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National Policy Statement for Freshwater Management 2014: Draft Implementation Guide

New Zealand Government

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1 Introduction

1.1 Purpose and focus of this guide

This implementation guide provides local authorities with commentary on the National Policy Statement for Freshwater Management 2014 (NPS-FM). The NPS-FM replaces the National Policy Statement for Freshwater Management 2011. This guidance does not form part of the NPS-FM and does not have statutory weight. This document is not a substitute for legal advice.

The guide's purpose is to assist local authorities to understand the objectives, policies, concepts and processes within the NPS-FM, and to assist local authorities in deciding how the NPS-FM should be implemented. It draws on, and expands on, information contained in Cabinet papers and reports to the Minister for the Environment¹ to describe the policy intent behind the NPS-FM.

It is up to local authorities and their communities to determine appropriate local objectives, methods, rules and management options, taking into account their particular local and regional circumstances. New and innovative approaches are encouraged to give effect to the NPS-FM.

This implementation guide is published as a draft to enable local authorities and other practitioners to provide feedback to the Ministry prior to finalisation.

To support this implementation guide, a package of further guidance will be developed to provide more detailed information about individual parts of the planning process under the NPS-FM.

Guidance on implementing the NPS-FM will also be periodically updated in consultation with regional councils as policy, case law, good practice methodologies and the science are developed further. Future guidance material will be made available on the Ministry for the Environment's website, and local authorities will be notified when updates or additional guidance are released.

1.2 Context – reforming the way we manage fresh water

The NPS-FM is one of the initiatives developed as part of the Government's Fresh Start for Fresh Water programme of water reform. The NPS-FM is a vital part of reforming the way we manage freshwater, because:

- the National Objectives Framework (NOF) provides a process for setting freshwater objectives
- accounting for freshwater takes and contaminants will provide information for setting and managing to freshwater objectives and limits

¹ Relevant documents relating to the development of the NPS-FM can be found at www.mfe.govt.nz/rma/central/nps/freshwater-management-background.html

- the limits and methods that councils set as part of the NPS-FM will affect how water is used, and this may require water resources users to adjust their practices
- regional councils are required to work with iwi and hapū to identify tāngata whenua values and interests in fresh water and reflect these in the management of, and decision-making regarding, fresh water.

Implementing the NPS-FM will take time, will involve new approaches, and will not necessarily be achieved in one step. The NPS-FM is only one part of the freshwater reform programme; further work is underway which will contribute to improving the way fresh water is managed in New Zealand. In addition, community led initiatives, and collaboration between communities, local authorities and iwi will be important in improving freshwater management.

Information on the Fresh Start for Fresh Water programme and its objectives is available on the Ministry for the Environment website.²

² www.mfe.govt.nz/issues/water/freshwater/freshwater-reform-2013/index.html

2 Relationships to other regulatory instruments

The National Policy Statement for Freshwater Management 2014 (NPS-FM) is an instrument under the Resource Management Act 1991 (RMA), and must be interpreted and given effect to within the context of the RMA.

The following sections explain the relationship between the NPS-FM and other associated documents and national instruments.

2.1 National policy statements

All national policy statements must be considered, and given effect to, individually. They are not prioritised over each other, or considered to be in conflict with each other. National policy statements with particular relevance to the NPS-FM are described below, and a full list of all national policy statements is available on the Ministry for the Environment website.³

National Policy Statement for Renewable Electricity Generation

The National Policy Statement for Renewable Electricity Generation 2011 (NPSREG) provides for the development, operation, maintenance and upgrading of new and existing renewable electricity generation activities.

The preamble to the NPSREG notes that: “this national policy statement does not apply to the allocation and prioritisation of fresh water as these are matters for regional councils to address in a catchment or regional context and may be subject to the development of national guidance in the future”. However, councils will need to ensure that both the NPS-FM and the NPSREG are given effect to in any regional plan changes.

Appendix 1 of the NPS-FM identifies hydro-electric power generation as one of the national values of fresh water, which must be considered by councils under Policy CA2(a), but it is not prioritised over the other national values. The NPSREG is available on the Ministry for the Environment website.⁴

New Zealand Coastal Policy Statement 2010

The definition of ‘coastal water’ in the RMA includes seawater with a substantial fresh water component and seawater found in fiords, inlets, embayments harbours and estuaries. The management of coastal water is directed by the New Zealand Coastal Policy Statement 2010 (NZCPS).

³ www.mfe.govt.nz/rma/central/nps

⁴ www.mfe.govt.nz/publications/rma/nps-renewable-electricity-generation-2011/index.html

The NZCPS contains objectives and policies for managing water quality in the coastal environment. Fresh water in the coastal environment, such as in a dune lake or groundwater, is covered by the NPS-FM. Several NZCPS objectives and policies will need to be considered when giving effect to the NPS-FM. Those that are particularly relevant are listed below:

- Objective 1: Ecosystems
- Objective 3: Treaty of Waitangi
- Policy 2: Treaty of Waitangi, tāngata whenua and Maori
- Policy 4: Integration
- Policy 21: Enhancement of water quality
- Policy 22: Sedimentation
- Policy 23: Discharge of contaminants.

The interrelationships and overlaps between objectives and policies in the NZCPS and the NPS-FM are addressed in the relevant parts within Section 3 of this implementation guide. These links require particular consideration when local authorities give effect to the individual objectives and policies of the NPS-FM.

The NPS-FM does not directly address estuaries as these are not considered fresh water as defined by the RMA. However, by improving the integrated management of land use and fresh water, particularly the interactions of fresh water on the coastal environment (Objective C1) and the connections between freshwater bodies and coastal water (Policy A1 and B1), regional councils will need to consider the effect of decisions within catchments on receiving waters, including estuaries. Estuarine water quality will be affected by its freshwater inputs, meaning that these inputs may need to be managed to ensure that those freshwater limits reflect and provide for the values of those estuaries.

The NZCPS is available on the Department of Conservation's website.⁵

2.2 National environmental standards

National environmental standards (NES) are regulations issued under the RMA. NES prescribe technical standards, methods or requirements for particular matters. NES are a specific requirement with the force of a rule and local authorities must enforce them.

The scope of an NES is limited to:

- standards
- methods for classifying a natural resource

⁵ www.doc.govt.nz/publications/conservation/marine-and-coastal/new-zealand-coastal-policy-statement/new-zealand-coastal-policy-statement-2010/

- methods to implement standards
- exemptions from standards
- transitional provisions.

An NES regulates activities (as permitted, controlled, prohibited etc) according to those standards or classifications in the same way that a rule in a regional or district plan would. An NES cannot include policies or objectives, so cannot direct the planning process. NES are not, therefore, suited to directing processes for formulating objectives in regional plans where water bodies are in various states of quality, are subject to varying pressures, have various intrinsic values, and where communities value differing uses for the water.

NES with particular relevance to the NPS-FM are described below, and a full list of all NES is available on the Ministry for the Environment website.⁶

National Environmental Standard for Sources of Human Drinking Water

The National Environmental Standard for Sources of Human Drinking Water is intended to reduce the risk of contaminating drinking water sources, such as rivers and groundwater. This NES will be relevant to regional councils considering how to give effect to the NPS-FM because it requires the councils to ensure effects on drinking water sources are considered in regional plans and decisions on resource consents. This NES will be particularly important where regional councils identify the additional value of water supply as a relevant value for water bodies in their region, as it is likely to influence limit-setting. This NES is available on the Ministry for the Environment's website.⁷

2.3 Resource Management (Measurement and Reporting of Water Takes) Regulations 2010

The Resource Management (Measurement and Reporting of Water Takes) Regulations 2010 require water takes greater than 5 L/sec to be measured and results reported to the regional council. The regulations are available on the Ministry's website.⁸

These regulations will assist councils to implement Objective B3 of the NPS-FM, which requires regional councils to improve and maximise efficient allocation and efficient use of fresh water. The regulations also support the freshwater accounting requirements under part CC of the NPS-FM, by requiring the collection of information on water takes.

⁶ www.mfe.govt.nz/laws/standards/

⁷ www.mfe.govt.nz/laws/standards/drinking-water-source-standard.html

⁸ www.mfe.govt.nz/rma/central/measuring-reporting-water-takes.html

2.4 Water Conservation Orders

The purpose of Water Conservation Orders (WCOs) is to recognise the outstanding amenity or intrinsic values that water provides in either a natural or modified state. They are granted by the Minister for the Environment and gazetted under the RMA. A WCO can restrict or prohibit water takes, discharges and other uses of the water in a particular water body.

Existing and new WCOs may help in identifying values, or setting objectives to give effect to the NPS-FM. They may also include provisions that are relevant when considering how to give effect to the NPS-FM. For example, a requirement that a water body “shall remain in its natural state” could be considered under the additional value of natural form and character or as an “other value that the regional council considers appropriate”. Freshwater objectives could then be set to reflect the natural state of the water body using the attributes in Appendix 2 (and any others). Additional values from Appendix 1, which do not conflict with this WCO requirement, could be added through the planning process. Any activity that has an impact on the quality or quantity of the water body can be assessed against the value to maintain the water body in its natural state or maintain the value identified in the WCO.

Numeric freshwater objectives and national bottom lines may help to meet the ‘environmental state’ objectives of a WCO. Some WCOs also set a flow and/or water quality regime, which will contribute to defining a quantity limit under the NPS-FM. Where a WCO exists, a council would need to ensure that any freshwater objectives set under the NPS-FM, or methods implemented to meet them, are consistent with the provisions of the WCO.

A full list of current WCOs can be found on the Ministry for the Environment’s website.⁹

2.5 Environmental Reporting Bill and Environmental Monitoring and Reporting Programme

Environmental Reporting Bill

The purpose of the Environmental Reporting Bill is to create a national-level environmental reporting system. If enacted, it would require the Secretary for the Environment and the Government Statistician to publish a domain report on one of five environmental domains, including one on fresh water, every six months. A whole of environment synthesis report (that includes an analysis of cross-domain trends and interactions) would also be produced once every three years. The freshwater domain report would include information on the biophysical state of the freshwater domain, trends over time, pressures driving changes in the state, and the impacts of changes in the state on ecosystem integrity, public health, economic benefits, and culture and recreation. The Bill had passed its first reading and has been referred to the Local Government and Environment Select Committee at the time of writing, however is subject to change as it progresses through the

⁹ www.mfe.govt.nz/issues/water/freshwater/water-conservation

legislative process. Information on the Environmental Reporting Bill can be found on the Ministry for the Environment's website.¹⁰

The NPS-FM places an obligation on regional councils to develop methods for monitoring progress towards the achievement of freshwater objectives. The intent behind this requirement is for councils to develop monitoring systems that are relevant to the freshwater objectives being monitored, and appropriate for determining progress against those freshwater objectives.

Much of the data reported at the national level under the Environmental Reporting Bill (if enacted) is likely to be based on data that is collected by regional councils. Councils implementing the NPS-FM should also consider national scale monitoring and reporting requirements when developing monitoring programmes to give effect to the NPS-FM. For regional data to have utility at the national scale it needs to be collected across the country in a manner that is consistent, accurate, current, relevant and representative of the variables of interest. While consistency of approaches across regions is not a requirement of the NPS-FM, collecting data in a consistent way will assist regions with the freshwater objective and limit-setting processes by providing high quality national data that is necessary for:

- developing, assessing and improving the performance of models
- benchmarking performance
- providing reference sites with which to compare impacts.

Environmental Monitoring and Reporting programme

To meet the goals stated above, the Regional Sector Group of Local Government New Zealand (LGNZ) and the Ministry for the Environment have agreed to develop and operate integrated regional/national environmental data collection networks and accessible reporting platforms. This will include standard monitoring protocols and methods, and a nationally federated data management system. This Environmental Monitoring and Reporting (EMaR) programme is to be collectively and cooperatively governed by representatives of regional councils, LGNZ and the Ministry for the Environment.

EMaR will build on the original Ministry for the Environment led National Environmental Monitoring and Reporting (NEMaR) programme which commenced in mid-2011. NEMaR identified inconsistencies between regional council State of Environment monitoring networks, particularly in regard to distribution of monitoring sites, site coverage, sampling regimes (frequency and timing), measurement protocols, precision and quality assurance. Best practice recommendations were made, which will be useful to regional councils considering their monitoring programmes. These reports are available through the Ministry for the Environment's website.¹¹

¹⁰ www.mfe.govt.nz/environmental-reporting/about-environmental-reporting/reporting-programme/environmental-reporting-bill-and-framework.html

¹¹ *Freshwater monitoring protocols and quality assurance National Environmental Monitoring and Reporting (NEMaR) Variables Step 2* is available at www.mfe.govt.nz/publications/ser/freshwater-monitoring-protocols-qa-nemar-variables-step-two.html. *Representativeness and statistical power of the New Zealand river monitoring network: NEMaR Network*

2.6 Section 69 and Schedule 3 of the RMA

The NPS-FM requires councils to set freshwater objectives in regional plans, and to set limits to give effect to the freshwater objectives. Councils need to then decide what methods are needed to meet the limits and achieve the objectives.

When determining appropriate methods, section 69 and Schedule 3 of the RMA may be relevant. Schedule 3 of the RMA sets out a range of water quality classes, and section 69 sets out how the Schedule 3 classes relate to rules in regional plans. A council can use section 69 to give effect to the NPS-FM, provided the rules developed through section 69 give effect to the NPS-FM.

Under section 69 a regional council could decide to use the classifications set out in Schedule 3 and include rules about water quality using the Schedule 3 standards. For example, a freshwater objective could be set in numeric terms (eg, 260 *E. coli* per hundred millilitres) under the NPS-FM and classify (classification being a method in a plan) the water body as Class CR Water (water managed for contact recreation purposes). The rules for the freshwater management unit would then employ the standards in Schedule 3.

Section 69 allows for circumstances where a council considers that the standard in Schedule 3 is not adequate or appropriate to achieve the freshwater objective and, in those circumstances, allows for rules to state standards that are more stringent or specific.

2.7 Treaty settlement legislation

A key feature of many Treaty settlements is the establishment of natural resource arrangements, often centring on water bodies, to enable iwi/hapū to have a more effective role in resource management. These settlement arrangements are designed to promote integrated, catchment-based management, and will support the work of local authorities in giving effect to aspects of the NPS-FM. Councils with Treaty settlement obligations will be required to implement those obligations alongside meeting the requirements of the NPS-FM.

