above, and must be considered alongside the year-round monitoring requirements for *E.Coli* in table 11.

The Panel notes that *E. coli* has a tested methodology that has been in place for almost 20 years for primary contact sites. This regime appears to be working well under current NPS-FM policies, with weekly monitoring undertaken by councils during the summer swimming season and with results posted on council and MfE websites.

Some submissions wanted *E.Coli* sampling continued at primary contact sites monthly outside of the bathing season, in recognition that non-swimming forms of primary contact may occur year-round. The sampling required in Table 11 for *E.Coli* is effectively monthly anyway, as the footnote in table 11 implies recommends an average of 60 samples collected over 5 years to determine site grading; this is an average of monthly sampling.

The Panel also considered the question of where monitoring protocols should be recorded (whether in NPS-FM or elsewhere). As recommended earlier, the Panel recommends that establishment of detailed monitoring protocols be outside of the NPS-FM and provided as guidance by the Ministry (in consultation with the Ministry of Health, and other relevant agencies in this case). This includes being clear on the method for determining the 95th percentile. To avoid confusion about the difference in 95th percentile between the two *E. coli* tables, the Panel recommends renaming table 23 to read: "*Escherichia coli (E. coli) (bathing season primary contact sites)\**".

## 6.5. National target for water quality improvement

Appendix 3 is identical to Appendix 6 in the 2017 NPS-FM except that the title has been shortened to 'National target' from 'National target for water quality improvement'. The original title is preferred by the panel.

As the proposed NPS-FM now has two *E. coli* tables, it would help to clarify that Appendix 3 of the NPS-FM relates to table 23 not table 11. The figure in that appendix should be changed to ensure it relates to the four grades in table 23, not the five colour-based grades in table 11. This means revisions are needed throughout Appendix 3.

## 7. Proposed changes to the NPS-FW, with consequential rules in the NES for Freshwater Management

This section deals with findings and recommendations concerned with policies in the draft National Policy Statement for Freshwater Management which have consequential rules in the proposed National Environmental Standards for Freshwater (NES-FM), ie, Part 2 of the NES-FM.

### 7.1. Wetlands

The framework as consulted on has the following provisions:

- Policy 8 under heading 2.2 of the NPS-FM states “there is no further loss or degradation of natural inland wetlands”. The Panel understands that this is intended to read as the primary objective in respect of wetlands.
- Clause 3.15 of the NPS-FM defines various wetland types – coastal, constructed, inland and natural.
- Clause 3.15 (2) directs all Regional Policy Statements incorporate the policy “the loss or degradation of all or any part of a natural inland wetland is avoided”.
- ☐ 3.15 (4) requires application of the effects management hierarchy to wetlands.
- ☐ 3.15 (5) requires mapping and inventory of natural inland wetlands.
- ☐ 3.15 (9) requires monitoring of the same and methods to respond when degradation is detected.
- ☐ 3.15 (7) requires provisions that encourage restoration of natural inland wetlands.

While the NPS-FM policies are limited to natural inland wetlands and constructed wetlands (because the New Zealand Coastal Policy Statement covers coastal wetlands), the NES-FM covers all wetland types, by regulating monitoring, vegetation destruction, earthworks and water takes with reference to their effects on wetlands.

In the notified draft NES-FM, if earthworks or drainage are for approved reasons, such as restoration, education, specific infrastructure or public flood control, they are discretionary, and all other earthworks in the vicinity of wetlands, and drainage are non-complying, or prohibited.

Most submitters supported better protection for wetlands. Many supported the concept of the inventory, but suggested that councils or central government bear the costs, not land owners. However, councils were also concerned about funding and capacity.

Councils and environmental NGOs opposed the full discretionary consent for works relating to restoring or maintaining wetlands (associated with vegetation destruction clause 7, earth disturbance clause 10 and water take clause 16).

Many submitters were concerned about the definition and identification of wetlands, and where the line between wet pasture and wetland is defined, and therefore effects on farming in particular. Submitters were also concerned that the proposed threshold of 0.05 hectares is too small.

Submitters sought numerous changes to the definitions of wetlands. The definition of natural wetland and constructed wetland in particular were the subject of proposed changes. Submitters sought explicit exclusion for sediment retention ponds and water storage ponds, riparian buffers and constructed riparian edges.

Some did not agree that relying on offsetting and compensation as part of the mitigation hierarchy would actually maintain the extent and state of wetlands, with no net loss of the same.

Some were particularly opposed to the non-complying status.

Thirteen councils and Fish & Game thought a discretionary activity status too harsh and risked unintended consequences such as impeding restoration efforts.

The Panel notes that many submitters asked that forestry not be excluded from the provisions on wetlands. It understands that as this matter is dealt with in the NPS for Plantation Forestry it is beyond our scope, but alignment between these two RMA instruments is required.

Many felt activities such as intermittent light grazing or harvesting of sphagnum moss should be allowed to continue as they believe those types of activities do not reduce the extent of the wetland, nor adversely affect its quality.

The Panel makes the following recommendations:

#### [NPS-FM proposals](#)

As recommended for all the NPS-FM policies of clause 2.2, we recommend rewording Policy 8 under heading 2.2 as an objective. Our recommendations are to give effect to the stated objective of no further loss or degradation of wetlands.

#### [Definition of Constructed Wetland](#)

This definition in both instruments includes the requirement that the wetland be “constructed for a specific purpose”. We recommend amending the definition to simplify that limb, and to clarify that restored natural wetlands are not to be classified as constructed wetlands.

***constructed wetland*** means a wetland constructed by artificial means that:

- a) supports an ecosystem of plants that are suited to wet conditions; and*
- b) is ~~located constructed for a specific purpose in a place where a natural wetland does not already exist; and~~*
- (c) is not a restored natural wetland.*

We recommend that in clause 3.15(6) of the NPS-FM the hyperlink to the Landcare Research wetland delineation protocol be removed. While the document may be appropriate to reference, hyperlinks are prone to change or removal, so are unsuitable for use in a national direction, as are documents themselves which may be superseded or updated.

Although the Panel understands that this protocol is currently an appropriate reference, such technical guidance should be placed separately on the Ministry’s website, outside the NPS-FM. We suggest redrafting bibliographic references in the NPS-FM to say: “a regional authority must use the appropriate technical guideline on the Ministry’s website”.

Clause 3.15(8) of the NPS-FM currently states that that regional councils must permit the management of constructed wetlands to prioritise activities and management practices that are necessary for, or consistent with, the purposes for which the wetland was constructed. The Panel believes that 3.15(8) either requires significant redrafting, or could be deleted. Actions in respect of constructed wetlands are not captured in the NPS, as the definition of natural wetland excludes constructed wetland.

#### Earth Disturbance

If part of the objective is to restore wetlands, the full discretionary status required under the NES-FM for works associated with restoration could undermine that objective. Where regulations for consenting and monitoring to protect wetlands create barriers for private landowners to protect, maintain and restore, they will be less inclined to do this work.

Clause 3.16 of the NPS, in respect of streams, identifies the primary activities to be controlled, namely infilling and culverting. Clause 3.15 of the NPS-FM in respect of wetlands is silent on the activities requiring control. The Panel recommends the same approach, so that the activities regulated in the NES-FM in respect of wetlands are identified (earthworks, drainage, water takes and significant indigenous vegetation clearance).

To ensure the maintenance of existing drains is not captured, the Panel recommends making this clear in the definitions.

We recommend permitted activity status for earth disturbance and earth disturbance for drainage that has no more than minor effect, or effects are temporary and reversible, and is associated with the restoration or maintenance of natural inland wetlands. The conditions of eligibility would include:

1. Inclusion in the freshwater farm plan modules (FW-FP) of measures to maintain and enhance the wetland values, and compliance with the same.
2. Requirement to obtain a certificate of compliance from the regional council.

The Panel recommends controlled activity status for earthworks, drainage, vegetation clearance and water takes associated solely with the restoration and maintenance of natural inland wetlands, with matters of control including those currently listed as conditions in NES-FM clauses 12 and 16. This would result in consequential amendments in the other discretionary rules which refer to restoration and maintenance.

The Panel believes the definition of the effects management hierarchy in NPS-FM clause 3.15 would be more effective if it was redrafted so that (d) and (e), in respect of offsetting and compensation, required that there be no net loss. We also recommend reviewing the definition of net loss, noting that the comparative definition from the draft NPS-FM Indigenous Biodiversity states:

**biodiversity offset** means a measurable conservation outcome resulting from actions that comply with the principles in Appendix 3 and are designed to:

- a) compensate for [more than minor residual] adverse biodiversity effects arising from subdivision, use or development after appropriate avoidance, remediation and mitigation measures have been sequentially applied; and
- b) achieve a no net loss of and preferably a net gain to, indigenous biodiversity values.

Aside from works associated with the restoration and maintenance of natural wetlands, the Panel does not support activity status being determined by the purpose of activity, rather than the effect on the wetland. We recommend removing reference to the purpose for disturbance of wetlands (ie,

nationally significant infrastructure, education or recreation, flood control, hydro schemes). Instead the Panel recommends a significant simplification of the structure of the rules.

### Vegetation Clearance

The draft NES-FM makes any vegetation clearance, earthworks and water takes discretionary, non-complying or prohibited. Aside from restoration works, we recommend that the following works that can comply with the below conditions of eligibility, be discretionary. If works do not comply, they are non-complying:

Activities captured:

- ☐ Vegetation clearance in and within 10 metres of a natural wetland.
- ☐ Earth disturbance for drainage within 100 metres of a natural wetland.
- ☐ Earth disturbance within 10 metres of a natural wetland.
- ☐ Water takes.

Conditions of eligibility:

- ☐ Compliance with a standard monitoring condition.
- ☐ Compliance with the effects mitigation hierarchy to achieve no net loss
- ☐ The works do not cause:
  - greater than 0.1 metre change beyond the natural wetland's annual median water level; and
  - changes in the natural wetland's seasonal (summer to winter) water level fluctuations (minimum or maximum water levels) that have a detrimental effect on the extent, ecological quality (type and diversity of aquatic plant and animal communities) or functioning of the natural wetland
  - reclamation of land or infilling
  - disturbance beyond the minimum necessary.