The following three pieces of Treaty settlement legislation specifically relate to the Waikato and Waipa Rivers:

- Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010
- Ngāti Tūwharetoa, Raukawa and Te Arawa River Iwi Waikato River Act 2010
- Ngā Wai o Maniapoto (Waipa River) Act 2012

Design step 2 is available at www.mfe.govt.nz/publications/ser/representativeness-statistical-power-new-zealand-river-monitoring-network.html

Under these Acts the Waikato River Authority's Vision and Strategy prevails over any inconsistent provisions in national policy statements. The Vision and Strategy is available on the Authority's website.¹²

2.8 Hauraki Gulf Marine Park Act 2000

Under the Hauraki Gulf Marine Park Act 2000 (HGMPA)¹³, the provisions of section 55 of the RMA apply as though sections 7 and 8 of the HGMPA were a national policy statement.

Section 7 of the HGMPA recognises that the interrelationship between the Hauraki Gulf, its islands and catchments, and the ability of that interrelationship to sustain the life-supporting capacity of the environment of the Hauraki Gulf and its islands, are matters of national significance. Section 8 sets out the objectives of the management of the Hauraki Gulf, its islands and catchments.

These sections of the HGMPA overlap with the requirements of the NPS-FM in the Auckland and Waikato regions. In those regions, councils need to ensure implementation of the NPS-FM does not conflict with the HGMPA. The more specific NPS-FM will provide direction in implementing sections 7 and 8 of the HGMPA.

¹² www.waikatoriver.org.nz

¹³ www.legislation.govt.nz/act/public/2000/0001/latest/DLM52558.html

3 Implementation by local authorities

Local authorities are required to ‘give effect’ to national policy statements in their regional policy statements and regional and district plans, and to ‘have regard’ to a national policy statement in determining applications for resource consents. The objectives and policies in the National Policy Statement for Freshwater Management 2014 (NPS-FM) direct how regional councils are to manage fresh water in their regional policy statements and regional plans, and in the consideration of resource consent applications.

The NPS-FM does not directly require specific provisions to be included within district plans. District plans can, however, be directed by regional policy statements. For example, a regional council may adopt a policy in its regional policy statement directing the management of contaminants such as sediment or nutrients, and those contaminants could be associated with particular land uses, such as earthworks or urban development.

City and district councils may also be affected by regional plan provisions that are adopted to give effect to the NPS-FM, for example:

- limits set on contaminants in any discharges to fresh water from infrastructure owned or managed by them, such as stormwater or sewerage system
- limits set on maximum rates of abstraction or minimum levels of flow in a water body used by the city or district council for water supply.

Regional councils are required to consult with affected local authorities when they prepare regional policy statements and regional plans. The objective and limit-setting process required by the NPS-FM means the consequences of the objectives and limits will be explicit. All affected parties can be informed about the effects of the provisions in the regional plan during the plan’s preparation, and will be able to participate in the setting of those objectives and limits.

A local authority must give effect to the NPS-FM in all relevant Resource Management Act 1991 (RMA) plans and policy statements. Where existing plans and policy statements do not already give effect to the NPS-FM, they must be amended through a RMA Schedule 1 process. The exception is the transitional provisions in Policies A4 and B7, which can be directly inserted into plans if required.

Full implementation of the NPS-FM is required by 31 December 2025, however, the policy allows for the implementation timeframe to be extended to 2030 if the 2025 timeframe will affect plan quality or it would be impracticable for the council to complete implementation of a policy by 2025. Policy E of the NPS-FM outlines the timing for implementing the NPS-FM.

3.1 Relevance to decision-making on consents

All consent authorities must have regard to the NPS-FM when considering and/or making decisions on resource consents (section 104 (1) (b) (iii)), and 'have particular regard' to it when considering notices of requirement for heritage orders and designations.

The NPS-FM is not specified to be a mandatory consideration in determining notification of an application under sections 95 to 95G of the RMA, but it may help identify relevant effects to consider in making the determination.

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4 Glossary

The following list includes terms used in the National Policy Statement for Freshwater Management (NPS-FM), as well as other terms used in this implementation guide. Definitions that have been taken verbatim from the Resource Management Act 1991 (RMA) or NPS-FM are *italicised*. Some terms that are defined in the RMA are not included in this glossary; in which case the RMA definition should be applied.

Term	Description
Accounting	<p>Freshwater accounting means:</p> <ul style="list-style-type: none">• quantifying the total amount of fresh water being taken from a freshwater management unit (FMU) via consented, permitted or otherwise allowed takes, including consumptive and non-consumptive and any unauthorised takes• quantifying the total amount of relevant contaminants and the sources (point and diffuse discharges from a specific location and/or sector) and amounts discharging to a FMU• identifying by broad category, the main uses of the water taken and main sources of discharges of relevant contaminants• comparing the amount of water taken and contaminant discharged with the amount of the resource available for use, once limits or targets are set.
Allocation	<p>A process whereby a total amount of water that may be extracted and/or used, or an amount of contaminants that may be discharged, is divided and assigned to individuals, or groups of individuals, or broad uses (eg, stock water) for their use. The term covers both formal allocation through the consent process, and also use through permitted activities such as stock water takes and some diffuse discharges. The individual amounts are often referred to as 'allocations', and collectively referred to as the 'total allocation'.</p>
Attribute	<p><i>Is a measurable characteristic of fresh water, including physical, chemical and biological properties, which supports particular values (NPS-FM definition).</i></p> <p>Attributes are those characteristics that contribute to water quality and need to be managed to provide for a given value. For example, <i>E.coli</i> and cyanobacteria concentrations are important factors in determining whether a person gets sick after contact with water, so</p>

Term	Description
Attribute state	<p>these are attributes of the human health for recreation value.</p> <p>Appendix 2 of the NPS-FM contains a list of attributes that must be used to set freshwater objectives in relation to the compulsory values in Appendix 1. This is not an exhaustive list; work is ongoing to develop additional attributes relating to the compulsory values, and attributes relating to the other, non-compulsory national values also found in Appendix 1. The descriptions of values in Appendix 1 also provide an indication of the attributes that may be relevant to consider.</p> <p>Regional councils must identify all attributes that are important to provide for a chosen value, and determine the appropriate levels for their local situation if these are not provided in Appendix 2 of the NPS-FM.</p> <p><i>The level to which an attribute is to be managed for those attributes specified in Appendix 2 (NPS-FM definition).</i></p> <p>Each attribute state in Appendix 2 of the NPS-FM represents a different level of water quality in relation to a particular attribute. Each attribute state is defined by a numeric range and a description that corresponds to a scientifically determined range of effects.</p> <p>The 'A' state generally represents a pristine state. For attributes relating to ecosystem health the 'C' state generally represents a minimum safe level before an ecological tipping point, while for attributes relating to human health the 'C' state is based on a level of risk. The 'D' state means that the corresponding value is not adequately provided for in the water management unit.</p> <p>Councils can choose a desired attribute state from A to C depending on the existing water quality and the level at which they and their communities want the water management unit to provide for a particular value. A council cannot set an objective in the D state because that would not adequately provide for the value. Minimum acceptable states and national bottom lines are defined as the bottom of the C state. The desired attribute state forms the basis for formulating a freshwater objective.</p>
Coastal marine area	<p><i>means the foreshore, seabed, and coastal water, and the air space above the water—</i></p> <ul style="list-style-type: none"> <i>a) of which the seaward boundary is the outer limits of the territorial sea:</i> <i>b) of which the landward boundary is the line of mean high water springs, except that where that line crosses a river, the</i>

Term	Description
	<p><i>landward boundary at that point shall be whichever is the lesser of—</i></p> <p><i>(i) 1 kilometre upstream from the mouth of the river; or</i></p> <p><i>(ii) the point upstream that is calculated by multiplying the width of the river mouth by 5 (RMA definition)</i></p>
Coastal water	<p><i>means seawater within the outer limits of the territorial sea and includes—</i></p> <p><i>c) seawater with a substantial fresh water component; and</i></p> <p><i>d) seawater in estuaries, fiords, inlets, harbours, or embayments (RMA definition).</i></p>
Compulsory values	<p><i>The national values relating to ecosystem health and to human health for recreation included in Appendix 1 and for which a non-exhaustive list of attributes is provided in Appendix 2 (NPS-FM definition).</i></p> <p>There are two compulsory values (ecosystem health and human health for recreation). These two values must be applied to all FMUs and all relevant attributes in Appendix 2 must be used to set freshwater objectives for each FMU to achieve the values. Other relevant attributes developed by the regional council can also be used to set freshwater objectives to achieve the value.</p>
Efficient allocation	<p><i>Includes economic, technical and dynamic efficiency (NPS-FM definition).</i></p> <p>Efficient allocation may include (but is not limited to):</p> <ul style="list-style-type: none"> • Economic efficiency – allocating water to enable optimum economic outcomes (for example, allocating water to the uses which have the highest value to society and headroom created and utilised). • Technical efficiency – maximising the proportion of water beneficially used in relation to that taken. It relates to the performance of a water-use system, including avoiding water wastage. • Dynamic efficiency – adjusting the use of water over time to maintain or achieve allocative efficiency (for example, enabling movement of allocated water and minimising the transaction costs for doing so). <p>These different aspects of efficiency are outlined further in relation</p>

Term	Description
Environmental flows and/or levels	<p data-bbox="491 264 791 293">to Policies B2, B3 and B4.</p> <p data-bbox="491 331 1315 622"><i>A type of limit that describes the amount of water in a freshwater management unit (except ponds and naturally ephemeral water bodies) which is required to meet freshwater objectives. Environmental flows for rivers and streams must include an allocation limit and a minimum flow (or other flow/s). Environmental levels for other freshwater management units must include an allocation limit and a minimum water level (or other level/s) (NPS-FM definition).</i></p> <p data-bbox="491 667 1315 763">Environmental flows and water levels are the flows and water levels required to be maintained within a water body to provide for a given set of values.</p> <p data-bbox="491 808 1315 1245">Environmental flow decisions determine how much water must remain in a water body to maintain healthy ecosystems and other values; the remainder is what is available for consumptive uses (the ‘available water’ or ‘allocable quantum’). Once the environmental flow/level is established, the allocable quantum can be determined and abstractive limits set within that. The abstractive limit is the amount of water that can be extracted, while the minimum flow is the amount of instream flow at which further taking must cease, regardless of whether or not the abstractive limit is being taken at that time. An environmental flow regime does not have to be one figure and may provide for a series of flows where abstraction restrictions begin to apply.</p> <p data-bbox="491 1290 1315 1500">Environmental flows for FMUs that contain rivers and streams must include a minimum flow and an abstractive limit. If the FMU includes a lake or wetland then the water body must have a water level (or range) and an abstractive limit. An environmental level for an aquifer will include an abstractive limit (for example, a maximum annual abstraction volume).</p>
Existing freshwater quality	<p data-bbox="491 1545 1315 1682"><i>The quality of the fresh water at the time the regional council commences the process of setting or reviewing freshwater objectives and limits in accordance with Policy A1, Policy B1, and Policies CA1-CA4 (NPS-FM definition).</i></p>
Fresh water	<p data-bbox="491 1727 1203 1794"><i>All water except coastal water and geothermal water (RMA definition).</i></p>
Freshwater management unit (FMU)	<p data-bbox="491 1839 1283 1966"><i>The water body, multiple water bodies or any part of a water body determined by the regional council as the appropriate spatial scale for setting freshwater objectives and limits and for freshwater accounting and management purposes (NPS-FM definition).</i></p>

Term	Description
Freshwater objective	<p>Regional councils must define FMUs at an appropriate spatial scale for which freshwater objectives will be set before they can undertake freshwater accounting or set freshwater objectives. The NPS-FM definition gives regional councils discretion over the spatial scale of FMUs. A FMU may define a group of water bodies that are similar, both physically and in terms of their values. These freshwater bodies can be grouped and freshwater objectives set for them collectively (eg, all first order streams originating from a mountain range may be effectively managed as one FMU). Alternatively, an individual freshwater body or a part of a freshwater body (eg, a reach or sections of a river) could be set as a FMU.</p> <p><i>Describes an intended environmental outcome in a freshwater management unit (NPS-FM definition).</i></p> <p>A freshwater objective is an environmental outcome sought for a FMU. A freshwater objective describes the environmental state required to enable community values for fresh water to be achieved. Objectives must be set for all attributes of the compulsory values that are relevant to the particular types of water bodies in the FMU (eg, depending on whether the water bodies are lakes or rivers). Objectives can also be set based on other attributes that councils consider appropriate, besides the ones in Appendix 2.</p> <p>Freshwater objectives can be set at a variety of scales and levels of detail. They must be numeric wherever possible, but can also be narrative or supported by a narrative descriptor.</p> <p>Further explanation and examples of freshwater objectives is provided in the discussion of Policies A1 and B1 of this guidance.</p>
Freshwater quality accounting system	<p><i>A system that, for each freshwater management unit, records, aggregates and keeps regularly updated, information on the measured, modelled or estimated:</i></p> <ul style="list-style-type: none"> <i>a) loads and/or concentrations of relevant contaminants;</i> <i>b) sources of relevant contaminants;</i> <i>c) amount of each contaminant attributable to each source; and</i> <i>d) where limits have been set, proportion of the limit that is being used (NPS-FM definition).</i> <p>A freshwater quality accounting system should keep account of the type and amount of relevant contaminants affecting a FMU. It should also keep account of where those contaminants are coming from by broad category (eg, stormwater, treated sewage, industrial,</p>

Term	Description
Freshwater quantity accounting system	<p>agriculture, natural sources), including point sources and diffuse discharges (runoff), plus the amount attributable to each source. The system will also keep account of how much of the limit is being used in the FMU.</p> <p><i>A system that, for each freshwater management unit, records, aggregates and keeps regularly updated, information on the measured, modelled or estimated:</i></p> <ul style="list-style-type: none"> <i>a) total freshwater take;</i> <i>b) proportion of freshwater taken by each major category of use; and</i> <i>c) where limits have been set, the proportion of the limit that has been taken (NPS-FM definition).</i> <p>A freshwater quantity accounting system will keep account of how much water is allocated, as well as how much is being taken from freshwater bodies and broadly what that water is being used for (eg, municipal, irrigation, hydroelectric power).</p>
Freshwater take	<p><i>A take of ground or surface fresh water whether authorised or not (NPS-FM definition).</i></p> <p>A freshwater take is any consumptive or non-consumptive use (ie, any take regardless of whether or not it is returned) of fresh water from a freshwater body, whether allowed by a resource consent or not. For the purposes of accounting it is intended to include unmetered takes, takes that do not require a resource consent (eg, stock water) and unauthorised takes.</p>
Limit	<p><i>The maximum amount of resource use available, which allows a freshwater objective to be met (NPS-FM definition).</i></p> <p>A limit is the maximum amount of resource that is available for use. It is a specific quantifiable amount. A limit could be the total amount of water that can be taken out of a FMU, or the total amount of contaminants that can be discharged into it that allows the freshwater objective to be met.</p> <p>A FMU will require limits for both contaminants and abstractions, and the combination of all the limits will depend on the objectives set for the FMU. Limits will clearly specify a maximum and/or minimum that relates to the objective. Some examples are:</p> <ul style="list-style-type: none"> • for water quantity, a limit could be in the form of an abstraction limit and an environmental flow (or other