We recommend that if the activities captured cannot meet the above criteria, they be non-complying. We do not support use of the prohibited activity class.

In respect of significant indigenous vegetation specifically, the above recommendation is intended to provide simple protection of wetland boundaries (leaving it to the NPS-IB for detailed regulation of significant indigenous vegetation). The Panel proposes that the definition of vegetation destruction be amended to vegetation clearance, to read as follows:

***vegetation ~~destruction~~ clearance means ~~destroying~~ clearing any significant indigenous vegetation***

For the sake of clarity, either the definition of vegetation clearance or the rule at clause 7 needs to also clearly exclude customary harvest (especially as this is included in some tangata whenua definitions of mahinga kai) and sphagnum moss harvesting where the effects are minor.

## 7.2. Stream loss

The framework as consulted on included the following provisions:

Policy 9 under heading 2.2 states "there is no further net loss of streams". The Panel understands that this is intended to read as the primary objective in respect of rivers and streams.

We interpret Policy 3.16 of the NPS-FM to require that the extent and state of health of rivers (including streams) is **maintained** as a minimum requirement, specifically in respect of the effects of reclamation, infilling, permanent diversions and culverting (which might be associated with a wide range of activities including urban development, infrastructure, hydro schemes, mining, forestry operations, agriculture and other activities that necessitate the physical filling in of river beds).

3.16 directs councils to include a specific policy in the Regional Policy Statement requiring maintenance of the extent and health of rivers and streams. 3.16 (4) directs that permanent diversion, infilling and culverting not result in a net loss of the “extent and ecosystem health” of a stream.

Only infilling is then directly covered by the remainder of the policy; 3.16 (5) states that the preference is that first infilling should be avoided, but if it cannot be avoided then the “effects management hierarchy” defined in 3.15 is to be implemented, running through from avoid, remedy, mitigate, offset and finishing at compensate.

We note that infilling is not defined in either the NPS-FM or the NES-FM.

Clause 18 of the draft NES-FM addresses infilling. All infilling of streams requires consent. Infilling for the purposes set out in clause 18 is discretionary (restoration/enhancement, nationally significantly infrastructure, flood and erosion works and other activities that have no practical alternative). The clause requires that mandatory conditions be imposed, including imposition of the effects management hierarchy consistent with the definition in the NPS, and no net loss. Any other infilling is proposed to be non-complying. There is no provision for the permitted infilling of rivers.

Of the submissions that addressed the stream loss provisions, most were supportive. Many also supported offsets and compensation but primarily as a last resort once all other options have been exhausted.

Some asked that the provisions go further than maintenance/no net loss and further than just rivers, to include drains and irrigation races. As with the provisions for wetlands, some submitters did not agree that relying on offsetting and compensation as part of the mitigation hierarchy would actually maintain the extent and state of rivers, and no net loss.

Those who opposed the provisions raised concerns about the extent of restrictions.

And as with wetlands, submitters pointed out the drafting issues with what appears to be an ‘avoid’ or ‘maintain’ policy upfront, which is undermined or contradicted by a subsequent immediate acceptance that there will be changes and adverse effects.

Some submitters were particularly opposed to the non-complying status.

#### [NPS-FM proposals](#)

The Panel recommends amending all references to ‘stream’ through both the NPS-FM and the NES-FM to read as ‘river’, to align with the definition of river in the RMA. To remove doubt, we also recommend including the wording of the RMA definition in the NPS-FM and NES-FM definitions, so that the meaning is easily interpreted by the reader.

Although a number of submitters have commented in favour of the provisions on stream loss going further than just rivers to include drains and irrigation races, we do not support such amendments. They would create an undue burden on land owners requiring consents for routine maintenance, and councils needing to consider those consents.

For clarity, the Panel recommends rewording Policy 9 of the NPS-FM to read:

*there is no ~~further~~ net loss of the ~~length~~-extent and habitat quality [or ecosystem health] of ~~streams~~-rivers.*

Our recommendations for the effects mitigation hierarchy and no net loss for wetlands also apply to streams.

We are of the view that the NPS-FM should clearly define the activities referred to as 'infilling' if this term is retained. Infilling is not a defined term nor linked specifically to section 13 and 14 of the RMA and associated restrictions on works on beds of rivers, damming and diversion, all of which could fall within the concept of infilling. For example, it is unclear whether it captures other common activities such as riprap, armouring or ford crossings.

For clarity, we favour replacing references to infilling with 'reclaim' or 'reclamation', as used in section 13(1)(e) of the Act. We understand that the activity which infilling is intended to refer to is the extensive or complete filling-in, diversion, or piping of a river, which is consistent with the use of 'reclamation' in the Act. This would also prevent the capture of activities such as culverting for a crossing, which the Panel understands were not intended to be captured by the provisions for infilling.

#### NES-FM proposals

Clause 18(1) describes the infilling activities that are discretionary, including (d) when there is "no practical alternative". Clause 18(3) then defaults to non-complying. The Panel is concerned that clause 18(1)(d) is so open that it would mean most applicants could comply with that, rendering (3) redundant. The Panel prefers an effects-based threshold between discretionary and non-complying statuses for infilling activities, similar to the simplified structure recommend for wetlands, whereby the default status for infilling is discretionary (regardless of its purpose). The conditions for eligibility for that status that distinguish between discretionary and non-complying infilling would similarly include:

- compliance with a standard monitoring condition
- compliance with the effects mitigation hierarchy to achieve no net loss.

Culverting is covered in clause 21 of the NES-FM, but seems to be solely directed to fish passage. This is not consistent with policy 3.16 in the NPS-FM which imposes broader requirements in respect of the extent and ecosystem health of the river. The Panel recommends consideration of adding into clause 21 a consistent reference to the final form of clause 18 in respect of stream infilling, with reference to the effects mitigation hierarchy, and the threshold of no net loss. The same consideration is recommended for the provisions in respect of new weirs, dams and passive flaps

Similarly 'earth disturbance' is managed in clauses 9-14 of the NES-FM, with reference to wetlands only. However, earth disturbance as defined in clause 9 will be triggered by earthworks associated with infilling and diversions of streams as well, not just wetlands. The Panel recommends there be consistency between the earthworks clauses and the stream clauses in the NES-FM. For example, clause 18 of the draft NES-FM makes it a discretionary activity to infill the bed of a river if it is for certain purposes, and non-complying for other purposes. Clause (2) in respect of the discretionary status purports to require conditions be imposed (however these should be amended to be thresholds/requirements for the grant of consent). So with regards to wetlands, the activity of earthworks is controlled, but with regards to streams, while it is still the activity of earthworks that

that results in the infilling and diversion etc., the terms earthworks is never used. Consistency in approach is recommended.

Similarly, clauses 14-17 regulate water takes, but it seems to be the intention that this might only be in relation to effects on wetlands, and not rivers and streams. Such a consistent approach may usefully prevent questions that would arise around the point that a stream merges into a wetland or a wetland merges into a stream.

### 7.3. Fish passage

The draft NPS-FM is one of the elements of the Essential Freshwater package, which includes, under the heading “Improving ecosystem health by preventing destruction of habitat from specific activities” the aim of “preserving connectivity of habitat to promote healthy fish populations”. It is explained in this way: “Unless provided for by infrastructure design and maintenance, structures such as culverts, dams and tide gates can delay or prevent fish movement and stop them from accessing critical habitats.” That connectivity is consonant with the concept of Ki Uta Ki Tai. Barriers to fish passage lead to declining fish populations and depleted fish communities.

#### Draft NPS-FM

Clause 3.17(1) of the draft NPS-FM would require regional councils to include certain aquatic life objectives in their regional plans.

Subclause (2) would require them, when preparing the objective, to identify valued species and their relevant life stages, for which in-stream structures must provide passage.

Subclause (3) would oblige regional councils, when considering an application for consent relating to an instream structure, to have regard to certain matters: the extent to which the structure would continue to provide for the council’s aquatic life objective; the extent to which the structure would not cause a greater impediment to fish movement than in adjacent stream reaches; the extent to which it would provide efficient and safe passage for all fish (other than undesirable species) at all their life stages; the extent to which the structure would provide a diversity of physical and hydraulic conditions leading to a high diversity of passage opportunities for fish; and any proposed objective for fish now and in the future.

Subclause (4) would require regional councils to establish and implement a work programme to improve the extent to which existing structures achieve a council’s aquatic life objective for fish.

Subclause (5) would prescribe matters that are to be included in such work programmes, including identifying existing in-stream structures and evaluating their risk to fish migrations; prioritising remediation of structures applying ecological criteria in the Fish Passage Guidelines; and processes for recording and evaluating the structures and their remediation.

#### Draft NES-FM

Subpart 3 of the draft NES-FM would only apply to structures constructed after the start date of the standard. It would set separate standards for culverts (clause 21), weirs (clause 22), passive flap gates (clause 23), and dams, fords and non-passive flap gates (clause 24).

The conditions would be prescribed in which construction of a culvert fixed in or on a bed of a river is a permitted activity. They include that the culvert provides for the same fish passage as exists naturally in the area of riverbed it occupies. Construction of culverts that do not comply with the

conditions of being a permitted activity are classified as a discretionary activity, subject to conditions which include that the culvert is not contrary to the regional council's objectives for aquatic life.

The provisions of the draft NES-FM for weirs would follow a similar pattern, including providing the same fish passage as naturally exists to qualify as a permitted activity.

Construction of passive flap gates would be a non-complying activity;<sup>4</sup> and the provision about constructing dams, fords, or non-passive flap gates would prescribe information for the regional council.<sup>5</sup>

The Panel notes that we have not been able to consider the technical detail in clauses 21–24. As with the effects-based streamlining of the provisions for wetlands and stream loss recommended above, the Panel recommends a similar redrafting of these fish passage provisions with the technical provisions in external guidance.

#### [Conservation \(Indigenous Freshwater Fish\) Amendment Act 2019](#)

By this Act, which has been in force from 22 October 2019, authority is provided for regulations “prohibiting, restricting, or regulating any structure or alteration to a water body that could impede or affect the passage of freshwater fish or specified freshwater fish”.

There is an exception for existing hydroelectricity dams, save in respect of requirements about maintaining any structure that could impede or affect the passage of freshwater fish or specific freshwater fish.