Term	Description
	<p data-bbox="587 257 673 291">flow/s)</p> <ul data-bbox="539 324 1295 772" style="list-style-type: none"> <li data-bbox="539 324 1295 481">• for water quality, a limit could be in the form of maximum nutrient loads entering the water (for example, to achieve an objective relating to periphyton, limits would be likely to include maximum nitrogen and phosphorus loads) <li data-bbox="539 504 1295 772">• for water quality where it is not appropriate to set a maximum/minimum contaminant load, a limit could be in the form of a maximum ability for a contaminant to be discharged (for example, for an objective relating to E. coli, limits could be in the form of the maximum amount of river accessible by stock, or the minimum amount of riparian fencing). <p data-bbox="491 795 1311 985">Limits are specific to each FMU, and must be set so that the relevant freshwater objectives will be met, taking into account any methods, uncertainties and management risks. Allocation of the resource, which may be sector or land use specific, is carried out within the broader limit set for the FMU.</p> <p data-bbox="491 1008 1311 1086">Further explanation of limits is provided in the discussion of Policies A1 and B1.¹⁴</p>
Minimum acceptable state	<p data-bbox="491 1131 1311 1232"><i>The minimum level, specified in Appendix 2, at which a freshwater objective may be set in a regional plan in order to provide for the associated national value (NPS-FM definition).</i></p> <p data-bbox="491 1265 1311 1422">The minimum acceptable state is defined by the boundary between the C and D states for attributes in Appendix 2 of the NPS-FM. The minimum acceptable states for the attributes of compulsory values are called national bottom lines (see below).</p>
National bottom line	<p data-bbox="491 1444 1311 1523"><i>The minimum acceptable state for the compulsory values as specified in Appendix 2 (NPS-FM definition).</i></p> <p data-bbox="491 1556 1311 1776">A national bottom line is the boundary between the C and D states for the attributes associated with the compulsory national values (ecosystem health and human health for recreation). All FMUs must have freshwater objectives that are set above these nationally-defined bottom lines, except for in those circumstances described in Policy CA3. The national bottom lines are described both</p>

¹⁴ See also Norton N, Snelder T and Rouse H. 2010. *Technical and scientific considerations when setting measurable objectives and limits for water management*. www.mfe.govt.nz/publications/water/technical-scientific-considerations-setting-measurable/index.html

Term	Description
	numerically and narratively in Appendix 2 of the NPS-FM.
National Objectives Framework	The National Objective Framework (NOF) directs regional decision-making in the setting of freshwater objectives. It consists of a process (given in parts CA and CC), a set of national values and uses (Appendix 1) and a set of attributes for setting freshwater objectives to achieve those values (Appendix 2).
National value	<p data-bbox="488 622 1142 651"><i>Any value described in Appendix 1 (NPS-FM definition).</i></p> <p data-bbox="488 689 1294 869">National values in Appendix 1 are those intrinsic qualities, uses or potential uses that meet the criteria outlined in section 3.5 and are significant nationally. Regional councils must consider the list in Appendix 1 and decide whether any of these values apply to the freshwater management units in their region (Policy CA2(a)).</p> <p data-bbox="488 907 1278 1048">Every value in Appendix 1 must be considered in relation to each FMU(as outlined in the process described in Policy CA2); however only the two compulsory values (ecosystem health and human health for recreation) must be applied to every FMU.</p> <p data-bbox="488 1086 1294 1265">Appendix 1 is not an exclusive list of values; regional councils together with communities can also choose additional values of fresh water that are locally important. Further explanation of national values is provided in the discussion of Policy CA1 in section 3.4 and Appendix 1 in section 3.5 of this guide.</p>
Naturally occurring processes	<p data-bbox="488 1310 1238 1370"><i>Processes that could have occurred in New Zealand prior to the arrival of humans (NPS-FM definition).</i></p> <p data-bbox="488 1411 1310 1668">Where existing freshwater quality in a FMU is below a national bottom line due to naturally occurring processes a regional council may set a freshwater objective below a national bottom line under Policy CA3. By definition, any deterioration in water quality that is caused by human interventions would not qualify a water body to have a freshwater objective set for it below a bottom line (unless the deterioration is related to the infrastructure listed in Appendix 3).</p>
Outstanding freshwater bodies	<p data-bbox="488 1709 1254 1809"><i>Those water bodies identified in a regional policy statement or regional plan as having outstanding values, including ecological, landscape, recreational and spiritual values (NPS-FM definition).</i></p> <p data-bbox="488 1848 1310 1986">An outstanding freshwater body is one that is exceptional in some way. It may be exceptional in relation to one particular feature, or it may have a number of outstanding features. An outstanding value is a high threshold. There are expected to be a small number of</p>

Term	Description
Over-allocation	<p>outstanding freshwater bodies identified and protected by regional councils across the country. A freshwater body that is not nationally significant may be outstanding for local reasons. Communities will determine outstanding freshwater bodies in establishing objectives and limits through the regional plans process.</p> <p><i>The situation where the resource:</i></p> <ul style="list-style-type: none"> a) <i>has been allocated to users beyond a limit; or</i> b) <i>is being used to a point where a freshwater objective is no longer being met.</i> <p><i>This applies to both water quantity and quality (NPS-FM definition).</i></p> <p>Setting the freshwater objective and limit establishes the level beyond which over-allocation will occur. Over-allocation occurs when either, or both, of the relevant objective and limit are not being met or will not be met in the future. This is a measure of when adverse effects start to occur. Further explanation of over-allocation is provided in the discussion of Policies A1, B5 and B6 in section 3.3.</p>
Relevant contaminants	<p>The term ‘relevant contaminants’ used in Policy A2 refers to contaminants that need to be accounted for and managed in order to achieve the freshwater objectives for the FMU. Not all contaminants will need to be accounted for in every FMU (for example, heavy metals may only be relevant in some water bodies). Although a range of contaminants may be present and influence water quality, not all will need to be actively managed to achieve the freshwater objective and therefore be accounted for.</p>
Secondary contact	<p><i>People’s contact with fresh water that involves only occasional immersion and includes wading or boating (except boating where there is high likelihood of immersion) (NPS-FM definition).</i></p> <p>The term secondary contact applies to activities near or on fresh water that do not ordinarily involve full immersion for a prolonged period. The level at which the national bottom line has been set for <i>E. coli</i> for the compulsory value of human health equates to a moderate risk (calculated as less than 5%) of infection from secondary contact with the water. This is the minimum level of protection (maximum level of risk) required for <i>E. coli</i> nationwide. Councils can choose a lower degree of risk (eg, A state) for attributes of human health for any FMU where communities undertake activities with a higher level of immersion in the water, such as swimming and kayaking.</p>
Significant values	<p>This term is used in Objective A2 of the NPS-FM in relation to wetlands and outstanding water bodies. Significant values and how</p>

Term	Description
Target	<p>to protect them will need to be determined according to regional community preferences (for example, a wetland or water body may have a significant value related to native biodiversity, fisheries, geomorphology, culture, science, recreation or landscape). Councils may set criteria for significant values in their regional policy statement or plans to identify outstanding freshwater bodies.</p> <p><i>A limit that must be met at a defined time in the future. This meaning only applies in the context of over-allocation (NPS-FM definition).</i></p> <p>A council may set several intermediate targets in a regional plan, each specifying a limit and the time by which that limit must be met. This series of targets would make up part of a staged work programme, designed so that water quality is gradually improved over time to meet the relevant freshwater objective.</p>
Values	<p><i>Means:</i></p> <ul style="list-style-type: none"> <i>a) any national value (as described above); and</i> <i>b) includes any value in relation to fresh water, that is not a national value, which a regional council identifies as appropriate for regional or local circumstances (including any use value) (NPS-FM definition).</i> <p>Values are those intrinsic qualities, uses or potential uses associated with fresh water. They are qualities or uses that people and communities appreciate about freshwater bodies and wish to see recognised in the on-going management of those freshwater bodies.</p> <p>Intrinsic qualities include ecosystem health, and natural form and character. Uses or potential uses of fresh water by people include water supply, irrigation, cultivation, hydro-generation and recreation.</p> <p>National values are those values identified in Appendix 1 of the NPS-FM. They include compulsory values (which must have objectives set in relation to them), other national values (which must be considered but do not necessarily have to have objectives set in relation to them) and any other values that a council identifies as appropriate through CA2(b)(ii).</p>
Water body	<p><i>means fresh water or geothermal water in a river, lake, stream, pond, wetland, or aquifer, or any part thereof, that is not located within the coastal marine area (RMA definition).</i></p>

5 Guidance on the National Policy Statement for Freshwater Management

5.1 Preamble to the National Policy Statement for Freshwater Management 2014

The preamble outlines the rationale for, and introduces the concepts which underpin the National Policy Statement for Freshwater Management 2014 (NPS-FM). It is intended to clarify and provide the Government's policy intent to facilitate interpretation of the NPS-FM objectives and policies. It is a guide in itself and is not explained further here.

5.2 Review

The NPS-FM states that an independent review of its implementation and effectiveness will be undertaken no later than 1 July 2016. The need for any further amendment to the NPS-FM will be considered following that review.

5.3 National significance of fresh water and Te Mana o te Wai

The start of the NPS-FM includes a statement that recognises the national significance of fresh water and Te Mana o Te Wai. The statement is intended to emphasise the importance of the planning process in identifying a range of community and tāngata whenua values that will collectively recognise the national significance of fresh water and Te Mana o te Wai.

For the purposes of the NPS-FM, Te Mana o te Wai represents the innate relationship between te hauora o te wai (the health and mauri of water) and te hauora o te taiao (the health and mauri of the environment), and their ability to support each other, while sustaining te hauora o te tāngata (the health and mauri of the people).

The recognition and expression of the national significance of fresh water and Te Mana o te Wai is assisted by the values contained Appendix 1. These values incorporate tāngata whenua values at a high level, while the NOF process set out in Policy CA2 allows for regional flexibility in the way tāngata whenua values are defined and expressed by each iwi and hapū. The aggregation of community and tāngata whenua values and the ability of fresh water to provide for those values over time recognises the national significance of fresh water and Te Mana o te Wai.

5.4 Interpretation

The interpretation section of the NPS-FM lists a series of definitions of terms relevant to the national policy statement. These terms, as well as others of relevance, are defined and explained in the glossary (section 4) of this implementation guide. Terms used and defined in the Resource Management Act 1991 (RMA) have the meaning given in the RMA.

5.5 Part A. Water quality

Objective A1

To safeguard:

- a) the life-supporting capacity, ecosystem processes and indigenous species including their associated ecosystems, of fresh water; and
- b) the health of people and communities, at least as affected by secondary contact with fresh water;

in sustainably managing the use and development of land, and of discharges of contaminants.

Origins of the policy

The Land and Water Forum recommended that the Government promulgate a national policy statement for fresh water (recommendation 48, First Report) and define national objectives for water quality (recommendation 1, First Report). The Forum also recommended a requirement to safeguard the life-supporting capacity, ecosystem processes and indigenous species, including their associated ecosystems, of fresh water. This was included in the 2011 NPS-FM.

The Land and Water Forum later recommended adding an objective regarding managing risks to human health, to apply to all water bodies (recommendation 1, Second Report). The National Objectives Framework Reference Group supported this and further recommended that human health should be a national objective, requiring that all surface waters are safe for at least secondary contact recreation values (eg, boating and wading). This is included in the 2014 NPS-FM.

Policy intent and implementation

Achieving Objective A1 will require:

- gaining an understanding of the sources and amount of relevant contaminants
- establishing environmental flows and managing within set limits
- setting freshwater objectives for attributes that are relevant to safeguarding the life-supporting capacity, ecosystem processes and indigenous species of a water body including their associated ecosystems; not just the attributes that are currently included in the NOF.

The objectives and policies within the NPS-FM provide initial direction on what is required to support Objective A1 but regional councils will need to supplement what is currently provided. Achieving this objective will require a holistic, or whole of catchment, response using a variety of tools and methods.

The word 'safeguard' implies an active duty and requires a proactive response by local authorities to determine ways to ensure (for example, life-supporting capacity). Note the objective does not imply there would never be any change or adverse effect in a water body. Rather, the NPS-FM provides for change that is proactively managed by specifying national bottom lines then requiring councils to set limits on resource use that allow for change while ensuring that Objective A1 continues to be met.

Appendix 1 of the NPS-FM contains a list of national values, two of which are compulsory. Appendix 2 contains a list of attributes related to these compulsory values (but which could equally apply to the other national values if appropriate). Policy CA2 directs councils to set objectives in relation to the compulsory values, using the attributes in Appendix 2. Setting freshwater objectives for the compulsory national value ecosystem health using the attributes in Appendix 2 will contribute to, but not completely give effect to, Objective A1(a). Other attributes that are not yet in Appendix 2 may also be required (such as sediment, temperature and clarity). Work is continuing to further populate the attributes of Appendix 2, but in the meantime regional councils will need to develop freshwater objectives for other attributes in their freshwater management units (FMUs) that are applicable to the value and water body type. Monitoring to measure progress towards achieving Objective A1 should include a range of methodologies such as the macroinvertebrate community index (MCI) and Stream Ecological Evaluation (SEV) among others. Methods, regulatory and non-regulatory, will need to be applied.

Setting freshwater objectives for the compulsory national value *human* health for recreation, in accordance with Policy CA2, will contribute to achieving Objective A1(b). If a higher level of human health protection is desired (eg, for people swimming), then a more stringent attribute state (and therefore freshwater objective) can be assigned for attributes of the human health for recreation value. A regional council can also include any freshwater objectives for other attributes it or its community desires to achieve this value and objective (eg, clarity, sediment and periphyton). Further guidance on this is provided in part CA.

Objective A1 is also a relevant consideration for all applications for resource consents, including discharge applications and land-use applications that potentially impact on fresh water quality and in Notice of Requirement decision-making.

Objective A2

The overall quality of fresh water within a region is maintained or improved while:

- a) protecting the significant values of outstanding freshwater bodies;
- b) protecting the significant values of wetlands; and
- c) improving the quality of fresh water in water bodies that have been degraded by human activities to the point of being over-allocated.

Maintaining or improving overall quality of fresh water

Objective A2 recognises that maintaining all aspects of water quality everywhere may not be possible or desirable, economically or socially. It does not require every water body to be improved in a

region; some will remain in their current state (unless they are below national bottom lines or have been degraded by human activities to the point of over-allocation). The freshwater objective-setting process outlined in part CA of the NPS-FM provides a process to assist with this decision-making.

Objective A2 allows for some variability in water quality as long as the overall water quality is maintained in a region. Objective A1 must also be met. Maintaining or improving the overall quality of fresh water within a region means that water quality cannot be allowed to decline in one part of a region without equally improving it elsewhere. If a freshwater objective is set that allows for degradation from the current state, it must be offset by objectives to achieve a commensurate improvement within the region. There should be consultation with the community (including groups with a particular interest in water resources such as iwi and water users) that this is an acceptable choice for the region.

If a regional council and community decide to balance freshwater quality across a region in this way, there will be an evidential burden to show that across the region overall a balance or improvement is achieved.

Objective A2 sets three additional, specific requirements for managing water quality. These are described below.

Outstanding freshwater bodies

Objective A2(a) requires that where a water body is considered to be outstanding, its significant values must be protected.

Protecting the significant values of outstanding water bodies (and wetlands, below) is a high threshold. It means that once a water body has been identified as outstanding, adverse effects on the values of the water body, will be avoided.

Outstanding freshwater bodies are defined in the NPS-FM as those water bodies identified in a regional policy statement or regional plan as having outstanding values (including ecological, landscape, recreational and spiritual values). In protecting outstanding water bodies, it is the significant values that contribute to making a water body outstanding that should be identified and protected. This can be achieved by following the NOF process outlined in part CA, which describes how to derive freshwater objectives based on the values held for a water body.

The regional policy statement or regional plan could also include the criteria for significant values that the outstanding freshwater bodies meet, to guide the setting of freshwater objectives for the water body.

This objective is intended to create additional protection for those freshwater bodies that are considered outstanding.

Significant values of wetlands

The second requirement is that any significant values of wetlands must be protected.

A wetland is defined in the RMA as including permanently or intermittently wet areas, shallow water, and land water margins that support a natural ecosystem of plants and animals that are adapted to wet conditions.

Again, it is the values rather than the wetland itself that Objective A2 seeks to protect.

The regional policy statement or regional plan could also include the criteria for significant values that would be applied to the wetland. Significant value(s) of a wetland and how to protect them can then be determined through the public planning process (for example, a wetland may have a significant value related to native biodiversity, fisheries, geomorphology, culture, science, recreation, landscape, water yield regulation or water purification). Any conflicts between protection measures for different values will need to be resolved (for example, a biodiversity value may be protected by preventing contaminated water entering the wetland, while a water purification objective could be protected by allowing such flows to enter and maintaining the wetland to allow flows to be effectively processed). The Ramsar Convention on Wetlands (ratified by New Zealand) requires that all wetlands be managed to maintain their ecological integrity.

There is significant case law available on methodology for identifying ecological significance of wetlands (for example, *Minister for Conservation v Western Bay of Plenty DC A071/01* and *Mighty River Power Ltd v Waikato RC A146/01*).

Further work is being undertaken to provide attributes for wetlands and these will be included in the NPS-FM in the future.

Degraded water bodies

The third requirement is the improvement of quality in over-allocated water bodies. This does not require that all water bodies that are degraded be improved. Rather, it focuses on those where the degradation has resulted in the water body being over-allocated as defined in the NPS-FM (see the glossary, and part B on Water Quantity, of this guide).

The NPS-FM considers over-allocation has occurred where the resource has been allocated (either in terms of water extracted and/or used, or an amount of contaminants discharged) to such an extent that the objective or limit sought for a water body cannot be met. The inability to meet a freshwater objective or limit is to be addressed through the use of targets and methods for addressing over-allocation within a specified timeframe. The target-setting process will be at a FMU scale (Policies A1 and A2).

The RMA definition of contamination includes all discharges that change the physical, chemical or biological condition of the receiving environment. However, Objective A2 restricts the scope of enhancing the quality of degraded fresh water to only those situations where human activity is the cause of degradation. This recognises that fresh water may be degraded by factors that are not influenced by human activity (eg, geothermal discharges). These natural state effects are not covered by this objective; only the effects of human activities are sought to be addressed through objectives, limits and targets. The concept of over-allocation applies to both water quality and quantity. Over allocation with regard to water quantity is addressed in part B of the NPS-FM.

Objective A2 will be given effect to through Policies A1–A3.

Policy A1

By every regional council making or changing regional plans to the extent needed to ensure the plans:

- a) establish freshwater objectives in accordance with Policies CA1-CA4 and set freshwater quality limits for all freshwater management units in their regions to give effect to the objectives in this national policy statement, having regard to at least the following:
 - i. the reasonably foreseeable impacts of climate change;
 - ii. the connection between water bodies; and
 - iii. the connections between freshwater bodies and coastal water; and
- b) establish methods (including rules) to avoid over-allocation.

Policy A1 requires councils to set freshwater objectives and limits, and to establish methods to avoid over-allocation.

Setting freshwater objectives requires using the process set out in Policies CA1-CA4 which involves identifying values that are relevant to a FMU, identifying attributes that provide for those values, and setting freshwater objectives in relation to those attributes. This is described further in the section on Policies CA1-CA4.

A limit is the maximum amount of resource use available that allows a freshwater objective to be met; in the context of water quality, the resource would be the assimilative capacity of the freshwater in a FMU. Setting a limit in relation to water quality involves determining the maximum amount of assimilative capacity that will enable a chosen freshwater objective to be set.

Over-allocation occurs when the assimilative capacity has been allocated beyond a limit or is being used to a point where a freshwater objective is no longer being met. By setting freshwater objectives and limits, councils will have effectively determined what constitutes over-allocation in a FMU. Policy A1 then requires councils to establish methods to avoid over-allocation.

The following sections provide more detail about each part of Policy A1.

Making or changing regional plans

Existing regional plans containing fresh water provisions will need to be assessed to determine whether they establish freshwater objectives, set limits, and establish methods to avoid over-allocation for all FMUs. This assessment should be done with consideration to all the other objectives of the NPS-FM and by having regard to i-iii above.

Changes to regional plans must meet the timing requirements of Policy E1. It would be appropriate to prioritise catchments. Prioritising tools are available that can help develop a programme to ensure improvements with the highest benefit compared to the cost are achieved first.

Where a regional plan introduces provisions that affect land use, territorial authorities must consider the implications of this for district plans. For example, regional land-use controls may encourage land-use change, and it would be appropriate for district plans to then provide appropriately for that change.

Establishing freshwater objectives

Establishing freshwater objectives is a necessary first step in setting effective limits. A freshwater objective should be set for each attribute associated with the chosen values or uses for each FMU. Thus, the community values associated with each FMU, as identified through engagement with the community, will be important in objective-setting. Part CA of the NPS-FM directs the process for formulating freshwater objectives.

Freshwater objectives need to describe an intended environmental outcome which will enable regional values and uses for fresh water to be met. Freshwater objectives can reflect the current water quality state or be aspirational (better than the current water quality).

Freshwater objectives can be set at a variety of scales and levels of detail. In giving effect to the NPS-FM, a regional policy statement may include broad narrative objectives based on the desired values, but for regional plans, freshwater objectives must be set using the process contained in Policy CA2. Freshwater objectives in regional plans should be numeric and use the attributes and attribute states supplied in Appendix 2. Any other attributes the council and/or community considers appropriate to achieve a value should also be used to set freshwater objectives to achieve the value. Numeric attributes can be supported with a narrative. Where it is not possible to set a numeric freshwater objective, the regional plan should contain a tightly defined narrative freshwater objective. A narrative objective may outline an acceptable amount of change, an outcome or parameters sought (eg, the narrative attribute state for *E.coli* in Appendix 2 of the NPS-FM).

The setting of freshwater objectives, and hence limits, must be made in the context of environmental, social, cultural and economic considerations. Councils are specifically required to consider the social, cultural and economic implications for resource users in setting freshwater objectives (Policy CA2(f)). Councils are expected to engage with their communities, including iwi, about the way their water bodies are valued in order to set freshwater objectives and achieve those objectives through setting limits (an allocable quantum and contaminant loads) in their regional plans.

Setting freshwater quality limits

Limits are defined in the NPS-FM as the maximum amount of resource use available, which allows a freshwater objective to be met. Therefore, limits on resource use should be set in plans that will ensure specific freshwater objectives can be met, rather than to give effect to more generic aspirations.

A limit must specify an actual maximum or minimum. A common type of limit would be one that sets the maximum nutrient load entering a FMU in order to provide for a given objective. A limit is not

just the maximum resource use a FMU can withstand; it is the maximum resource use to achieve the freshwater objective for that FMU. If the freshwater objective can be met within higher limits, the limit and objective combination will need to be reviewed during the next plan change (to establish whether to aim for a higher objective or increase the limit to allow more use of the resource).

A limit must be given effect to through policies, methods and rules that:

- manage all activities that contribute to the limit, without excluding certain activities
- manage allocations outside the limit (for example through non-complying or prohibited activity status).

The limit will depend on the values chosen by the community and the level of protection that is desired. This is further discussed in the guidance on part CA of the NPS-FM.

To define the limit, there will need to be identification of:

- the current state of water quality and quantity
- the attribute(s) and objective(s) that the setting of a limit is intended to manage
- inputs and outputs (freshwater accounting). In the case of water quality, that includes identifying the sources of relevant contaminants (eg, sediment, nitrogen, phosphorus)
- the limit for each relevant contaminant, taking into account any possible interactions between contaminants (eg, it may be necessary to also set limits related to nitrogen/phosphorus ratios) and possible lag effects
- the timeframes over which the limit can be achieved, and targets that may be required to reach the limit (discussed further in the section on Policy A2)
- the scale at which the limit is to be applied (eg, to the input into a lake itself, the streams feeding into the lake, or by managing nutrient inputs to the land in the catchment). Some limits may not be allocable at anything smaller than a catchment scale (eg *E.coli* and sediment).

In most cases, a water quality limit will require a quantifiable total from all sources of a contaminant within a FMU to be established. An example of this is Lake Taupō, where the total amount of nitrogen load from all sources in the catchment surrounding the lake is cumulatively controlled and limited to achieve the freshwater quality objective for the lake.

For attributes such as *E.coli* or sediment, where setting a quantifiable limit for water resource use is not possible, the limit may stipulate a maximum or minimum ability for a contaminant to enter the freshwater in a FMU (for example, for an objective relating to *E. coli*, limits could be in the form of the maximum amount of river accessible by stock, or the minimum amount of riparian fencing). In these cases, a management plan which sets out proven practices to achieve the necessary reduction in contribution from particular sources would be appropriate.

Limits can be set at a range of scales to fit regional circumstances, but must address every objective set for every FMU within a region. Limits can be water body-specific, or land-use specific. A region may set a default limit (or limits) until specific limits for individual FMUs are set.

There may be intermediate steps required to determine the appropriate limits based on the freshwater objectives that a council has set. For example, where a freshwater objective sets a maximum instream abundance of periphyton, it is likely that one of the limits required to meet the objective is a limit on total phosphorus load into the FMU. However, to determine the appropriate phosphorus load limit, a council may first need to determine what instream concentration of phosphorus is required to achieve the required periphyton abundance. In this scenario the freshwater objective (periphyton abundance) and the limit (total phosphorus load limit) would need to be included in the regional plan. The intermediate step linking the two (phosphorus concentration) could be included in the regional plan if the council found this useful, but would not necessarily need to be.

Accurate limit-setting can be technically difficult, time-consuming and expensive. It would be appropriate for the regional council to prioritise which FMUs require a site-specific, limit-setting process (rather than being able to be addressed through default limits for that type of FMU), and which FMUs would benefit most from earlier setting of limits.

Policy A1 requires that when setting limits, regional councils must have regard to all objectives of the NPS-FM. Thus, when setting water quality limits, other relevant considerations include water quantity, integrated management, and iwi values and interests. Experience nationally and internationally suggests that limit-setting, particularly in water quality, will be difficult to get right the first time. Once a limit is set, it and the objective are likely to be modified and fine-tuned in subsequent plan changes as better information is obtained, however it is important to note the effect of multiple changes to limits in reducing certainty for resource users.

Reasonably foreseeable impacts of climate change

Policy A1 requires that in setting freshwater objectives and limits regional councils have regard to the reasonably foreseeable impacts of climate change. Communities and businesses require as much long-term stability in allocations and rules as possible. Therefore, when rules are set, potential future changes in catchments and climate need to be considered to reduce the frequency with which those rules will need to be adjusted in the future.

In setting limits, it is important to consider matters such as:

- changes in frequency and severity of droughts
- changes in frequency and severity of heavy rainfall and flushing or flooding events
- changes in temperatures which may influence algal blooms or changes to water quality
- sea level rise which may affect salination and groundwater quality in some areas
- deterioration of water quality in some areas as a result of lower flows in freshwater bodies.

Two reasonably foreseeable impacts of climate change are that projected lower rainfall in the east and north of the country will prolong periods of low flows in rivers and at the same time increase

demand for water abstractions. Longer periods of stable low flows in rivers, even with a nutrient limit in place, may allow periphyton to continue growing to a point where chlorophyll-a levels exceed the objective set in the regional plan. The likelihood of having to reassess limits to accommodate the effects of climate change should be identified when the limits are first established and set in regional plans or on resource consents.

Considerations of the impacts of climate change should be based on the best information available. The Ministry for the Environment has produced guidance manuals for local government on adapting to climate change¹⁵, which include projected climatic changes and recommendations on how to include these in planning and decision-making. Where a regional council has already developed region-specific information for climate effects on hydrology (eg, rainfall models), it should have regard for this information in establishing objectives and limits.

Connection between water bodies

Regional councils are to have regard to the connection between water bodies in establishing freshwater objectives and limits. Those connections may be physical (eg, a lake and its adjacent wetlands), through water movements (eg, a river and an aquifer that is partially recharged by the river), or through biodiversity movements (eg, eels may access a lagoon through movement over the barrier between it and the adjacent sea or river). Connections include:

- connections between water bodies and receiving environments (ie. lakes or wetlands)
- connections between surface water and groundwater.