#### [Department of Conservation commentary](#)

In its commentary on the Essential Freshwater proposals, the Department of Conservation suggested certain improvements to the wording of clause 3.17, and proposed a number of parameters for sampling and evaluation. The Department's commentary did not refer to the 2019 amendment to the Conservation Act, nor to how regulations authorised by it would relate to the draft NPSFM.

#### [Submissions](#)

As recorded in the Summary of Submissions, numerous submitters expressed general support for the proposed provisions for achieving objectives for aquatic life, and protecting important values such as threatened species and mahinga kai. Some improvements to the wording of the provisions were suggested.

Several submitters opposed the proposed provisions, due to cost and workload burdens for farmers.

Opinions were mixed as to whether the provisions should apply to existing structures as well as future ones.

The duty that clause 3.17(2) of the draft NPS-FM would place on regional councils to identify valued species led to a difference among submitters, particularly about trout and salmon. Fish & Game contended that regional councils do not have a function under the RMA of managing species, and pointed out that such responsibilities are prescribed by the Freshwater Fisheries Regulations 1983. EDS and Fish & Game proposed that the term ‘undesirable species’ be replaced with ‘pest as defined in the Biosecurity Act and including other species specified by the Director-General of Conservation under those regulations’. EDS also proposed including species listed as pests in a regional pest management plan.

Many submitters addressed remediation of existing structures. Some contended that fish passages should be required for existing in-stream structures. Others asserted that where physical

passage cannot practically be constructed, or where they have failed, a 'trap and transfer' method should be required instead.

Some hydro operators argued that existing major hydro schemes should be exempt, except to the extent that they already operate fish passages. Many other submitters opposed exempting hydro-electricity structures from providing fish passages. Fish & Game proposed that hydro operators should be required to allow flushing flows to move periphyton and deposited sediment at a 'natural' frequency and level.

Some submissions raised drafting points that would mandate conditions of resource consents, where current practice would indicate criteria for decisions to grant or refuse consent.

The Dunedin City Council sought consideration of not unreasonably affecting local authority infrastructure services for communities.

Other local authorities raised the question of who is to pay for remediation of existing structures, and where they are privately owned, how the owners would be required to undertake work on them.

#### Consideration

The Panel understands that NPSs are not intended to replace regional plans, but to provide objectives and policies at a national level of generality which are to be applied by regional plans as appropriate to the environmental, social and cultural circumstances of the regions.

Although, as Fish & Game submitted, regional councils do not have a function for species management, they do have functions of controlling damming and diversion of water; and of maintaining indigenous biological diversity. The Panel considers that including aquatic life objectives that fish passage policies would be designed to achieve in regional plans would (in combination with other regional plan contents) perform those functions.

So we understand that it is appropriate for an NPS-FM to state a general policy of national application concerning provision for fish passage; and for a regional plan, in applying such a general policy for a region, to identify particular freshwater fish species that are valued or considered undesirable species in the region.

However, classifications of fish species under, and for the purposes of other legislation (such as the Biosecurity Act or the Freshwater Fisheries Regulations) would not necessarily serve the purpose and principles of the RMA.

We do not accept that the draft NPS-FM would be incompatible with the Freshwater Fisheries Regulations in entrusting to regional councils responsibility for achieving aquatic life objectives in regional plans by objectively identifying fish species in a local waterway that are valued or considered undesirable. The RMA provides well-established processes for resolving any difference of opinion about the value or desirability of particular species in regional planning. Classifications under other legislation are not necessarily the result of similar processes.

The only provisions of clause 3.17 of the draft NPS-FM that would apply to existing structures are subclauses (4) and (5), by which they would be subject of regional council work programmes. The range of circumstances of existing in-stream structures could be addressed in designing work programmes under subclauses (4) and (5). Existing hydro structures could be included in those programmes; as could the details of providing for flushing flows and the like. Completion of

remediation work in respect of all structures that impede fish passage is likely to take considerable time.

On remediation of privately owned structures, we assume that if an owner is unwilling to modify the structure in accordance with a regional work programme, the need for remediation work to serve aquatic life objectives of the regional plan would be relevant in considering review of conditions of the resource consent for the structure, or in considering a new consent for it following expiry of an existing consent.

### Recommendations

Attention should be given to more clearly expressing within the NPS-FM the desired relation between clause 3.17 of the draft NPS, the Freshwater Fisheries Regulations 1983, and potential regulations under section 48A(1) (na) of the Conservation Act.

The only exemption for hydro structures in respect of fish passage is not in the draft NPS-FM or the draft NES-FM but in the Conservation Act and already in force; we do not address that point further. As the draft NPS-FM provides for work programmes for remediation of existing structures, and would not exempt major hydro schemes, we do not consider that local authority infrastructure (such as reticulated water supply dams) ought to be exempted from clause 3.17.

We recommend reviewing the drafting of the NPS-FM to relate 'aquatic life objectives' (in 3.17(1)) to 'environmental outcomes', and to relate 'work programmes' (in 3.17(4) and (5)) to 'action plans'.

We consider that the drafting of provisions mandating consent conditions should be reviewed in case some of the subjects of the conditions might be better expressed as criteria for judgement on granting or refusing consent.

## 8. Other proposals in the NES-FM

This section deals with findings and recommendations that are concerned solely with the proposed National Environmental Standards for Freshwater.

The planning hierarchy needs to be very clear throughout the NES-FM.

### 8.1. Part 3 Farming provisions

The Panel sees that there is a differentiation between those sections of the Farming provisions in Part 3 of the NES-FM that are important to deal with in order to 'hold the line' via regulations on water quality, and those which are about 'improving farm practices' and are best addressed via (enforceable) farm plans.

A very common theme among submitters was the request to monitor cause and effect in relation to water quality degradation at the farm scale prior to making decisions about what mitigations and actions were necessary. While being able to monitor at the farm scale would be helpful, the Panel believes it would require huge amounts of monitoring to establish due to level of complexity and burden on councils. Farm scale monitoring would be impractical and costly, with potential to be heavily influenced. Our view is that enough is known about impacts of good practice that all farmers can and ought to begin aiming for it, without waiting for perfect information.

### 8.1.1. Farm environment plans

#### Introduction

The proposed NES-FM formalises the role of freshwater farm plans (FW-FPs) in subpart 3 clauses 37 to 41. It proposes staging mandatory development of FW-FPs, within two years for specified intensive farming types and locations and within five years for other qualifying farm types.

The role and scope of FW-FPs in delivering on the objectives of the Essential Freshwater package remains a topic of debate. In accord with the principle of subsidiarity, and to encourage accountability at land user level, the Panel supports broadening the use of FW-FPs as an alternative pathway over certain national regulations for achieving environmental outcomes. This is discussed in detail below.

We note that there are precedents in urban and industrial sectors for management plans. They are commonly required as conditions of consent for industrial and stormwater discharges, sometimes in accordance with standards such as ISO7001. The advantage is that the mitigation methods for control of environmental effects can be tailored to the individual property and land user. Technical and policy experience from the definition and implementation of industrial and stormwater plans could be valuable when developing templates and implementation processes for FW-FPs (while noting that FW-FPs are not proposed in the NES-FM within a consent framework).

#### Existing schemes

There is sufficient evidence to convince us that farm plans help change farmers' mindsets and actions to adopt good management practices, improve environmental risk management and improve water quality. Individual farms are complex and variable, so it is difficult to have national regulations to consistently address all issues.

We also understand there is a range of existing farm environment plans (FEPs), farm excellence programmes and farm assurance schemes, and believe that there is a significant opportunity to build off the knowledge, lessons, capability and goodwill of these schemes to develop the FW-FP module. Some regional councils already require FEPs or equivalent as a part of their consenting framework.

The following is not an exhaustive list but rather an example of some current schemes that require consideration as to whether they already meet the FW-FP requirements:

Dairy; Tiaki (Fonterra), Lead with Pride (Synlait), Te Ara Miraka (Miraka)

Sheep & Beef; LEPs, NZFAP (Beef+Lamb New Zealand)

Horticulture; Zespri GAP (Kiwifruit), NZGAP EMS (Vegetable Growers)

Wine; Sustainable Winegrowing NZ (NZ Wine Growers)

Regional Council FEPs (eg, ECAN, Horizons)

In light of this, we believe that given opportunity, resourcing, and time, industry will own and create change. In the longer term, too much regulation will detract from bringing all farmers and growers to good management practice.

#### Freshwater Modules

We understand that the intention is the farm plan documents required and regulated by the draft NES-FM are intended to work alongside a wider set of farm plan modules that, depending on farm type, individual farm management style, industry or supplier requirements, other legislation and other factors, may also be in place. Hence they are referred to in Subpart 3 as the Freshwater module of farm plans (**FW-FP**) and FW-FP is defined as such. It is anticipated the FW-FP will form part of a larger and more comprehensive farm plan framework.

As explained below, we are recommending that only the FW-FP provisions that relate to certain farming practices directly relevant to ensuring healthy water bodies, are to be enforceable.

#### Options

Limits may be difficult to justify scientifically, and are not generally responsive to variations in the physical, climatic, economic, social and cultural circumstances of individual catchments and farms. They can become a focus of attention, perhaps misleadingly, due to individual rare or marginal cases. Imposing limits on an unwilling community can lead to contrived avoidance, and constraints on capacity and capability for excess consenting, monitoring and compliance.

Farm plan modules can be tailored to physical, climatic, and economic circumstances, and are more flexible to changing circumstances. In some regions they can build on current experience with farm plans. By involving farm owners and perhaps catchment or industry groups they are more open to acceptance. However, management of cumulative effects may require consideration of more locally relevant limits at regional or catchment scale.

After considering the content of numerous submissions, we have concluded that freshwater modules in farm plans would be a preferable method, by working with the willing, and with industry organisations, to move the majority to participate in good management practice in managing individual farms and other changes as required to achieve agreed environmental outcomes.

#### Voluntary or mandatory

Submissions on the proposed instruments revealed strong opinions on whether FW-FPs should be voluntary or mandatory. Recent experience shows that a majority of farmers, encouraged by industry associations, are willing to adjust their farming practices for environmental benefits. There are others, however, who are not. They need some firmer direction, both to achieve improvement in the freshwater environment, and out of fairness among farmers of bearing the tasks for that common benefit. For these reasons the Panel concluded that a requirement to adopt freshwater modules in farm plans should be mandatory. This duty might be expected first in catchments or sub-catchments where the freshwater conditions are worst, and of those who have not already adopted appropriate practices.