Freshwater objectives and limits for aquifers connected to surface water should be consistent with those of the connected surface freshwater body and be developed through a whole of catchment approach.

Connections between freshwater bodies and coastal water

Policy A1 does not apply to coastal water or geothermal water. However, regional councils must have regard to the connections between freshwater bodies and coastal water. A freshwater objective and limit for a FMU may be driven by the impact that water will have on a receiving environment within the coastal marine area.

The Policy does apply to freshwater bodies in the coastal environment (ie, coastal wetlands)¹⁶. In setting objectives and limits for freshwater bodies in the coastal environment, regard must be given to the matters outlined in relevant policies of the NZCPS 2010, in particular Policy 21 (enhancement of water quality), Policy 22 (sedimentation) and Policy 23 (discharge of contaminants). These policies of the NZCPS 2010 apply to the same water bodies and subject matter as the NPS-FM and both need to be considered and given effect to in planning documents.

¹⁵ www.mfe.govt.nz/issues/climate/resources/local-govt/index.html

¹⁶ Refer to Policy 1 of the NZCPS for the definition of coastal environment.

The following diagram illustrates the link between values, freshwater objectives, limits and methods. Further explanation is provided in part CA of this guidance. Consideration of values will include those from Appendix 1 of the NPS-FM, plus any other values that are important to the community. Where attributes for the values are in Appendix 2 of the NPS-FM, the selection of a point within an attribute state will provide the numeric freshwater objective. In all other cases regional councils will develop their own relevant attributes. The limit is the amount of resource use available (in this case assimilative capacity) to enable the freshwater objective to be met.

Methods to avoid over-allocation

Over-allocation is relevant both to water quality and quantity. It is defined in the NPS-FM as where the resource has been allocated to users beyond a limit, or is being used to a point where a freshwater objective is no longer being met. In the context of water quality, once a water quality objective or a limit for a particular contaminant has been set, over-allocation would occur if the use of the FMU's assimilative capacity (through discharging into it) exceeded the limit or rendered the objective unable to be met. This may occur through consented discharges, or through unconsented diffuse discharges that occur in relation to specific types of land use

Policy A1 requires regional councils to have methods to avoid over-allocation. This can be done by setting limits in policies or rules in regional plans. Because a limit is put in place to ensure a freshwater objective is achieved, over-allocation will be deemed to have occurred where a limit is exceeded (even where the breach would have positive benefits, or not create adverse effects).

If freshwater accounting shows that resources are already over-allocated, the regional council will need to set a target limit to reduce allocation, with a specified timeframe to improve water quality until the over-allocation has been corrected (Policy A2). Over-allocation must be avoided, not just mitigated or remedied. Setting effective limits will avoid adverse cumulative effects of activities on water quality (over-allocation).

Methods include both regulatory and non-regulatory approaches. Regulatory methods include regional rules and conditions about allocation on resource consents. Non-regulatory methods could include funding, landowner liaison or voluntary programmes. Methods can apply to both point source and diffuse discharges. The NPS-FM allows for either or both regulatory and non-regulatory methods to be used; however, in practical terms once over-allocation has occurred it is likely that some form of regulatory method will be required. Not all methods will necessarily be set out in a regional plan; some, such as council funding for riparian fencing, may be set out in an annual plan.

A combination of regulatory and non-regulatory methods can be adopted to suit the individual catchment and mitigate impacts on resource users.

Policy A2

Where freshwater management units do not meet the freshwater objectives made pursuant to Policy A1, every regional council is to specify targets and implement methods (either or both regulatory and non-regulatory), in a way that considers the sources of relevant contaminants recorded under Policy CC1, to assist the improvement of water quality in the freshwater management units, to meet those targets, and within a defined time frame.

Policy A2 will only be relevant if and when freshwater objectives are not met (for example if an aspirational objective is set, or where the water quality is below a bottom line).

Where this policy applies, the regional council must establish targets and methods to achieve those targets over defined time frames, so that water quality is gradually improved over time to meet the freshwater objective.

Establishing methods (regulatory or non-regulatory) should be done with consideration of the sources and amounts of the relevant contaminants identified through the freshwater quality accounting process (Policy CC1). Policy A2 requires councils to consider the differing sources of contaminants, and it may be appropriate for councils to specify targets and implement methods that target those sources. However Policy A2 does not require the targets and methods to be applicable only to those identified sources. The policy allows for flexibility in where and to whom methods are directed. Councils are required under Policy CA(f)(v) to consider the implications of their objective and limit choices on resource users, and Policy A2 provides flexibility for councils to decide the extent to which the costs of improvement are more appropriately or cost-effectively borne by other resource users within the FMU, rather than just those that are primarily responsible for the source of the contaminant.

Setting targets

In relation to over-allocation, a target is a limit which must be met at a defined time in the future. As well as water quantity targets, this is relevant in setting water quality targets for addressing over-allocation of the FMU's assimilative capacity. Management of both point source and diffuse discharges may be required through targets to claw back over-allocation over time. A programme to reduce or claw back allocation will prescribe how to move from the existing resource use level to the desired limit.

There may be several intermediate targets, with timeframes set in a regional plan. The final target will be the limit needed to meet the freshwater objectives established pursuant to Policy A1. Hence a stepped approach over time may be implemented towards the desired objective and limit for the FMU.

Methods for achieving targets

Flexibility is available in the methods adopted (eg, rules, funding, landowner liaison, voluntary programmes, management plans and timeframes) to meet defined timeframes. The full suite of regulatory and non-regulatory approaches is available and should be considered. The mix of approaches can be tailored to the individual catchment and can be targeted to local issues, interests and parties. The social, economic and environmental impacts of a particular approach or suite of approaches should be evaluated and considered (policy CA2 (f)(v)). This means that working collaboratively with relevant users and interested parties is important in setting targets, time frames and methods at a catchment level.

Non-regulatory methods that give effect to Policy A2 may need to be supported by methods included in the annual plan. If measures need to be implemented via a district plan (such as low impact urban design or restrictions on land uses), regional councils can direct the approach in their regional policy statement.

For existing resource consents, regional councils are limited in the regulatory methods that can be imposed until those consents expire, or are able to be reviewed in accordance with section 128 of the RMA. Section 128(1)(a) provides for review where specified in the consent, and section 128(1)(b) provides for review where an operative regional plan sets rules for levels, flows, rates or standards (such as rules for water quality under section 69) and it is appropriate to review the conditions of consent to meet those rules. Where possible, the planning process should be used for a comprehensive approach to implement this policy rather than solely relying on conditions of consent.

Policy 21 of the NZCPS 2010 is relevant in determining an overall approach to improving deteriorated water quality in the coastal environment. Policy 21 of the NZCPS includes some specific actions that should be taken (for example, excluding stock from water bodies).

Policy A3

By regional councils:

- a) imposing conditions on discharge permits to ensure the limits and targets specified pursuant to Policy A1 and Policy A2 can be met; and
- b) where permissible, making rules requiring the adoption of the best practicable option to prevent or minimise any actual or likely adverse effect on the environment of any discharge of a contaminant into fresh water, or onto or into land in circumstances that may result in that contaminant (or, as a result of any natural process from the discharge of that contaminant, any other contaminant) entering fresh water.

Regional councils must avoid over-allocating water resources. Policy A3 complements and supports the regional limits, targets and methods set under Policies A1 and A2 being met, by requiring conditions of resource consents for discharges.

Once objectives and targets made under Policies A1 and A2 are adopted in a regional plan, they will be a relevant consideration when imposing conditions on consents granted.

Plans will need to be assessed to determine whether additional 'best practicable option' (BPO) provisions are required to give effect to Policy A3.

If a change to a regional plan(s) is required to put in place BPO rules, the timing requirements in Policy E1 apply.

Conditions imposed under part (a) of Policy A3 will need to be in the context of the plan provisions and section 107 of the RMA.

Policy A3(b) is intended to be consistent with section 70(2) of the RMA, which sets out when a best practicable option may be imposed. The words "where permissible" in Policy A3(b) reflect section 70(2). This requires councils to be satisfied that the inclusion of a rule which provides for the

use of best practicable option is the most efficient and effective means of preventing or minimising adverse effects on the environment.

Limits established under Policy A1 help define the benchmark for what are acceptable effects. Preventing (avoiding) or minimising (remediating or mitigating) are the words used in section 70 for rules about discharges.

In managing discharges through conditions or rules in the coastal environment, councils and other decision-makers must also have regard to Policy 23 of the NZCPS 2010.

Policy A4 and direction (under section 55) to regional councils

By every regional council amending regional plans (without using the process in Schedule 1) to the extent needed to ensure the plans include the following policy to apply until any changes under Schedule 1 to give effect to Policy A1 and Policy A2 (freshwater quality limits and targets) have become operative:

- “1. When considering any application for a discharge the consent authority must have regard to the following matters:
 - a. the extent to which the discharge would avoid contamination that will have an adverse effect on the life-supporting capacity of fresh water including on any ecosystem associated with fresh water, and*
 - b. the extent to which it is feasible and dependable that any more than minor adverse effect on fresh water, and on any ecosystem associated with fresh water, resulting from the discharge would be avoided.**
- 2. When considering any application for a discharge the consent authority must have regard to the following matters:
 - a. the extent to which the discharge would avoid contamination that will have an adverse effect on the health of people and communities as affected by their secondary contact with fresh water; and*
 - b. the extent to which it is feasible and dependable that any more than minor adverse effect on the health of people and communities as affected by their secondary contact with fresh water resulting from the discharge would be avoided.**
- 3. This policy applies to the following discharges (including a diffuse discharge by any person or animal):
 - a. a new discharge, or*
 - b. a change or increase in any discharge –**of any contaminant into fresh water, or onto or into land in circumstances that may result in that contaminant (or, as a result of any natural process from the discharge of that contaminant, any other contaminant) entering fresh water.**

4. *Paragraph 1 of this policy does not apply to any application for consent first lodged before the National Policy Statement for Freshwater Management 2011 took effect on 1 July 2011.*
5. *Paragraph 2 of this policy does not apply to any application for consent first lodged before the National Policy Statement for Freshwater Management 2014 takes effect.”*

Effect of Policy A4

This transitional policy is inserted into a regional plan by amending the plan in accordance with section 55(2) of the RMA until such time as the objectives, policies, methods or other measures that give effect to policies A1 and A2 are made operative through the Schedule 1 process. Note that the NPS-FM 2014 has a further paragraph which must be inserted into a regional plan, which is in addition to those paragraphs inserted under the 2011 NPS-FM.

Policy A4 has a specific effect on considering resource consent applications once that amendment is made. This policy requires that a regional council consider certain matters when assessing and determining an application for a discharge permit. The matters are the equivalent to assessment matters or matters of control, and should be inserted into plans alongside other assessment matters for discharges.

The Policy requires regional councils to insert the policies directly into regional plans (without using the Schedule 1 process) as soon as practicable after 1 July 2011 for paragraph 1 (which all councils have now done) and after 1 August 2014 for paragraph 2. The most efficient response will usually be to insert the policy into plans using the exact wording in Policy A4. Under sections 55(2) and 55(2A) of the RMA, public notice is to be given once amendments are made.

Before the amendment under section 55(2) is made to the regional plan, regional councils must have regard to Policy A4 in considering an application for resource consent (section 104(1)(b)(iii)). Regional council consideration and determination of resource consent applications lodged after 1 July 2011 (for paragraph 1) and 1 August 2014 (for paragraph 2) need to have regard to Policy A4 under section 104(1)(b), pending the inclusion of the policy in a plan.

The direction that the consent authority must have regard to the listed matters is no stronger than the requirement of section 104 of the RMA to have regard to a number of matters, including any actual or potential effects on the environment, and the NPS-FM. This interim policy therefore draws further attention to specific matters relevant to water quality, and the connection between land use and water quality over and above the more general considerations required by the RMA.

What Policy A4 applies to

Policy A4 applies to:

- decisions on discharge permits required under the current regional plan
- new discharges or changes/increases in any discharge.

It does not apply to:

- land-use (or other) applications that may involve a discharge that is authorised by a permitted activity rule unless, or until, they require additional or new consents
- new consents or replacement consents for the same already consented discharge where there is no change or increase in the discharge.

Policy A4 applies where regional plans need to be amended to give effect to Policies A1 and A2. Where regional plans already give effect to these policies, no amendment to the plan is required (duplication is not necessary).

Policy A4 does not expressly identify the matters listed in 1(a), 1(b), 2(a) and 2(b) as matters of control or discretion. This policy does not affect activity status and regard to the matters in Policy A4 will be within the parameters of the activity status. The policy will therefore operate differently depending on the activity status. For example, it will not provide a basis for refusing consent for controlled activities, but will provide a platform for imposing conditions of consent (as it amends the matters of control). When Policy A4 is inserted into a plan, councils may wish to help avoid confusion by outlining how the policy will operate in the context of particular rules and activity status within the plan. The reference to effects that are more than minor is intended to ensure the policy does not impose significant compliance and opportunity costs where adverse effects may only be minor.

NZCPS 2010 Policy 23 also lists matters to which regard must be given and requirements for certain types of discharges in the coastal environment.

Interim effect

It is acknowledged the process and time frames for setting freshwater objectives and limits may be significant for some regions. Policy A4 provides the ability for regional councils to consider these matters in the interim, to ensure the objectives of the NPS-FM for water quality can still be achieved.

5.6 Part B. Water quantity

Objective B1

To safeguard the life-supporting capacity, ecosystem processes and indigenous species, including their associated ecosystems of fresh water, in sustainably managing the taking, using, damming or diverting of fresh water.

Regional councils will need to give effect to Objective B1 in regional policy statements and regional plans. This objective is a relevant consideration for decision-makers when determining resource consent applications to take, use, dam or divert fresh water.

Regional policy statements and regional plans may already contain fresh water quantity provisions. These provisions will need to be assessed to determine whether they adequately reflect Objective B1. As with Objective A1, the word 'safeguard' requires a proactive response by local authorities to ensure that activities can be undertaken in a sustainable way to provide for the economic, social and cultural wellbeing of people and communities. The objective applies a sustainable approach to fresh water use rather than a no-adverse-effects approach.

Freshwater bodies and the aquatic communities they support vary across regions and between different types of freshwater ecosystems. What is required to achieve safeguarding of the specified matters will be catchment-specific. Life-supporting capacity may be assessed using a range of attributes and/or methodologies (eg, Macroinvertebrate Community Index (MCI), Stream Ecological Evaluation (SEV) and Instream Flow Incremental Methodology (IFIM)).

The guidance provided on Objective A1 relates to water quality but generally applies equally to this objective.

Objective B2

To avoid any further over-allocation of fresh water and phase out existing over-allocation.

Regional councils will need to give effect to Objective B2 in regional policy statements and regional plans.

In setting freshwater objectives and limits under part CA, regional councils will identify any over-allocated catchments by undertaking the freshwater accounting requirements of part CC. Avoiding and phasing out any over-allocations will be achieved by implementing the policies in part B of the NPS-FM, particularly Policies B5 and B6.

Over-allocation is defined in the interpretation section of the NPS-FM, and in the glossary (section 4) of this guidance. The definition of over-allocation is linked to the assessment of achieving freshwater

objectives or exceeding a limit. Over allocation will therefore have a spatial and temporal extent that relates to the freshwater objective for a particular FMU.

In some regions, there is recognised over-allocation, where the use of water has created changes in freshwater bodies that prevent them delivering desired community outcomes or fail to safeguard the life-supporting capacity of the water body. But there are also consented over-allocations where the full use of allocations would result in unacceptable changes to the freshwater body but for the fact that current use is below that which has been consented.

Where over-allocation has occurred (or would occur if the consent was exercised to its full extent), this objective seeks the incremental reduction of water use over time until a sustainable level is reached (see Policy B6). A sustainable level would be where freshwater objectives and limits are met within the environmental flows established under Policy B1. Where over-allocation has not occurred, the objective requires that measures are put in place to avoid it occurring in future; prevention is better than cure. Avoiding over-allocation is more stringent than “avoiding, remedying, or mitigating”. Avoidance would be achieved through setting and implementing limits and/or target limits.

Avoiding over-allocation is a specific obligation of the NPS-FM and there is a specific expectation that adverse cumulative effects on water quantity will be avoided.

Objective B3

To improve and maximise the efficient allocation and efficient use of water.

The phrase ‘to improve’ indicates measures currently in place to advance efficient allocation and use of water may not be sufficient. Undertaking freshwater accounting, as required by part CC, is a fundamental first step in providing the information needed to identify where improvements in efficient allocation and use of water can occur.

Efficient allocation and efficient use of water will ensure maximum benefit is gained from using that part of the resource that is sustainably available for use. Measures of both efficient use and efficient allocation are needed to ensure these are being delivered.

Efficient use may involve:

- not wasting water (ie, ensuring that all water used is delivering the intended benefit)
- using the most efficient available technology
- reducing the need for water by changing the way benefits are achieved (for example, changing crop varieties to one that requires less irrigation but delivers the same economic benefits)
- changing the timing of water use to better fit with water availability and minimise the use of higher value water (for example, reduce use of water at times of low flow).

Efficient allocation may involve:

- ensuring processes used to allocate water are efficient, by selecting the optimal mechanism for the circumstances
- ensuring that scarce water is directed to the highest value uses, taking account of issues of fairness and equity
- providing an appropriate balance that enables movement of allocated water between users to improve outcomes and allow new water users to have an opportunity to gain an allocation, while providing certainty of allocation over time
- identifying any potential 'headroom' in a catchment once freshwater objectives are met, and providing this information to resource users in a way which enables efficient and equitable access to the available water
- taking into account environmental, economic, social and cultural interests, and how these may change over time
- providing an allocation where the rights and responsibilities of the recipient are clearly defined.

Commentary on the meaning of technical, economic and dynamic efficiency in achieving water efficiency is provided for Policies B2, B3 and B4.

Improvements in the efficiency with which water is allocated will result in New Zealanders obtaining greater value from the country's water resources over time.

Objective B4

To protect significant values of wetlands and of outstanding freshwater bodies.

Objective B4 is intended to be given effect to within the context of water quantity; That is, by giving effect to:

- Objective B1 (sustainably managing the taking, use and damming, or diverting of fresh water)
- Policy B1 (establishing freshwater objectives and setting environmental levels).

An example of a water quantity issue that may be relevant to Objective B4 is maintaining variations in water levels in a wetland so that ecosystem processes and indigenous species in the wetland are safeguarded. Significant ecological values of wetlands may be affected by lowered water tables caused by drainage in the surrounding land, and this may need to be managed to protect those significant values.

Depending on the values of the wetland or outstanding freshwater body, limit-setting alone may not be enough to protect the values of the wetland or outstanding freshwater body. Other measures to address water quality may be required (Objective A2), including non-regulatory measures. Guidance

provided for Objective A2 on protecting the significant values of wetlands and outstanding freshwater bodies is relevant for Objective B4.

Objective B4 will be a relevant consideration in consent and Notice of Requirement decision-making.

Policy B1

By every regional council making or changing regional plans to the extent needed to ensure the plans establish freshwater objectives in accordance with Policies CA1-CA4 and set environmental flows and/or levels for all freshwater management units in its region (except ponds and naturally ephemeral water bodies) to give effect to the objectives in this national policy statement, having regard to at least the following:

- a) the reasonably foreseeable impacts of climate change;
- b) the connection between water bodies; and
- c) the connections between freshwater bodies and coastal water.

A major element of the NPS-FM is a strengthened limits-based water management regime. Policy B1 is a critical policy for implementing that regime, alongside Policy A1. Policy B1 requires councils to set freshwater objectives and environmental flows and/or levels.

Setting freshwater objectives requires using the process set out in Policies CA1-CA4 which involves identifying values that are relevant to a FMU, identifying attributes that provide for those values, and setting freshwater objectives in relation to those attributes. This is described further in the section on Policies CA1-CA4.

Environmental flows and/or levels are types of limits relating to water quantity; they describe the amount of water that needs to be in a FMU to meet freshwater objectives. Setting an environmental flow determines how much fresh water is available for use, and how much needs to remain in the water bodies in a FMU to allow freshwater objectives to continue to be met.

The following sections provide more detail about each part of Policy B1.

Establish freshwater objectives

The process for setting freshwater objectives is detailed in the guidance for Policies CA1-CA4. This process involves selecting values, identifying the attributes that correspond to those values, and setting objectives based on desired attribute states.

When setting freshwater objectives, councils will need to consider whether those objectives will require limits in relation to water quantity. There are different ways in which freshwater objectives may relate to water quantity:

- A council may choose to set a freshwater objective that references water quantity in relation to an environmental outcome. For example, if the value is to protect native fish, an example of a narrative freshwater objective to achieve this might be: *There are viable habitats for native fish established by maintaining a suitable flow regime and maintaining fish passage and fish migration. Maintain sufficient flow to provide 90 per cent habitat retention for the most sensitive species, being adult blue-gilled bullies.* The council would then need to determine the appropriate environmental flows/levels to meet this objective.
- A council may set a freshwater objective that does not specifically reference water quantity, but where a water quantity limit will be necessary to achieve it. For example, councils are required to set freshwater objectives for periphyton in rivers. While the freshwater objective would be in relation to periphyton abundance, there may be water quantity limits required to achieve it.

The guidance under Policy A1 for quality, relating to objectives, limits and methods is equally applicable to this Policy.

Establish environmental flows/levels

A limits-based water management regime is underpinned by establishing environmental flows and determining the allocable quantum that is available to be distributed efficiently between users. A strengthened limits-based water management regime should:

- maintain ecosystems and ecosystem services that all water users rely on (for example, the provision of good drinking water quality for public health)
- identify over-allocation and headroom within a catchment
- improve investor certainty and consenting efficiency
- provide certainty in supply
- avoid the need to reduce or claw back over-allocation in future.

Information on a rivers flow regime, lake, or groundwater levels should be established for each FMU and environmental flows established. A hydrological monitoring network should be established to provide the necessary information if it is not already available. This should be undertaken at a scale commensurate with the impact on the resource. In some cases modelling or estimates may be sufficient.

The draft guidelines on methods to determine ecological flows and water levels¹⁷ may assist in giving effect to Policy B1. There are other methods that may be applicable depending on the circumstances, including Instream Flow Incremental Methodology (IFIM).

¹⁷ www.mfe.govt.nz/publications/water/draft-guidelines-ecological-flows-mar08/index.html

The allocable quantum and the environmental flow can be variable to reflect seasonal or other factors, as long as the variation is set out quantitatively and the resulting variable limits are consistent with achieving the objectives.

If insufficient information is available to establish the flow regime and environmental flows at the time of objective and limit-setting, a conservative approach could be taken in the short term (eg, through the use of default limits) while information is gathered on the flow or water level regime across each FMU. However, changes to limits may affect industry and investment certainty for resource users, and councils will need to assess the likely effects of any limits developed as part of the planning process. In keeping with Policy E1 of the NPS-FM, the use of short-term default limits needs to be part of a time-limited, staged implementation that is publicly reported on every year and fully implemented by 2025 or (2030 if Policy E1(ba) applies).

Impacts of climate change

Guidance under Policy A1 is equally applicable to Policy B1. In setting limits, it is important to consider matters that have the potential to affect the quantity of water available in a FMU, such as:

- changes in frequency and severity of droughts
- changes in frequency and severity of heavy rainfall and flushing or flooding events
- rainfall, snow and evaporation rates, which are likely to change water flows and aquifer levels, or worsen or otherwise change existing problems with availability
- sea level rise which may affect salination and groundwater quality in some areas

Connection between water bodies

Regional councils need to have regard to the connection between water bodies in establishing freshwater objectives and limits. Guidance under Policy A1 about connections between water bodies applies equally to this Policy.

In the context of water quantity, considering the connection between water bodies is likely to involve considering the ways in which changes in one water body affect the amount of water available to meet a freshwater objective in another water body (for example, how groundwater abstractions would affect the amount of surface water available, or how abstractions from a river would affect water quantity in a receiving environment).

Coastal water and other exclusions

Policy B1 does not apply to coastal water or geothermal water, or to ponds or naturally ephemeral water bodies. However, the connections between freshwater bodies and coastal water need to be considered when implementing this policy. See also the guidance for Policy A1.

Progressive implementation

Existing regional plans containing fresh water provisions will need to be assessed to determine whether any established objectives, set flows/levels and allocation limits are relevant to FMUs established under the 2014 NPS-FM. Regional plans will need to be changed as necessary to give effect to the policy.

Requiring environmental flows and/or levels to be set in all FMUs in a region requires a significant body of work. A number of regional councils have already made good progress in setting flows and levels in their regions. In regions where this work is not so well progressed, the work can, in accordance with Policy E of the NPS-FM, be undertaken in a progressive manner. In these regions, as a first step, it may also be appropriate to set default limits for small FMUs or those that are not under allocation pressure.

Policy B2

By every regional council making or changing regional plans to the extent needed to provide for the efficient allocation of fresh water to activities, within the limits set to give effect to Policy B1.

The current first in, first served approach to water allocation presents challenges as the amount of available water in a catchment reduces.

Environmental flows set through the implementation of Policy B1 will define how much of a particular water resource remains available for allocation (the allocable quantum). Policy B2 seeks to ensure the remaining available resource is allocated efficiently. The freshwater accounting requirements of part CC will ensure the requisite information is generated (for example, all water takes, consented or otherwise, will need to be accounted for if efficient allocation is going to be achieved (Policy CC1(a)).

The reference to Policy B1 is intended to emphasise that allocation of fresh water must not exceed the environmental flows and/or levels that have been set under Policy B1.

The intention is for decisions on allocation to be made in plans, not through consents. Under section 30 of the RMA, regional councils have the function of establishing rules in regional plans to allocate the taking and use of water, including the allocation of that water to types of activities. The policy does not require regional councils to allocate fresh water to particular activities, but councils have the ability to do so in accordance with section 30(4)(e) of the RMA if they and their community so wish. Efficient allocation of water is expected to vary according to regional differences in water availability, regional differences in the types of activities that use or affect fresh water in a region, and the values that communities place on these aspects.

Regional councils with over-allocated catchments can consider a range of options to review and reduce allocations. These include, but are not limited to:

- reallocation
- progressive reduction in the volumes of water consented to be taken over time (sinking lid)
- common expiry dates within the catchment.

Addressing current over-allocation is discussed further in Policy B6. Efficiency of allocation is discussed further under Objective B3.

Policy B3

By every regional council making or changing regional plans to the extent needed to ensure the plans state criteria by which applications for approval of transfers of water take permits are to be decided, including to improve and maximise the efficient allocation of water.

Policy B3 seeks to ensure councils' approach to transfers of water take permits contributes to the efficient allocation of water and, by implication, the achievement of freshwater objectives and compliance with limits. Transfers may be appropriate where the person/company undertaking the relevant activity changes, or to allow the movement of water from one user/use to another. Shifting allocations over time recognises that fresh water may be valued differently at different times by different parties.

Regional councils are required to state in regional plans their assessment criteria for approving the transfer of water take permits in order to improve and maximise the efficient use of water. It is anticipated this will increase certainty and remove unnecessary administrative barriers or inefficiencies.

Policy B3 is subject to the provisions of the RMA, including sections 30 and 136. For example, the matters specified in section 104, and the effects of the transfer, must be considered under section 136(4)(b)(ii).

Policy B3's focus on transfer is anticipated as the first step in creating a greater uptake of transfer of consents to maximise efficient allocation. The broader area of 'dynamic efficiency' is considered to provide opportunities for new approaches in trading and transfer systems that enable appropriate consideration of both environmental and economic outcomes. For example, short consent terms may help achieve dynamic efficiency and enable regular review, but would not always be economically efficient for investment.

Policy B4

By every regional council identifying methods in regional plans to encourage the efficient use of water.

Policy B4 is related to technical efficiency (the rate at which resources, capital and labour are converted to goods. More goods produced for the same amount of fresh water equates to a higher technical efficiency in water use). Efficiency of use is discussed further under Objective B3.

The reference to methods allows for the use of both regulatory and non-regulatory methods.

Examples of non-regulatory methods already used in some regions are:

- council/industry partnerships
- voluntary agreement to targets (such as percentage efficiency targets for certain land uses or municipal water supplies).

Examples of regulatory methods are:

- a different status of activity based on the level of efficiency demonstrated for the activity (eg, an irrigation application)
- a requirement to develop a conservation/efficiency plan.

Because Policy B4 specifically directs the inclusion of methods in regional plans, resource consents and decision-making related to the use of water may be indirectly or directly affected.

The freshwater accounting requirements in part CC will provide the core information required to establish whether water is currently being used (and allocated) efficiently.

Policy B5

By every regional council ensuring that no decision will likely result in future over-allocation – including managing fresh water so that the aggregate of all amounts of fresh water in a freshwater management unit that are authorised to be taken, used, dammed or diverted – does not over-allocate the water in the freshwater management unit.