#### Place in whole package

Clause 37 of the proposed NES-FM would prescribe that certain classes of farm are to have a certified FW-FP within two years of the commencement date. They include farms in certain catchments and sub-catchments where the freshwater conditions are worst. Clause 37 would also stipulate that by 31 December 2025 every other farm to which the standard applies is to have a certified FW-FP.

Some submitters urged that there are not enough skilled professionals to prepare and certify FW-FPs for all those farms. We accept that to support provision of FW-FPs for so many farms by the prescribed date will call for a determined effort. Fortunately, industry support organisations and businesses are well placed to provide professionally devised templates and support for efficient preparation. These organisations, catchment groups, and some regional councils, may also employ skilled farm planners whom farmers can also engage.

As the period for completion of FW-FPs draws towards an end any shortfall would become apparent, and could be addressed by prioritising farms in at-risk catchments or sub-catchments, or by increasing application of immediate controls on some agricultural practices to compensate for longer times before FW-FPs are fully effective.

The requirement for FW-FPs would be a national policy, and their contents would be specified in general by the proposed NES-FM. Applying the standards to catchments and perhaps sub-catchments should be the subject of regional plans, including by conditions of consent. Regional council roles in respect of the FW-FPs, and consequential administration and enforcement of compliance, may deserve legislative amendment for clarity.

#### Accountability (who is responsible for what)

When relying on FW-FPs rather than national regulations to deliver on the objectives of the Essential Freshwater package, it will be important to clearly specify the responsibilities of land users, certifiers and auditors, industry sectors (where relevant), regional councils and the Government. For activities such as wetland disturbance we have recommended that the regional council be required to check compliance through a process similar to the s139 Certificate of Compliance process at the completion of the FW-FP. For most other activities enforceable in an FW-FP, the accountability is to the land user, and then the certifier (and later auditor) assisting the land user to prepare and implement the FW-FP.

While detailed redrafting of subpart 3 of the NES-FM is needed to specify how FW-FPs may qualify as an alternative to certain NES-FM rules, we see the following as roles which will need to be clearly assigned to the parties in the redrafting:

- Government – prescribe minimum content required in a FW-FP, including identifying enforceable elements and enforceability standards (NES-FM), FW-FP process requirements including certification and auditing (NES-FM), an authorisation process for approving qualifying industry templates (NES-FM?), provision of a default template, guidance on good farming practice, accountabilities of specified parties (NES-FM), and enforcement standards and mechanisms (RMA).
- Regional councils – responsible for enforcing NES-FM requirements for FW-FPs, certificates of compliance, providing for any specific FW-FP requirements needed to achieve environmental outcomes through regional plans and compliance of same (RMA), authorising certifiers and auditors wanting to practise in the region
- Industry sectors – may develop sector or industry templates which simplify the FW-FP preparation, certification and auditing processes but templates must be approved by the relevant government agency for use (NES).
- Certifiers and auditors – certifier assists land user to draft FW-FP, and certifies that FW-FP meets NES-FM and regional rule requirements; auditor (who may also be a certifier but not of their own work) checks compliance and implementation of FW-FP (NES-FM); certifier and auditor required to provide copy of FW-FP and audit report to council in specified circumstances (clause 39 NES-FM).

Land user accountability could be prescribed to the person responsible for land management (that is, lessee if leased, owner if owner-operated). This person is responsible for and agrees contents of FW-FP including staged implementation (NES-FM), and subject to enforcement of specified enforceable components (RMA).

#### Timing and prioritisation

##### **Proposed regulations**

Subpart 3 of the NES-FM proposes that by 2025 all farmers and growers above minimum area thresholds (20 hectares agriculture, 5 hectares horticulture) must have an FW-FP. The purpose of these is to manage risk related to activities which may affect freshwater. Clause 37 of the NES-FM

states that within two years (by 2022) certain farm types and farms in particular catchments must have a certified FW-FP if they do not already have one.

### Issues raised in submissions

Many submissions suggested that pressure on resources (including people) to get the work done would make this challenging. However, the Panel understands that industry is well underway with developing farm environment plans and assurance schemes which could be leveraged off and developed to meet the government FW-FP requirements. Once a direction of travel is signalled, the demand for suitably qualified people will mean the market will respond to this.

Submitters questioned whether farmers who already have a farm plan approved by their regional council or relevant industry body would be required to 're-do' their farm plans. Given the constraints on resourcing to get this work done, these farms should not be the priority. Instead, urgency is needed to establish which existing industry schemes meet the requirements of the Ministry and 'certifying' these existing schemes where possible. Existing regional council schemes which meet the requirements should also become certified FW-FP schemes.

Concerns raised in submissions about 'transition' from existing schemes to the new requirements under the NES-FM should be addressed by existing schemes becoming 'certified' where possible. If this is not possible then a 'transition' time for those farms who have already started on the journey towards good farm practice should be provided for.

To avoid duplication for farms which already have FEPs, we suggest the following change to the NES-FM 37 (1):

*(1) Within two years of the commencement date, the following farms that do not already have a farm plan from a scheme certified by the Ministry and containing the relevant requirements of the FW-FP module (as required in Clause 38), must have a certified FW-FP:*

- a) farms used for commercial vegetable production*
- b) farms in the catchments and sub catchments identified in Schedule 1*
- c) farms in the Kaipara catchment that are on highly erodible land.*

*(2) By 31 December 2025, every other farm to which this standard applies must have a certified FW-FP.*

Submissions noted concerns about which catchments should be included as Schedule 1 catchments. The Panel understands that this list is under review and a new recommendation is being developed to more accurately represent at risk catchments. The panel supports revising the list to more accurately reflect level of degradation and risk, as is proposed.

Vegetable Growers New Zealand supported the timeline of 2022 for sensitive catchments, but were concerned about the insufficient numbers of qualified auditors to assist growers, given the short timeframe.

Some suggested that actions in FW-FPs should be linked to water quality challenges within catchments, and a number also called for more support for catchment groups. We believe that catchment groups have an important role in supporting farmers to understand local issues and appropriate mitigations (see our figure 2, aspiration 4), and would endorse prioritising and looking for ways to support and encourage them. The Beef + Lamb New Zealand submission included

suggestions for policy for this (table 9 of their submission).

### **Scheme development**

The Panel understands the following actions would need to go into the development of the scheme and be both resourced and prioritised appropriately:

- ☐ Notify stakeholders of the intended process and timeframes for implementation.
- ☐ Work with regional councils and industry to develop the content for the FW-FPs.
  - Certify existing schemes that meet with the Ministry's and MPI's FW-FP requirements.
- ☐ Establish and certify the certifier role.
- ☐ Develop required certification and independent auditing processes.
- ☐ Develop required scheme administration and oversight.
- ☐ Develop disputes and complaints processes.

### **Timeframe**

The Panel expects it is possible to establish within six months of gazettal those existing schemes that fulfil the Ministry/MPI requirements. We understand work in this area is well under way as part of the Integrated Farm Plan programme of work. Once this is established industry bodies and relevant regional councils can confidently progress with implementing their plans.

Certification of certifiers and auditors should be achievable within about 12 months. Recruiting additional people to do these roles will need to be a consideration however, as it is likely that there are not currently enough available to meet the expected demand.

In addition, it is estimated that it would take a minimum of 12 months and possibly up to 18 months to set up the certification and auditing process.

The industry has already set targets for all farms to have FEPs (Dairy by 2025, Sheep & Beef by 2021) so is well underway with this work. We therefore believe it is an ambitious but realistic goal to have farms operating under certified FW-FPs that can be achieved by 2025.

### **Priorities**

Priority should be given to the following activities, which will speed up the implementation process:

1. Identifying the gap between what existing schemes include and what is required for the FW-FP module.
2. Rapid development of systems and processes to support implementation (including certification and auditing).
3. Supporting the development of FW-FPs in schedule 1 and other high-risk catchments to meet the 2022 deadline.
4. Investigating how and where 'catchment change projects' can be established to support the FW-FP process.

Outside at-risk catchments, there may be provision for extending timeframes for preparing FEPs.

### **Recommendations**

1. Make changes to NES-FM 37 (1) as noted above.
2. Review and update the list of Schedule 1 catchments in Subpart 4 of the NES-FM.

3. Allow for transitional arrangements if existing farm plans do not fully meet the FW-FP requirements.
4. The actions in FW-FPs need to address the environment in line with the issues in their particular catchments.
5. Consider how policy could support the establishment and ongoing function of catchment groups to support farmers in developing FW-FPs.

#### Enforceable elements

The Panel is of the view that as currently drafted, and in the context of the current RMA, only certain aspects of the proposed FW-FP package are enforceable. For example, where either the NES-FM or a regional plan requires preparation of a FW-FP, that requirement is enforceable, and if not complied with is a breach of the relevant rule in the NES-FM or regional plan.

Beyond that, requiring enforcement of particular provisions in FW-FPs is problematic if the FW-FP has not been prepared as a requirement of a resource consent. Outside the resource consent framework, a failure to comply with a provision may not always readily be attributed to a breach of sections 9–15 of the RMA, and the specific actions in an individual FW-FP are certified by third parties with no status under the RMA.

This is mainly of concern where a FW-FP is required outside the resource consent framework. For FW-FPs that are required as part of a consent, enforceability of FW-FP is the same as for the standard management plans required by resource consents, and therefore not of concern.

However, we see advantages in encouraging FW-FPs, rather than regulation, as a tool for improving specific farming practices. To improve the certainty and enforceability of FW-FPs we recommend amendments to the RMA. We also recommend changes to the draft NES-FM that provide an incentive for early adoption of certified and then audited FW-FPs, and after a period if not adopted, then propose application of specific NES-FM and stock exclusion regulations.

The Panel recognises that one advantage of using FW-FPs is the necessary involvement of the farmer, compared with arm's length national regulations or regional rules. The second advantage is that farm plans are tailored to a particular farm and catchment, not general and national in application. They are more flexible in, for example, allowing for innovation and mitigations not yet developed, and also for changes in farm management to reduce environmental footprint.

We have therefore recommended some changes to the proposed NES-FM in section 8.1.2 below. These would provide an incentive to get certified, audited FW-FPs in place, addressing matters that were otherwise to be addressed mainly by regulation – namely sacrifice paddocks, stock exclusion, intensive winter grazing and activities related to restoring and enhancing of natural inland wetlands. In general terms the Panel has proposed that while these activities will still be regulated by rules as a backstop, a farm is exempt from those rules if there is in place a certified FW-FP that confirms the requisite measures are in place.

#### Preparation and templates

The proposed NES-FM is silent on who prepares an FW-FP. However, it requires in the content of a plan the name of the land owner (cl.38(1)(d)) and the person overseeing the implementation of the plan (cl.38(1)(e)). In submissions it appears that land owners or farm managers prepare existing plans. That is, the people who run the farm.

In some situations (for example lease and sharemilking) a shared responsibility may be required where both the land owner and the person responsible for the day to day operation of the farm will need to have input into the development and oversight of the delivery of various parts of the FW-FP.

The proposed NES-FM does not prescribe who helps to prepare an FW-FP. However, the content requirements suggest relevant knowledge and experience is essential in farm operations, risk assessment of contaminant losses, nutrient/fertiliser and soil management.

A number of industry bodies have prepared plan templates for their members. We understand from submissions that several templates are well advanced and will cover much of the contents of a farm plan prescribed in the proposed NES-FM. Some sectors including small industries have not developed templates, and their members may not have had any experience with farm environmental plans dedicated or specific to their sector. A template or support from an expert will be of assistance.

There may well be a gap or differences between industry templates and the content requirements of the draft NES-FM. These should be resolved urgently, and would likely require some analysis to establish what (if any) additional requirements the NES-FM has from what is currently required for industry schemes and regional councils.

One challenge is the significant number of farms that will require plans by 2025. While some industry sector groups have templates up and running, some do not. The systems and processes that would support sector-wide preparation and certification/audit are not in place. To meet this challenge, it may be prudent to use a number of methods to expedite preparation and delivery, at least in the period to 2025. These methods could include:

- The Minister(s) approving industry templates for use by their industry members.
- For those sectors/farms that do not have a template the Ministry and local government may prepare a default template.
- The person overseeing the implementation prepares and signs off the plan. They have the choice of preparing the plan themselves or employing suitably qualified and experienced expertise to assist them (and to certify the plan).
- Certification could be by the approved farm environment planner or the regional council.
- Consider allowing interim certification of 'approved' industry FEP schemes, provided they are auditable and enforceable.
- Staging the roll-out of preparation and certification based on priority catchments or farm plan pathway.

Submitters have asked who owns an FW-FP, and is ultimately accountable for its implementation. A range of players prepare and implement it: the land owner(s), the person who oversees the implementation, the technical experts, the certifier and the auditor. We have heard from submitters that the 'farmer' who may not be the owner can be a transient role. The Panel is of the view that the ultimate accountability and ownership of the FW-FP should rest with the land owner. There are circumstances in which, although there is both a land owner and a land manager, one or the other of them is responsible. There will be other circumstances in which this accountability is unclear. There may need to be contractual arrangements which clarify this accountability.

#### [Certification and auditing](#)

**Certification:** Clause 40 in the proposed NES-FM sets out the requirements for certification of an FW-FP by an 'approved' farm environmental planner. A certified planner is approved by the Minister for the Environment and Minister of Agriculture.

There are also standards for a suitably qualified planner as well as tests for approving a plan.

An approval scheme and supporting resources have not yet been established.

**Auditing:** Clause 41 sets out the requirements for all farm plans to be audited within 24 months of certification and every two to three years thereafter, by a suitably qualified and experienced person approved by the Minister for the Environment and Minister of Agriculture. There are standards for an auditor both in experience and in terms of completing a course or being a member of an internationally recognised programme.

An auditing scheme and supporting resources have not yet been established.

Following certification, the person responsible for the plan must provide a copy to the regional council and the planner informs the council of the date it was certified.

The Panel has considered whether an FW-FP should be certified, and if so, could this be done by a regional council (certificate of compliance), an industry body (membership) or other organisation. We also believe the plan template could be certified. This alternative could reduce the timeframes and resource cost for preparation. While we see some merit in having 'approved' templates such as quality assurance, industry buy-in and reducing timeframes, there is a risk of poor farm plan outcomes if there is no independent and expert certification at some stage in the process.

The Panel is of the view that farm plans should be 'live' and 'responsive' to on-farm activities and conditions. Plans could be amended as required to remain relevant, with minimal bureaucracy and could be amended before they are audited. This approach does have challenges – the audit every two or three years will need to be conducted against the 'certified' plan. We believe that this may be too frequent. If there has been no change in farm system, every four to five years would be more appropriate.

A potential pathway we considered was a set of industry or council templates, compliant with the requirements of the NES-FM. The industry templates would need to be approved by the Minister/Ministry. If an approved industry template has been used, a plan may be signed off by the individual farmer, and must be submitted to the council. Auditing in such cases would need to be brought forward to 12 months after the date of certification to ensure compliance, and would in part be a certification exercise. An industry template would be defined so as to include templates developed by councils, catchment groups, irrigation companies, industry groups, which have been approved by the Minister.(to move)

There may be some confusion about different timeframes for audit, depending on the route taken. Early auditing is critical for industry templates, but a longer period could be allowed where the plan has been developed by a certified planner. An early audit would be required in priority catchments (audited by 2022), and 2025 for others.

### **Recommended amendments**

As noted above, regional councils should also have the ability to certify a FW-FP. In the clause 25 definition of a certified FW-FP, after 'approved farm environment planner' add the words 'or regional council'.

Clause 40 should be amended to allow for approved industry template as an alternative to having plans immediately certified, allowing certification at an earlier first audit, and to agree with the above change to clause 25 (adding regional councils as certifiers). This may resemble:

*“An audit must be conducted within 24 months after the first certification of an FW-FP after completion of an FW-FP, except that if the farm plan has been certified by an approved farm environment planner, or if the subject is in a low-risk catchment, the audit may be postponed by up to 48 months.”*

In response to submissions seeking that certifiers and auditors have environmental management experience, in clauses 40(2)(a) and 41(3)(a): replace ‘pastoral, horticultural, or arable farm systems’ with ‘the relevant farm types, and environmental effects’.

#### Disputes resolution

At certain stages in the preparation, certification, implementation and auditing of FW-FPs, there is the potential for disputes: between the farmer and the professional assisting in preparation of the plan; between the professional and the council; between the council and the farmer and no doubt other examples.

For FW-FPs that are currently proposed to sit outside consents (ie, where the NES-FM requires an FW-FP but the farming is otherwise permitted) it is not likely, in our view, that there is any mechanism in the RMA to resolve disputes. This is an additional concern relating to the certainty of outcome. The Panel recommends that consideration is given to the final form of the NES-FM, and the statutory framework it sits in, to provide an appropriate process for resolving disputes.

#### FW-FP Plan Contents

The minimum prescribed content of FW-FPs is set out in clause 38. We recommend additions to the minimum contents of FW-FPs.

Arising from our recommendations about certain works relating to the restoration or enhancement of natural wetlands with minor effects, we recommend a corresponding reference in clause 38 (3) to the same.

As a result of our recommendations generally on sacrifice paddocks and intensive winter grazing (clauses 28, 29 and 33 of the draft NES-FM), we recommend adding reference to management of sacrifice paddocks, stock holding areas, and intensive winter grazing to clause 38 (3).

Our recommendations generally on the draft section 360 stock exclusion regulations conclude that the requirement of these regulations to exclude livestock from water bodies should not apply where there is an approved, audited and implemented FW-FP that demonstrably makes effective provision to avoid contamination of water bodies from farming activities, including livestock exclusion. We therefore recommend a review of the drafting of clause 38, to ensure it sets the appropriate objective for stock exclusion, against which certification and auditing will be assessed.

To ensure that industry’s progress to date is carried over to FW-FPs consistently, the Panel recommends that clause 38 also include a requirement for the FW-FP to include application of the relevant industry good management practices.

#### 8.1.2. Feedlots, sacrifice paddocks and other stock holding areas

Subpart 1 – Livestock Control in the NES-FM includes Clause 27 Feedlots, Clause 28 Sacrifice Paddocks, and Clause 29 Other stock holding areas.

The Panel understands the intention of the policy in Clause 27 was to capture intensive feedlots, the type of which are in fact relatively uncommon in New Zealand.

We note submitter concerns that definition has captured unintended animal classes and activities. We consequently recommend limiting the definition to areas containing cattle above a certain age

and weight, to address these concerns. The definition must not apply to wintering barns, which in fact have environmental benefits. We recommend specifically excluding wintering sheds and barns from the definition of feedlot in 27(1) of the draft NES-FM.

We also recommend amending clause 27(3) so that the clauses read as conditions of eligibility, and ensure that the word 'surface' is inserted before 'waterbodies' in (b) to say 'surface waterbodies' as aquifer water bodies may actually be closer than 50m.

For Clause 28, submissions raised significant issues about the proposed sacrifice paddocks regulations, particularly measuring compliance. Many suggested that instead their management would be better incorporated into FW-FPs. This would require farmers to consider good management practices and plan for adverse weather, to manage risk.

The Panel agrees that sacrifice paddocks should not be separately regulated. We recommend deletion of clause 28 of the draft NPS, and inclusion instead in the content of FW-FP in clause 38.

For clause 29 and stock holding areas, the Panel recommends simplification. Change the title to 'Stock Holding Areas'. Clause (2) contains standards which if complied with would make that stock holding a permitted activity. A requirement to have a farm plan should be added to the list in 29(2). If it is stock holding that is not compliant with a, b, or c, it would be restricted discretionary activity. In this case discretion would be restricted to the non-compliant matter only, along with the requirement to have a certified and implemented FW-FP. As noted we also recommend including stock holding areas in clause 38 as required content for FW-FPs.

### 8.1.3. Intensive winter grazing

Clause 30 of the proposed NES-FM sets out proposed new 'intensive winter grazing' regulations. Two options are proposed: Option 1 – National regulation (as set out in the draft NES-FM) or Option 2 – Industry set standards.