Policy B5 is fundamentally important to avoiding further over-allocation as sought by Objective B2. This Policy recognises a significant cause of over-allocation is the cumulative effects of multiple decisions, and specifically directs attention to that issue.

Freshwater objectives and limits (required by Policy B1) will ensure the over-allocation threshold is clear to decision-makers. Good information on current allocations will be needed to determine whether over-allocation has occurred, or would occur if further activities are authorised. This information will be generated by the freshwater accounting requirements in part CC of the NPS-FM.

To determine if over allocation has occurred or will occur, councils need to account for all takes (as required by Policy CC1), whether by consented or permitted activities (ie, including section 14(3)(b) takes). Permitted activities (eg, takes for stock water, domestic use or fire-fighting) can make up a significant quantity of cumulative takes from a FMU. Councils will also need to consider the effects of how water is used, dammed or diverted within the FMU, and whether this is likely to contribute to over-allocation. They need to take into account the effects of permitted land uses that may change water yield from a catchment (eg, forestry plantings) or aquifer recharging, and effects of climate change on water availability. Once all takes have been accounted for, and environmental flows and the allocable quantum established, councils should set effective limits in plans to provide clarity to resource users on how much of the resource is available. Information on resource availability is required to be available to users under Objective CC1.

The use of the phrase 'will likely result' requires a precautionary approach to future-proof allocation decisions that do not result in over-allocation (for example, to take account of the reasonably foreseeable impacts of climate change). During the consenting process, decisions about resource use should have due regard to reliable new information about the freshwater resource that is proposed to be used, to demonstrate the allocation limit is not exceeded. Information presented as part of the consenting process may support a change of the default limit in the particular freshwater resource if it demonstrates the current limit does not match well to the relevant objective. However, changing the limit (or the underlying objective) will require a plan change.

Although Policy B5 does not specifically direct regional councils to change their plans, it is likely this Policy will result in a need for regional plan rules and the activity status of activities that exceed allocation limits to be set. Existing plans containing provisions regarding over-allocation and/or cumulative effects relating to freshwater should be assessed to determine if they adequately give effect to Policy B5, and be changed if necessary.

Policy B6

By every regional council setting a defined time frame and methods in regional plans by which over-allocation must be phased out, including by reviewing water permits and consents to help ensure the total amount of water allocated in the freshwater management unit is reduced to the level set to give effect to Policy B1.

Policy B6 seeks to reduce over-allocation where it has already occurred.

Regional councils are limited in the regulatory methods that can be imposed on existing resource consents until those consents expire, or are able to be reviewed in accordance with section 128 of the RMA. Section 128 provides for review where specified in the consent (section 128(1)(a)), and where an operative regional plan sets rules for levels, flows, rates or standards and it is appropriate to review the conditions of consent to meet those rules (section 128(1)(b)). Where a review is

undertaken pursuant to the terms of a review condition for a specific consent, the permissible scope of the review may be limited.

Non-regulatory methods and voluntary programmes could be implemented for existing resource consents, particularly where these do not have review conditions or there will be a longer lead time to achieve operative rules for the purpose of section 128 (1)(b).

As for Policy B5, over-allocation relates to all takes, uses, dams and diversions – consented or otherwise. This may include permitted activities that contribute to existing over-allocation, including land uses that affect water yield.

In seeking to give effect to Policy B6, regional councils are required to determine a time frame and methods for reducing over-allocation. The provision to set a time frame recognises that the reduction in water available for use over time (as may be necessary to claw back over-allocation) is likely to have social, environmental, cultural and economic impacts that need to be balanced across a catchment or region.

Policy B7 and direction (under section 55) to regional councils

By every regional council amending regional plans (without using the process in Schedule 1) to the extent needed to ensure the plans include the following policy to apply until any changes under Schedule 1 to give effect to Policy B1 (allocation limits), Policy B2 (allocation), and Policy B6 (over-allocation) have become operative:

- “1. When considering any application the consent authority must have regard to the following matters:
 - a. the extent to which the change would adversely affect safeguarding the life-supporting capacity of fresh water and of any associated ecosystem, and*
 - b. the extent to which it is feasible and dependable that any adverse effect on the life-supporting capacity of fresh water and of any associated ecosystem resulting from the change would be avoided.**
- 2. This policy applies to:
 - a. any new activity, and*
 - b. any change in the character, intensity or scale of any established activity- that involves any taking, using, damming or diverting of fresh water or draining of any wetland which is likely to result in any more than minor adverse change in the natural variability of flows or level of any fresh water, compared to that which immediately preceded the commencement of the new activity or the change in the established activity (or in the case of a change in an intermittent or seasonal activity, compared to that on the last occasion on which the activity was carried out).**
- 3. This policy does not apply to any application for consent first lodged before the National Policy Statement for Freshwater Management 2011 took effect on 1 July 2011.”*

Effect of Policy B7

This transitional policy is inserted into all regional plans using Section 55(2) of the RMA until such time as the relevant Schedule 1 processes make operative the objectives, policies, methods or other measures that give effect to policies B1, B2 and B6 of the NPS-FM. The provisions of the plan would then influence the consideration of resource consent applications. Before the amendment under section 55(2) is made to the regional plan, regional councils must have regard to Policy B7 in considering an application for resource consent (section 104(1)(b)(iii)).

Policy B7 requires that the regional council consider certain matters in assessing and determining an application for consent. The matters are the equivalent to assessment matters or matters of control and should be inserted into plans alongside them.

The direction that the consent authority must “have regard to” the listed matters is no stronger than the requirement of section 104 of the RMA to have regard to a number of matters, including any actual or potential effects on the environment, and the relevant provisions of the NPS-FM. This interim policy therefore draws further attention to specific matters relevant to water quality, and the connection between land use and water quality over and above the more general considerations required by the RMA.

What Policy B7 applies to

Policy B7 applies to consideration of applications where resource consent is required under the current regional plan. The policy does not apply to permitted activities or existing activities unless, or until, they require additional or new consents. The Policy applies to a new or changed/increased activity that is likely to result in more than minor adverse change in the natural variability of flows or levels of fresh water. The policy does not apply to new consents or replacement consents for the same already consented activity where there is no change in character, intensity or scale. The policy does not apply where the activity is unlikely to result in any more than minor change in the flow or level of fresh water.

Policy B7 applies where regional plans need to be amended to give effect to Policies B1, B2 and B6. Where regional plans already give effect to these policies, no amendment to the plan is required – duplication is not necessary.

Policy B7 does not expressly identify the matters listed in 1(a) and (b) as matters of control or discretion; however, this is the effect of the policy. This policy does not affect activity status, and regard to the matters in Policy B7 will be within the parameters of the activity status. The policy will operate differently depending on the activity status. For example, for controlled activities they will not provide a basis for refusing consent, but for a non-complying activity or discretionary activity they may. In all cases they will provide a platform for imposing conditions of consent. When Policy B7 is inserted into a plan, a council may decide to outline how it will operate in the context of the plan’s particular rules and activity status, to help avoid confusion.

Interim effect

Policy B7 is included to manage activities that adversely affect freshwater resources while regional plan changes required by the NPS-FM are implemented (ie, it is an interim measure). It is acknowledged that the process and time frames for setting water quantity objectives and limits may be significant for some regions. This policy therefore seeks to provide the ability for regional councils to consider matters to ensure the objectives of the NPS-FM for water quantity can be achieved in the interim.

The policy requires regional councils to insert the policies directly into regional plans (without using the Schedule 1 process) as soon as practicable after 1 July 2011. Regional council officers, and panels or commissioners considering and determining resource consent applications lodged after 1 July 2011, need to have regard to Policy B7 under section 104(1)(b), pending the inclusion of the policy in a plan.

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5.7 Part C. Integrated management

Objective C1

To improve integrated management of fresh water and the use and development of land in whole catchments, including the interactions between fresh water, land, associated ecosystems and the coastal environment.

The objective of integrated management is integral to the NPS-FM. Objective C1 recognises the interconnections between the conditions in a catchment (eg, vegetation cover, nutrient inputs, changes in soils, erosion, etc) and the condition of freshwater systems, as well as the interconnections between those systems and the receiving coastal environment. This policy supports provisions of the RMA and specific functions for regional councils, including sections 30(1)(a), 30(1)(c), 30(1)(g) and 59, and functions for territorial authorities in terms of integrated management of the effects of land use in section 31(1)(a).

While the RMA clearly sets out these functions for regional councils, the objective of the NPS-FM is not just to reiterate the importance of integrated management, but to improve the integrated management of fresh water and land use and associated interactions. The baseline and measure for improvement will be set through regional councils assessing their own regional situation, approaches and provisions to give effect to Policies C1 and C2. Regional policy statements and plans already contain fresh water, land use and integrated management provisions. These provisions will need to be assessed to determine whether they adequately reflect the objective sought.

Policy 4 in the NZCPS 2010 is also relevant to the implementation of Objective C1. A 2009 study by NIWA highlights the significance of fresh water inputs to estuaries.¹⁸

Regional councils and territorial authorities will need to work together to determine how their respective plans will achieve Objective C1. Objective C1 is relevant for territorial authorities in consent decision-making for land use and subdivision, particularly considering the effects of these on freshwater quality and water yields (for example, the effects of residential development in terms of stormwater generation).

Policies C1 and C2 do not require territorial authorities to amend plans, but amendment may be necessary to ensure district plans give effect to amended regional policy statements and are not inconsistent with regional plans. Objective C1 will be relevant to city and district councils when they undertake district plan reviews to give effect to relevant direction in the regional policy statement and to exercise their function for integrated management under section 31(1).

¹⁸ NIWA, 2009. A review of land-based effects on coastal fisheries and supporting biodiversity in New Zealand. *New Zealand Aquatic Environment and Biodiversity Report No. 37*.

Policy C1

By every regional council managing fresh water and land use and development in catchments in an integrated and sustainable way, so as to avoid, remedy or mitigate adverse effects, including cumulative effects.

The focus of Policy C1 is on improving planning rather than managing effects through consenting. Regional councils will need to give effect to Policy C1 in regional plans. Coordination and collaboration with territorial authorities will be required to give effect to Policy C1.

The policy expects a catchment management approach to be taken in managing the interactions between land and water. It emphasises the need for integration between the management of land and water, as well as the coastal environment. Regional councils are the lead agencies and should use all functions available in section 30 of the RMA to achieve this.

Under the umbrella of Objective C1, improved integrated management of land use, water quality and quantity is expected, as is integration with the management of the coastal environment. This will require a council to look at the way it can manage land-use impacts on water quality and quantity. This may include:

- nutrient limits
- management of impervious surfaces
- management of stormwater
- management of erosion and sediment input
- management of land uses that alter water yield.

This will require integration with territorial authority management of land use (for example, rural activity conversions and residential development or earthworks that may affect freshwater quality). Integration and consistency of approach across different regional and territorial planning instruments and programmes is required.

Policies 4, 22 and 23 of the NZCPS 2010 are relevant in determining an approach to improving integrated management within the coastal environment. Policy 4 of the NZCPS 2010 requires councils to provide for integrated management in the coastal environment and for activities that affect the coastal environment. Policies 22 and 23 require consideration of the impact of land use on coastal water and consideration of the integrated management of catchments and stormwater networks.

These policies of the NZCPS 2010 apply to the same water bodies and subject matter as the NPS-FM, and both need to be considered and given effect to. Coordinated implementation of both documents will be required and it is not expected the policies of the NZCPS 2010 will result in different approaches to integrated management in the coastal environment. Rather, councils need to specifically have regard to certain matters in managing land use and development, such as considering management of sediment loading and stormwater.

Policy C2

By every regional council making or changing regional policy statements to the extent needed to provide for the integrated management of the effects of the use and development of:

- a) land on fresh water, including encouraging the coordination and sequencing of regional and/or urban growth, land use and development and the provision of infrastructure; and
- b) land and fresh water on coastal water.

Policy C2 reinforces the existing function of regional councils in section 30 of the RMA, by requiring regional policy statements to specifically provide for the integrated management of land use and fresh water and the effect of these on coastal water.

The policy recognises the relationship between land use and fresh water, and their effects on coastal water, as well as the role of regional councils in managing land use. The policy recognises the relationship between management of land use, water and provision of infrastructure (all types), and the need to plan at a regional scale. It also requires integration with territorial authority management of land use and provision of infrastructure.

Regional councils will need to assess their regional policy statement to determine if it provides for integrated management to the extent outlined in Policy C2.

Policies 4, 6, 22 and 23(4)(C) of the NZCPS 2010 are relevant in implementing Policy C2 in the coastal environment. Policy 4 requires councils to coordinate management and control of activities that cross administrative boundaries, and to work collaboratively with other agencies. As for Policy C1, it relates to some of the same locations and subject matter as the NZCPS 2010 policies. This reinforces the collaborative approach anticipated under Policy C1 of the NPS-FM, rather than creating a different approach to integrated management in the coastal environment.

5.8 Part CA. National Objectives Framework

Objective CA1

To provide an approach to establish freshwater objectives for national values, and any other values that:

- a) is nationally consistent; and
- b) recognises regional and local circumstances.

Origins of the policy

The National Objectives Framework (NOF) originated from the Land and Water Forum recommendations for a national framework for setting freshwater objectives.¹⁹ This recommendation was further developed by the National Objectives Framework Reference Group (NOFRG), expert science panels, and officials (in discussion with the Iwi Leaders Group) into the NOF. The NOF is made up of the objectives and policies in part CA and the tables in Appendices 1 and 2.

The requirements in Policy CA2(f) stem from the Land and Water Forum recommendation that the process for setting freshwater objectives should be undertaken together with the consideration of strategies, methods and timelines for achieving them. The Land and Water Forum recommended that the process of assessment and deliberation should be repeated to evaluate different scenarios (objectives, limits, methods and timelines) to achieve a clear understanding of the options including their achievability, costs, benefits and consequences.²⁰

The Land and Water Forum also recommended that exceptions from national bottom lines (Policy CA3) be allowed in certain circumstances,²¹ particularly to recognise the benefit of significant infrastructure.²²

Policy intent and implementation

Policy A1 requires regional councils to establish freshwater objectives for all FMUs. The process for setting freshwater objectives is contained in part CA.