Option 1 is a national regulated approach for all current and future intensive winter grazing of forage crops. It was supported by the environmental NGOs, Māori and iwi, scientists, individuals, a few councils and the dairy sector if some amendments were made.

Option 2 is a flexible practice standard approach, allows modification as new information comes to hand and reduces consent requirements. It is supported by the sheep and beef sector, Federated Farmers, a few individuals and some councils.

LGNZ thought that some of the permitted activity conditions under Option 1 would be more appropriately addressed through FW-FPs.

Intensive winter grazing is both an environmental and animal welfare issue. We are aware of the Winter Grazing Taskforce report, released on 25 November 2019. Parts of this report could also help with environmental issues.

We considered the current drafting of clause 30 of the NES-FM too prescriptive. Some of the restrictions are inappropriate and impractical as regulation. However, we agree that some regulations or guidelines are necessary.

The pugging standard is impractical to implement or enforce and should not be included.

Addressing the options in the Action for Healthy Waterways discussion document, we recommend that 30(1)(a) reads as 15 degrees, 30(1)(b) reads as 50 hectares and 10 per cent, and that 30(1)(e) reads as 5 metres.

Several submitters were concerned that the proposed thresholds were in conflict with the Southland Land and Water Plan. This has Permitted Activity status up to a slope of 15 degrees and wintering area of 15 per cent or 100 hectares. To account for this the Panel recommends that winter grazing on up to 15 per cent area of the farm be allowed if a winter grazing plan is prepared. We therefore suggest the addition to 30 (1) b) as follows:

*“or 15% if a winter grazing plan is prepared and implemented which includes defining the location where intensive winter grazing is to take place, the location of waterbodies and critical source areas, effectively avoids contamination of waterbodies and critical source areas, and contains an effective contingency plan for adverse events.”*

The Panel acknowledges that the recommendations immediately above are consistently the less restrictive of the options presented to submitters. We are satisfied that these will enable sufficient environmental protection to achieve the objectives of the package. In order to create surety however, we recommend the addition of a new subclause after (g) as follows:

*“in other respects the location and duration of grazing avoids contamination of fresh water”.*

This would assist in preventing any adverse effects from these recommendations and, in order to practically meet the requirement to avoid, require farmers to adopt good management practice.

The Panel recommends that (c), (d) and (g) be omitted. We see for these provisions generally enforcement would be difficult to enforce and to monitor, and as matters of practice may be better addressed by farm plans which must comply with good management practice.

We also agree that the requirement to re-sow grazed paddocks at (e) is acceptable, but should be reworded to be ‘reasonably practicable’ to take account of weather conditions and the use of heavy machinery on wet soil.

#### 8.1.4. Nitrogen loss

Along with requiring that farm plans be developed, and the time frames in which to do so for Schedule 1 catchments, the Panel favours including Subpart 4 in the draft NES-FM. We favour a combination of Option 1 and Option 3 in the Action for Healthy Waterways discussion document.

The Panel has considered that where Overseer results may take some time to be available for all farmers (as in some of the most degraded catchments), the N-surplus model could be used in the interim, as some submitters recommended. However, as this would be a basis for whether a consent would be required under the NES-FM, we believe that the imprecision of N-surplus, for example in failing to account for mitigation measures by farms, could disadvantage those farms which had already undertaken mitigation which in reality could place that farm’s discharge below a threshold value.

Taking into account the capacity issues with Overseer, and the fact that Overseer does not cover all farming types, we recommend using Overseer, N-Surplus, or other appropriate as an interim measure, as long as only one is used within a catchment to ensure consistency. We understand that Schedule 1 catchments are likely to have numerous farms that are high dischargers. We recommend basing the calculation of threshold values under clause 47 on all the nitrogen loss figures supplied, including those of vegetable farms, and arable farms, not just dairy farms. It is the relative environmental effect which is important, regardless of the land use causing it. Clauses 44 and 45 should likewise apply to all those farm types. The Panel recommends setting the threshold specified in 47(2) of the NPS-FM at the 80th percentile. This is in part because it does not believe that

addressing only the worst 10 per cent of nitrogen emitters would make enough difference to 'hold the line'.

In catchments that used N-surplus to calculate the threshold, those farms already implementing mitigation measures who may be caught in the top 20 per cent (incorrectly), have the option of using Overseer through the consenting framework, to illustrate they are actually not high dischargers. The Panel is also aware of the tension between some on-farm mitigations such as feed pads, the emission of greenhouse gases, the need to allow time for further development, and wider adoption of Overseer, particularly for a larger range of farm types. Given these complexities, we recommend that the matters listed in clause 44 (4) and 45 (2) not be exclusive conditions, but instead be framed as among matters which the decision-maker may consider.

We recognise there could be a delay compiling Overseer results across the catchment if there are capacity constraints, and recommend a review of the timeframes defined in clause 46 of the NES-FM with this in mind.

## 8.2. Intensification provisions

### 8.2.1. Duration and sunset

The Panel understands that the Subpart 2 intensification provisions are intended to apply only in FMUs where the NPS-FM has not been fully implemented, and only for an interim period. Submitters raised concerns about the lack of a clear sunset clause on these provisions. We did seriously consider recommending a sunset clause of a date within 2028. There were pros and cons for having one, but we consider the requirement to finish the planning process to trigger the sunset of these rules a sufficient incentive.

We recommend clarifying that the date at which NPS-FM is implemented in an FMU is sufficient sunset to address submitter concerns. Clause 31(2)(b) appears to contemplate that action plans would be included in a regional plan. We do not consider that to be necessary or desirable.

### 8.2.2. Moratorium

Many submissions have suggested a moratorium on dairy conversions, increased intensification and water takes. A blanket moratorium is a very blunt instrument that does not allow any flexibility. The draft NES-FM allows for some flexibility in a way that avoids overall degradation. The Panel considers the approach to addressing intensification in the NES-FM appropriate until regional plans are operative. We do not endorse a moratorium.

### 8.2.3. Circumstances requiring resource consents

The clauses 33(3), 34(3), 35(4), 36(3) all propose a standard set of conditions for different types of activities. The Panel recommends that these clauses should be conditions of eligibility, and require that the decision-maker is confident that these will be met. If an application does not meet these conditions, it should be classed as non-complying.

The monitoring or modelling requirements at subclauses (c) in each of these clauses could be read as being onerous, as they are both difficult and expensive to determine. Many submitters were opposed to the subclause (c). They commented that it may lock land owners into their current land use, which may create perverse incentives for greenhouse gas discharges. The Panel was also concerned that for some contaminants there are limited tools to demonstrate that this condition is met.

There are alternatives to costly monitoring depending on the circumstances, for example an expert report, rather than modelling. The Panel understands that officials are considering alternatives to lessen the impact of complying with (c). We would support this.

In many catchments, the contaminant classes of concern may not include all four listed in (c)(nitrogen, phosphorus, sediment and microbial pathogens). Including the words 'as relevant' in (c) of each of the clauses 33(3), 34(3), 35(4), and 36(3), would ensure that only those contaminants of concern are assessed. The Panel's view is that the timing for setting baseline measures throughout the regulations ought to be consistent, and one year is not enough to establish baseline data – instead it should be an average of the previous three years.

The Panel does not agree with calls from submitters to remove these sections altogether, as the intention is to limit intensification. Removing this clause would delete that intention.

#### 8.2.4. Only over-allocated catchments?

A number of submissions called for these restrictions to apply only to over-allocated catchments (over-allocated in terms of water quality). In our figure 4 above we identified two types of overallocated catchment and recommended that councils prioritise their work in those.

Currently rules apply in all FMUs that do not have a regional plan implementing the NPS. The Panel supports application of these rules to the FMUs as provided for in clause 31, otherwise there is a risk in the interim of under-allocated catchments inadvertently becoming over-allocated. We note this only applies where regional plans are not in place, and believe that this provides an incentive to get regional plans in place. Councils will nevertheless need to prioritise their more degraded catchments

The Panel notes that this subpart of the NES-FM may be an additional barrier to owners of under- or undeveloped land, including Māori land owners. However, to meet the intention to 'hold the line' this is not unjustified in the short term. The Panel has considered whether there ought to be a specific consenting pathway for low-risk intensification in under-allocated catchments. We believe the consenting pathway set out in the rules as notified does allow for low-risk intensification in all FMUs. We also consider it appropriate, given the relatively short time in which these rules would apply, which is additional incentive to get regional plans in place. There is also an incentive for under- or undeveloped land owners, including Māori land owners, to engage in development which is only of low environmental risk.

#### 8.2.5. Clause-specific recommendations

##### [Intensive winter grazing \(clause 33 of draft NES-FM\)](#)

Submitters stated that this clause may cause a perverse outcome: if they could not increase the area of their winter grazing, this may result in more animals being grazed on the existing area of their winter grazing – effectively raising the intensity of grazing. Some also felt that being unable to intensify in the short term may restrict their capacity to meet other requirements. The Panel feels there is enough flexibility to avoid such outcomes.

We recommend amending the date in clause 33(1) to 1 June 2021, so that farmers have enough notice to plan the compliant planting of forage crops vegetables over the following season. We see this as a reasonable period for transition, especially in light of the transitional provisions in 20A of the Act.

##### [Irrigated farming](#)

Clause 34 sets the threshold between permitted and discretionary increases in irrigation at 10 hectares. The Panel considered options of smaller and larger thresholds, and concluded that 10

hectares was reasonable. We note that officials are developing options for exempting low-impact horticulture. The Panel sees that only applying the irrigated farming rule to irrigation for pastoral and arable production is appropriate as a means to do that. This would involve amending 34(1) and (2) to reflect that.

#### High-risk land use changes

The Panel has considered the implications of proposed clause 35 and considers it appropriate to have a consenting requirement for the specified changes in land use. We believe the key question is the level of intensity, and if that intensity is not being increased, the consent ought to be granted without undue cost.

#### Land use change to vegetable production

We recognise that vegetable growing is a major N emitter, which justifies bringing it into the regulatory framework in this part of the NES-FM. We prefer option 1 of the discussion document, as is in the draft NES-FM (p 65 of discussion document), as it best represents 'holding the line'. Due to the requirement that vegetable growers have FW-FPs by 2022, any grower wishing to expand will be in good place to get a consent, having completed their farm plan.

## Section 3: Draft stock exclusion Section 360 regulations

### 8.3. Proposals

A new regulation has been proposed to exclude all cattle, pigs and deer from lakes and wetlands, and from rivers more than 1 metre wide, with an average set back of 5 metres across 'low slope' land.

This has been proposed to put an end to heavy livestock (particularly deer and cattle) from damaging stream banks as well as defecating and urinating in the water.

The policy has been presented in s360 rather than the NES-FM so that it would also apply to farms that already hold resource consents.

The stock exclusion on low-slope and non-low slope land tables (pages 3, 4 in the draft s360) outlines what would be required in what timeframes, depending on type of water body and livestock class.

The draft regulations would apply to rivers (as defined in the RMA), excluding those less than 1 metre wide and ephemeral streams, and to wetlands (specifically defined).

The definition of wetlands in the draft regulations would exclude wet pasture, or paddocks where water temporarily ponds after rain in places dominated by pasture, or that contain patches of exotic sedge or rush species.

#### 8.3.1 Extent of setback

The draft regulations would prescribe that the extent of setback to be fenced off to exclude livestock from a river would be 5 metres on average across a property (with a minimum width of 1 metre). That would be measured from the edge of the bed (or edge of the wetted bed).

The regulations need to be clear and easy to monitor.

#### Submissions

Many questioned whether excluding livestock from such an extent of property is justified, on the ground of loss of productive land and impact on business income. Some argued that 5 metres would be too much and the burden extensive, and others that it should be more. Some science submissions noted that 5 metres is a minimum needed for effective filtering of contaminants by riparian vegetation.

Questions were also raised about where to measure the extent from (edge of active bed, or bankfull channel) and how to assess the average.

The Department of Conservation suggested enabling councils to set wider buffers to meet catchment objectives or for particularly sensitive receiving environments.

The Freshwater Leaders Group proposed that the 1-metre limit be reduced as smaller waterways 'carry the lion's share of the contaminant burden'. In consultation a question was raised whether the requirement should apply to all wetlands including seeps of any size in hill country. It was suggested that the decision to exclude stock from them should be left to FW-FPs.

There was substantial support on pro forma submissions from environmental NGOs. A number of submitters reported that there is inconsistency in setback distances required by various councils, and a substantial number of individual farmers stated their concerns about loss of productive land and resultant income. This was one of the most frequently commented-on issues in submissions.

The following are some of the issues submitters raised about the 5-metre setback:

- ② Ongoing costs. Fencing and planting is just the start of a riparian management plan; there are significant on-going costs releasing trees, managing weeds and pests, and maintaining fences into the future, which all appear not to have been fully addressed.
- ② Weeds and pests. This will become a big issue to manage and potentially even a fire hazard in some areas.
- ② Changing watercourses. This is particularly an issue in the high country, but also happens in other areas where streams and rivers shift.
- ② QEII Trust. QEII covenants are gifted to the QEII Trust and this organisation pays half the cost of fences. If fences need to be moved this will be a significant financial burden.
- ② High rainfall events. Some areas such as Gisborne are particularly prone to these. Trees and other material being pushed down streams and rivers would cause significant damage if fences were erected in some areas.
- Unintended consequences. For example, 5-metre setbacks may mean drains couldn't be cleaned, which is a requirement in some areas. Diggers would have to go inside fences, which would likely erode stream banks.
- ② Significant loss of productive land. The setbacks would lead to significant loss of farm land, reduction in production and income, while farmers would still be required to pay rates and other debt repayments on this land.
- ② There is some crossover and potential conflict between the requirement for farms to have an FW-FP (prescribed by the NES-FM) and the draft s360 regulations. The NES-FM states that an FW-FP (in order to be certified by a farm environment planner) must be consistent with good farming practice. This prescribes stock exclusion as being compatible with land form, stock class and intensity, which may cause some conflict with the setbacks prescribed in the proposed stock exclusion regulations. Clause 38(3) needs to be amended to clarify the distinction between the water bodies covered by the draft s360 regulations and those covered by the FW-FP.
- ② There is inconsistency in setback distances required currently from various councils (although we note that in some cases this is due to topographical and hydrological variability in different catchments).
- ② LGNZ requested that land managed by regional councils be exempt as part of regionally or nationally significant infrastructure.
- ② Many farmers have already fenced off waterways; there would be significant loss of goodwill if they are now required to move them. This would discourage early adopters of voluntary good practice in the future.

### **Consideration**

The Panel believes that in principle the concept of keeping intensively grazed stock from waterways was widely agreed upon, including by farmers. The challenge is in finding a way to achieve this without undermining the good work already done by many farmers, or adding significant costs to businesses which may be superseded by new ways of doing things. This issue can also be seen as ultimately rooted in the need to improve management practices on farms.

Considering the various proposals for the width of setbacks (some more than 5 metres, some less), the Panel considers this is not a question of calculation but of judgement, one on which a line has to be drawn somewhere, with plausible arguments for less, and for more.

The question of where the 5 metres average is to be measured from involves noticing the wide range through the country of the shapes of rivers and their beds. This requires a simple description, readily recognised, rather than sophisticated statistics about the river in question. The Panel believes the expression in the draft regulations ('edge of the bed') would be practical and appropriate.

On how to assess the average depth of setback, this requires a method that can be applied in a straightforward way. The Panel is not aware that any has been proposed in submissions on the draft regulations, and recommends that the Ministers seek expert advice from the Surveyor-General.

We also consider valid the concern that suitable setbacks need to be determined with consideration of where it is practical to put up a fence, and should have regard for risk. Setbacks may at times need to be substantially wider than 5 metres where overland flow paths intercept a waterway, or in cases of steep stream banks. In such cases the challenge of stock exclusion may best be dealt with at an individual farm level by a suitably qualified person working with the farmer to decide the best approach.

On the width of rivers to which the exclusion would apply, the Panel considers the exclusion of rivers less than the proposed 1 metre average width a sufficient measure. If experience shows it is inadequate for ecosystem health, an amendment could be considered to apply to narrower river and streams.

The Panel finds the 5-metre measure moderate and appropriate. We also find that 10 degrees is sufficient as the line between low and non-low slope. Where there are existing fences excluding stock from waterways to an extent less than 5 metres, we recommend there be no requirement to replace that fence until the end of its life.

An alternative way to manage the risk that livestock will affect water quality is through an FW-FP. This allows for risk management at an individual farm level. As new technology and innovation becomes available this can also be incorporated into the farm system. The life of a fence is between 30 and 50 years; however if affordable virtual fencing becomes commercially available, fencing will no longer be required.

The Panel therefore recommends a new clause of general exception to the rule, to the effect that:

*"The requirement of these regulations to exclude livestock from water bodies does not apply where there is an approved, audited, and implemented FEP that demonstrably makes effective provision to avoid contamination of water bodies from farming activities, including providing for livestock exclusion."*

We note that if this exception is adopted, fences at less than 5 metres may thereby not require replacement, if there is a certified FW-FP addressing stock exclusion. Problems arising from setting a national setback distance will, through this exemption, increasingly be resolved by Farm Environment Plans.

We believe criteria for exemptions (at paragraph c) of the Draft Stock Exclusion Section 360 Regulations) ought to be stated, and understand the intention is that regional councils are the arbitrators of exemptions, which we agree to in principle.

Finally, the Panel believes that ideally actual stock units per hectare (SU/ha) would replace the carrying capacity measure as a threshold. We have discussed whether variability could be allowed across different periods of the year. However, we believe the regional variability may be too significant to make any recommendation in this instance. If real stocking rates were used as a threshold, we recommend 14SU/ha on-farm basis as the threshold, and the exclusion of sheep. We understand more work is being done by officials on measures of livestock intensity, and the measures of slope clauses.

## Section 4: Appendices

### Appendices:

- Appendix 1 – Terms of reference
- Appendix 2 – Publications considered during deliberations
- Appendix 3 – Recommended attribute table

# Terms of Reference for the Freshwater Independent Advisory Panel 2019

## Background

1. Cabinet has agreed to publicly consult on a package of regulations under the Resource Management Act 1991 (the RMA), including:
  - a) a new National Policy Statement for Freshwater Management (NPS)
  - b) a National Environmental Standard for Freshwater (NES-FM); and
  - c) regulations under section 360 of the RMA.
2. The Minister for the Environment (the Minister) has decided to follow the process set out under section 46A(3)(b) of the RMA in preparing the NPS and NES-FM (national direction), including:
  - a) notification – the public and iwi authorities must be given notice of the proposed national direction, and why the Minister considers that the proposed national direction is consistent with the purpose of the RMA
  - b) consultation – those notified must be given adequate time and opportunity to make a submission on the subject matter of the proposed national direction; and
  - c) report and recommendations – a report and recommendations must be made to the Minister on the submissions and the subject matter of the national direction.
3. As part of this process, the Minister has decided to establish a Freshwater Independent Advisory Panel (the Panel) to prepare the report and recommendations.

## Role of the Panel

4. The Panel has a recommendatory function only. The Minister will make final decisions on all policy matters, including whether to proceed to recommend the national direction and regulations be made, or to choose alternative means of implementing the policy.
5. The Panel shall prepare a report and recommendations that meet the requirements of section 46A(4)(c) of the RMA and, in doing so, consider the matters listed in section 51(1) of the RMA.

## Matters to be explicitly addressed in the Panel's report

6. While the Panel may consider the proposed national direction and the proposed section 360 regulations, the report and recommendations are only a formal requirement for preparing national direction under section 46A(4)(c) of the RMA.
7. For the above reason, the Panel must in its report:

- a) consider and provide recommendations on submissions and the subject matter of the national direction
  - b) consider how councils and individuals will give effect to the proposed national direction
  - c) take into account the principles of the Treaty of Waitangi (Te Tiriti o Waitangi), and comply with any other relevant requirements under the RMA; and
  - d) give its reasons for any recommendations.
8. The Panel's report and recommendations may also address:
- a) the internal consistency of the national direction and regulations, and ways to address any potential inconsistencies
  - b) whether the proposed national direction and regulations are sufficiently certain and clear, and if they are not, options to improve them
  - c) the removal or further refinement of specific proposals within the national direction and regulations where this is appropriate for achieving the policy intent
  - d) the identification of any unintended or unforeseen but likely outcomes of the proposed national direction and regulations, and ways to address these; and
  - e) any other matters the Panel considers relevant to the proposed national direction and regulations.
9. The Panel's report and recommendations should clearly communicate the policy intent behind any suggested changes so that it is able to be reflected in legal drafting.
10. The Panel's report should be sent to the Minister's office as a hard copy signed by the Chair on behalf of all members of the panel. Electronic copies of the Panel's report should be sent to the Minister's office, the Secretary for the Environment, and the Secretariat of the Panel.

## Administrative support to the Panel

11. The Panel will be supported by a Secretariat based at the Ministry for the Environment (the Ministry).
12. The Ministry will also provide the Panel members with:
- a) copies of submissions received during the consultation
  - b) a summary of submissions
  - c) a summary of any additional information gathered from iwi, councils and other submitters during hui or public meetings throughout the consultation period; and
  - d) other relevant documentation to assist with the development of the Panel's recommendations.
13. For the purpose of these Terms of Reference, the Ministry is represented by:
- a) Martin Workman, Director, Water
  - b) Katherine Meerman, Director, Water; and

- c) Cheryl Barnes, Deputy Secretary for the Environment.

## Membership

- 14. The Panel will be comprised of five members, including a Chair.
- 15. The Minister for the Environment will appoint all members of the Panel, including the Chair.
- 16. All members, including the Chair, are appointed on the terms and conditions specified in their letter of appointment and these Terms of Reference.
- 17. Any member, including the Chair, may resign at any time by notifying other members and the Minister for the Environment in writing.
- 18. Any member's appointment, including the Chair, may be terminated at any time for good reason by the Minister. Good reason includes, but is not limited to, failure to regularly attend meetings, and failure to act in accordance with the standards of conduct in Appendix 1.

## Roles and Responsibilities

- 19. The Chair will:
  - a) agree a forward work programme with the Ministry and oversee the progression of the work in conjunction with the Secretariat
  - b) set meeting agendas, with the assistance of the Secretariat, and approve meeting minutes
  - c) facilitate meetings with the Ministry, encouraging and modelling open communication where all members contribute effectively
  - d) determine, with assistance from the Secretariat, what action is appropriate if a member has a potential conflict of interest
  - e) represent the Panel in any meetings with the Minister for the Environment, the Ministry or other stakeholders, as required
  - f) seek written approval from the Ministry before incurring any significant expenditure or financial commitment on behalf of the Panel (excluding incidentals such as travel, accommodation and reasonable expenses); and
  - g) provide regular updates to the Ministry on progress in developing recommendations, to allow the Ministry to undertake additional analysis as soon as practicable (eg, impact analysis if significant changes are likely to be recommended).
- 20. If the Chair is absent from a meeting, the Chair may designate an Acting Chair for that meeting. If the Chair does not designate an Acting Chair, then the Acting Chair shall be elected by simple majority of those members present at the next meeting.
- 21. All Panel members, including the Chair, have the following roles and responsibilities:
  - a) make every effort to attend each meeting and report anticipated absences to the Secretariat
  - b) prepare adequately prior to each meeting and participate actively in meetings, contributing to actions when agreed

- c) bring matters of significance to the attention of the Panel and use professional perspectives to undertake analysis or prepare advice as required
- d) maintain a broad knowledge of the issues and interests that relate to the operations of the Panel, not regarding themselves as representatives or advocates for particular sectors or interests
- e) comply with the Standards of Conduct in Appendix 1; and
- f) record any actual or perceived conflict in writing and provide it to the Secretariat at the first opportunity, and at any time during the Term if a new conflict arises. In the event of a conflict of interest being identified the Secretariat will provide guidance on the appropriate response.

22. The Secretariat will:

- a) support the Chair and prepare meeting agendas
- b) record meeting minutes and action points from Panel meetings
- c) circulate meeting packs (agenda, minutes and any papers required)
- d) create or commission papers for Panel meetings as required
- e) procure research on behalf of the Panel if required
- f) book travel, accommodation, catering and venues as required; and
- g) administer expenditure requests, member remuneration and reimbursement as required.

## Term of the Panel

23. The Panel will run from the commencement date set out in the letters of appointment, until the receipt by the Minister of the report and recommendations by the end of December 2019. The following table provides indicative dates and key milestones:

Date	Milestone
<b>5 September 2019</b>	Panel commences work alongside public consultation.  Panel members attend public meetings, hui, and targeted engagement where possible.  Submissions are made available to the Panel as they are received.
<b>31 October 2019</b>	Public consultation closes.
<b>20 November 2019</b>	Officials deliver a preliminary summary of submissions to the Panel.
<b>21 February 2020</b>	Panel delivers final report and recommendations to the Minister.

## Appendix 1: Standards of Conduct

All members and observers are expected to adhere to the following standards of conduct.

### Conflicts of interest

A conflict of interest will occur when a member's private interest interferes, or appears to interfere, with an issue that faces the Panel. A conflict of interest will also occur when there is a possibility that a benefit may apply to a sector, industry or organisation that they represent. A conflict of interest may be real or perceived.

Any situation that involves or may be expected to involve a conflict of interest must be declared immediately to the Chair and recorded in writing, as soon as the conflict arises.

At the discretion of the Chair, members and observers may participate in discussions about issues in which they have declared a conflict of interest, and how they will be managed.

### Confidentiality and media

In order for the Panel to operate effectively, members must maintain the confidence of the Panel, including maintaining confidentiality of matters discussed at meetings, and any information or documents provided to the Panel.

Where information is already in the public domain (through no fault of a member or observer), the confidentiality requirements do not apply to that information.

Where information is not already public;

1. The Chair may seek agreement from the Minister for the Environment for the Panel to release a media statement.
2. A member may only participate in a media interview or public statement about the business of the Panel if they have obtained the prior written approval of the Chair and the Minister for the Environment.

### Privacy Act 1993

Members and observers must at all times comply with the requirements of the Privacy Act 1993 and keep information about identifiable individuals confidential.

### Official Information Act 1982

All information held by the Ministry (including information produced by the Panel) is official information under the Official Information Act 1982 and, subject to the requirements of that Act, may be released to the public.

If the Ministry is considering releasing information under the Official Information Act 1982, the Ministry will inform the person who provided the information before it is released.

## Corporate opportunities

Members must not exploit any opportunity that is discovered through access to information within the Panel for their own personal gain or that of any industry, sector or organisation that they represent.

## Respect for others

Members will treat each other and the opinions of others with respect at all times. Members will not take unfair advantage of anyone through manipulation, concealment, abuse of privileged information, misrepresentation of material facts or any other unfair dealing practices.

## Advocacy

Members must avoid actively promoting a standpoint or cause of their industry and will participate in meetings with the aim of reaching an outcome that is acceptable to all participants.

## Appendix 2 – Publications considered during deliberations

Action for Healthy Waterways Discussion Document

Te Mana o te Wai: The Health of our Wai, the Health of our Nation (Kāhui Wai Māori Report to the Minister Hon David Parker) (April 2019)

Freshwater Science and Technical Advisory Group Report to the Minister for the Environment (June 2019)

Report of the Freshwater Leaders Group to the Minister for the Environment (July 2019)

Regional Sector Commentary on Essential Freshwater Proposals He Pito Kōrero e pa ana ki Ngā Tūtohu Mō te Waimāori (Regional Sector Water Subgroup September 2019)

Draft of the second Freshwater Science and Technical Advisory Group Report to the Minister for the Environment (forthcoming)

NZTA File Note on the Ministry for the Environment Freshwater Proposals – Actions for Healthy Waterways v2 (December 2019)

## Appendix 3 – Recommended table of Attributes

Appendix 2A	Appendix 2B	Appendix 2C (new)	Appendix 2D (new)
MANDATORY LIMITS	MANDATORY ACTION PLANS	OPTIONAL TARGETS	OPTIONAL TARGETS
Mandatory monitoring	Mandatory monitoring	Mandatory monitoring	Non-mandatory monitoring
For implementation in regional plans	Non-regulatory catchment or water body action plans	To start to establish database of information	Transparent community process to establish attributes
<p>Table 1 – Phytoplankton</p> <p>Table 2 – Periphyton</p> <p>Table 7 – Ammonia (species sensitivity) <b>90% C Band</b></p> <p>Table 8 – Nitrate (species sensitivity) <b>90% C Band</b></p> <p>Table 9 – Dissolved oxygen (point source)</p> <p>Table 11 – <i>E. coli</i> (human contact)</p> <p>Table 12 – Cyanobacteria (planktonic)</p>	<p>Table 3 – Total N (lakes)</p> <p>Table 4 – Total P (lakes)</p> <p>Table 5 – DIN (rivers)</p> <p>Table 6 – DRP (rivers)</p> <p>Table 10 – Sediment (suspended)</p> <p>Table 18 – Sediment (deposited)</p> <p>Table 13 – MCI <b>NBL 90</b></p> <p>Table 19 - Dissolved oxygen (rivers)</p> <p>Table 23 – <i>E. coli</i> ( primary contact bathing season)</p>	<p>Table 15 – Fish IBI</p> <p>Table 22 – Ecosystem metabolism</p>	<p>Table 13 – QMCI</p> <p>Table 14 – ASPM</p> <p>Table 16 – Submerged pants (natives)</p> <p>Table 17 – Submerged plants (invasive species)</p> <p>Table 20 – Lake-bottom dissolved oxygen</p> <p>Table 21 – Mid-hypolimnetic dissolved oxygen</p> <p><b>New:</b></p> <p>Benthic cyanobacteria</p> <p>Cu, Zn, Cd</p>

			<p>Habitat attributes (connectivity, substrate, in-stream debris/cover, bank stability, riparian vegetation, habitat diversity, trophic status)</p> <p>Groundwater (potable supply)</p> <p>Water quantity: water allocation limits, environmental flows and reliability of supply</p> <p>Water temperature</p> <p>Electrical conductivity</p> <p>pH</p>
Indicates changes to limits			