Objective CA1 provides for the approach to setting freshwater objectives to be nationally consistent, but with flexibility for recognising regional circumstances. This is achieved through Objective CA1, supported by Policies CA1-4, providing an approach to setting freshwater objectives which relate to achieving national values plus any other values that the community desires for their freshwater bodies. The national values, and the community's values for fresh water, should drive the freshwater

¹⁹ Recommendations 4, 5, 12, Second Report

²⁰ Recommendation 4, Third Report

²¹ Recommendation 7, Second Report

²² Recommendation 48, First Report; recommendation 10, Second Report

objective-setting process. The NOF tables in the NPS-FM appendices provide the linkage between national values and the attributes from which freshwater objectives must be derived. Setting freshwater objectives that directly link to values will help to deliver the desired outcomes, however setting freshwater objectives for attributes in addition to the ones listed in Appendix 2 is likely to also be necessary.

An overview of freshwater objective-setting

Policy CA1 requires every regional council to include all freshwater bodies within the region into FMUs. Policy CA2 outlines the process for setting freshwater objectives and the matters to consider when doing so. The NOF tables in the NPS-FM appendices provide a selection of values and attributes to use when setting freshwater objectives. Some attributes are not yet listed in Appendix 2 of the NPS-FM because they do not apply nationally or because the scientific information is not sufficiently developed. Where attributes are not provided in the NPS-FM, councils have the flexibility to set their own attributes from which to develop freshwater objectives that are appropriate for their regional and local circumstances.

Policy CA1

By every regional council identifying freshwater management units that include all freshwater bodies within its region.

Regional councils must ensure that all freshwater bodies in a region are included within FMUs.

A FMU may include a single freshwater body, part of a freshwater body, or a group of freshwater bodies (see the definition of FMU in section 4). A FMU may contain hydrologically connected water bodies; or it may consist of a group of hydrologically similar, but disconnected, water bodies.

Policy CA2(f)(ii) requires regional councils to consider the spatial scale at which freshwater management units are defined. A FMU should not be set at such a large scale that effective management of fresh water is inhibited, or water quality is disguised by averaging. Conversely, a FMU should not be set at too small a scale, which may result in a costly planning process and undue complexity in the plan (eg, multiple limits affecting infrastructure or commerce which spans a water body or water bodies).

A further consideration is that the scale of the FMU needs to be appropriate for objective and limit-setting, freshwater accounting, and monitoring. Although by definition FMUs are made up of water bodies (or parts of water bodies) rather than land, freshwater accounting and the management of freshwater quality and quantity will involve consideration of any discharges from the surrounding land area (ie, the catchment which supplies the freshwater body). In this way setting FMUs also links with the requirement in part C of the NPS-FM to manage freshwater in conjunction with the use and development of land in whole catchments.

Policy CA2

By every regional council applying the following processes in developing freshwater objectives for all freshwater management units:

- a) considering all national values and how they apply to local and regional circumstances;
- b) identifying the values for each freshwater management unit, which
 - i. must include the compulsory values; and
 - ii. may include any other national values or other values that the regional council considers appropriate (in either case having regard to local and regional circumstances);
- c) identifying:
 - i. for the compulsory values or any other national value for which relevant attributes are provided in Appendix 2:
 - A. the attributes listed in Appendix 2 that are applicable to each value identified under Policy CA2(b) for the freshwater body type; and
 - B. any other attributes that the regional council considers appropriate for each value identified under Policy CA2(b) for the freshwater body type; and
 - ii. for any national value for which relevant attributes are not provided in Appendix 2 or any other value, the attributes that the regional council considers appropriate for each value identified under Policy CA2(b) for the freshwater body type;
- d) for those attributes specified in Appendix 2, assigning an attribute state at or above the minimum acceptable state for that attribute;
- e) formulating freshwater objectives:
 - i. in those cases where an applicable numeric attribute state is specified in Appendix 2, in numeric terms by reference to that specified numeric attribute state; or
 - ii. in those cases where the attribute is not listed in Appendix 2, in numeric terms where practicable, otherwise in narrative terms; and
 - iii. on the basis that, where an attribute applies to more than one value, the most stringent freshwater objective for that attribute is adopted; and

- f) considering the following matters at all relevant points in the process described under Policy CA2(a)-(e):
- i. the current state of the freshwater management unit, and its anticipated future state on the basis of past and current resource use;
 - ii. the spatial scale at which freshwater management units are defined;
 - iii. the limits that would be required to achieve the freshwater objectives;
 - iv. any choices between the values that the formulation of freshwater objectives and associated limits would require;
 - v. any implications for resource users, people and communities arising from the freshwater objectives and associated limits including implications for actions, investments, ongoing management changes and any social, cultural or economic implications;
 - vi. the timeframes required for achieving the freshwater objectives, including the ability of regional councils to set long timeframes for achieving targets; and
 - vii. such other matters relevant and reasonably necessary to give effect to the objectives and policies in this national policy statement, in particular Objective A2.

Policy CA2 provides the process for developing freshwater objectives, which involves:

- identifying the values that apply to a FMU
- identifying the attributes that need to be managed to provide for those values
- formulating freshwater objectives, which express a desired environmental outcome in relation to the attribute being managed.

The freshwater objectives formulated using this process form the basis for determining limits and targets (as required by Policies A1, A2 and B1).

Parts (a) to (e) of Policy CA2 direct the steps that must be taken to formulate freshwater objectives. Part (f) lists the matters that must be considered throughout the objective-setting process. Each of these steps involves elements which are compulsory, and elements which are at the discretion of councils.

Each part of Policy CA2 is explained further in the following sections.

Consider all national values

Part (a) requires regional councils, ideally in collaboration with their communities, to consider all the national values in Appendix 1 that might apply within a region, and might apply to particular FMUs. This will, at the very least, involve application of the compulsory national values to each FMU and consideration of the additional national values listed in Appendix 1 of the NPS-FM.

Identify relevant values

Part (b) requires regional councils to determine the relevant values for each FMU. These values will include:

- both of the compulsory national values in Appendix 1 (ecosystem health and human health for recreation)
- any other national values chosen from Appendix 1 that the council considers appropriate
- any other locally specific values or uses of fresh water that are not listed in Appendix 1 but are considered appropriate by the council.

Good practice would be to identify the values in the regional policy statement and/or the regional plan.

Identify attributes

Part (c) requires regional councils to identify relevant attributes that need to be managed in relation to the values that have been identified under part (b) of this policy.

To provide for the values that have been identified, various aspects of the freshwater environment need to be managed. Appendix 2 identifies attributes for some of the aspects that need to be managed in relation to some of the national values; those that are both nationally important and for which robust and justifiable attributes could be defined at this stage. Appendix 2 is incomplete, and does not yet include all attributes for the compulsory values, nor any attributes for the non-compulsory national values.

Each attribute table in Appendix 2 specifies the type of water body the attribute applies to. The attributes currently in Appendix 2 apply to either rivers, lakes, or both, while some water body types (eg, groundwater and wetlands) have no attributes included in Appendix 2 for any national value.

The attributes in Appendix 2 must be used where applicable (ie, where the identified value has attribute(s) for that type of water body in Appendix 2).

Where relevant attributes for the chosen values are not provided in Appendix 2, regional councils must establish these attributes for themselves. It will be important for councils to ensure that attributes selected in these cases:

- are relevant to the value (ie, they contribute to, or indicate that the value is being provided for)

- are relevant to the water body type
- support and justify the setting of limits and management actions.

Assign an attribute state

Part (d) requires regional councils to select a desired state for any relevant attribute listed in Appendix 2. The attribute state indicates the degree to which values are provided for.

Each attribute has four attribute states, 'A' indicates high or excellent water quality and 'D' unacceptably low or poor water quality which is insufficient to provide for the corresponding value. The attribute state selected must be at or above the minimum acceptable state for that attribute - that is the bottom of 'C' state or higher. 'D' state indicates the value is not sufficiently being provided for or achieved and objectives cannot be set in this state (although existing water quality may be in 'D' state when objective-setting commences).

The state descriptions are intended to help communities understand what different choices of water quality mean on the ground. They are intended to enable informed discussion of the choices around setting freshwater objectives at different levels of water quality, relative to the current state. Each attribute state corresponds to a scientifically-determined range of effects. This means, for example, that when discussing what is desired for a local river for periphyton), the community can express their desired state as "no more than occasional blooms" rather than discussing it in terms of a number such as "80 mg of chlorophyll-a per square metre".

The different attribute states reflect changes in water quality and (in some cases) represent clear lines between pristine, slightly impacted, and impacted but acceptable. The 'D' state is not acceptable, and unless Policy CA3 applies, regional councils will need to plan to improve water quality in these areas. Attribute states must be chosen in the context of the requirement to maintain or improve overall water quality in Objective A2, so the regional council and community cannot choose an attribute state that is lower than the current state (unless attribute states selected elsewhere in the region would lead to a commensurate improvement).

Selecting an attribute state should start from the basis of current water quality but it also involves balancing several considerations. The community may decide to maintain their current level of water quality, which may be at 'C' state, with no change to their resource use, or they may decide that they want an aspirational freshwater objective and to improve water quality to at 'B' state. This will have consequences in terms of limits set and other methods to achieve the improvement in water quality, and the impacts of this must be considered. A community may also choose a state lower than the current state (although not below the bottom line) and balance this with a commensurate improvement elsewhere in the region (Objective A2). Whatever attribute state is chosen, the decision must be transparent in terms of the possible attribute states to choose from and the impacts of those choices (see discussion on part (f) of this Policy).

Formulate freshwater objectives

Part (e) directs regional councils to formulate freshwater objectives. The NPS-FM requires that freshwater objectives are set for all FMUs (which will include all fresh water bodies in a region). At the very least, regional councils must set freshwater objectives in their regional plans for the

attributes for rivers and lakes associated with the compulsory national values ecosystem health and human health (Appendix 2 of the NPS-FM). Further attributes for rivers and lakes will be required in addition to those provided in Appendix 2 to ensure ecosystem health is maintained, and other attributes will be required for other water body types (eg, wetlands and groundwater).

Regional councils may also consider it appropriate to:

- set freshwater objectives associated with the non-compulsory national values in Appendix 1, for which no attributes are currently provided in Appendix 2, or
- set freshwater objectives for other values identified under CA2 (b)(ii) that are not listed in Appendix 1.

The policy requires that where an applicable numeric state is provided in Appendix 2, the corresponding freshwater objective must be expressed in numeric terms by reference to the specific numeric attribute state. For example, if a council decides that they want to achieve a 'B' state for the phytoplankton (trophic state) attribute in a lake, the B state allows for an annual median of between 5-12 mg/m³ of chlorophyll-a, and an annual maximum of between 25-60 mg/m³ of chlorophyll-a.

Numeric freshwater objectives would then need to be established that were consistent with the ranges provided by the 'B' state in Appendix 2. For example, freshwater objectives could include that the annual median phytoplankton concentration does not exceed 8 mg/m³ of chlorophyll-a (8 being in the middle of the range provided in Appendix 2); or that the annual maximum phytoplankton concentration does not exceed 55 mg/m³ of chlorophyll-a (55 being towards the upper limit of the range provided in Appendix 2).

Where an attribute is not listed in Appendix 2, the council must use attributes established under CA2 (c)(ii) to set freshwater objectives.

It is the policy intent that freshwater objectives should be sufficiently measurable (ie, preferably numeric) so that they allow effective limits to be justifiably set. Wherever practicable, freshwater objectives should be expressed in numeric terms (eg, by numerically specifying the maximum concentration of a contaminant), or if this is not possible, they may be expressed in narrative terms that describe the outcome that the state will provide for (eg, specifying that a contaminant will be at a concentration that allows for a specific outcome, without specifying what that concentration is). Narrative freshwater objectives should be as specific and measurable as possible. Numeric freshwater objectives, or specific and measurable narrative objectives will make it easier to set limits and monitor progress towards freshwater objectives.

When regional councils are setting freshwater objectives at the current state, the freshwater objective must include a specific number within the attribute state range given in Appendix 2 (eg, periphyton of 85 mg/chl-a/m²). If the freshwater objective is aspirational (ie, better than the current state), the freshwater objective could be written either as the numeric range given in Appendix 2 for the chosen attribute state (eg, periphyton between 50-120 mg/chl-a/m²), or as a specific number within that range.

Regional councils must set freshwater objectives taking into account the effects of groundwater where it affects or directly feeds into surface freshwater bodies.

If the community and council choose two values that have the same attribute for the same FMU, the most stringent attribute state required to achieve a value must be written as the freshwater objective in the regional plan.

Matters to consider when formulating freshwater objectives

Part (f) requires that as regional councils go through the process of establishing freshwater objectives they consider all the matters listed in Policy CA2(f) i-vii.

Policy CA2(f)(i)

This requires the current state of the FMU and anticipated future state (based on past and current resource use) to be considered. This is to establish and take into account any lag effects from historic land use and/or additional loads anticipated as a result of current use. Best practice would also include considering the impact of any currently planned or consented future use, even if this is not being fully exercised.

The current state of the FMU is relevant to Objective A2, which requires that overall water quality in a region is maintained or improved. The current state is also relevant in choosing the attribute state which will become the freshwater objective. If the current state of the FMU is a 'B' state for periphyton, and an 'A' state for *E.coli*, then these states must be maintained or improved unless any degradation is matched by a commensurate improvement elsewhere (in order to maintain overall water quality in the region).

Policy CA2(f)(ii)

This policy requires consideration of the spatial scale at which a FMU is defined. In particular, councils should consider how the spatial scale will affect the values chosen and the freshwater objectives that are set. Further guidance on FMUs is provided in the glossary in section 4 and for Policy CA1.

Policy CA2(f)(iii)

Knowing the current state is essential when considering what limits will be required to achieve the freshwater objective as required by Policy CA2(f)(iii). The consideration of limits will depend on the values chosen and the level of the attributes needed to provide for those values. Establishing limits will draw on the information generated from freshwater accounting and the requirements of part B – particularly Policy B1 regarding setting environmental flows. Establishing the current state and anticipated future state will help regional councils to identify appropriate allocation and methods that will be needed to achieve the freshwater objective. The limit-setting process will need to be iterative to allow fully informed choices to be made, taking into account the consequences of setting freshwater objectives and limits at certain levels.

Policy CA2(f)(iv)

This policy requires balancing value choices that would result in incompatible freshwater objectives, and limits being established to achieve those values. In considering all the potential values that

communities may hold for water bodies in a region, councils will need to balance not only the competing uses for fresh water, but also how each use may impact on any intrinsic values.

Each FMU will have multiple values associated with it, and councils need to ensure that the objectives they set to give effect to one value would not conflict with the objectives they set to give effect to another value. For example, reflecting the national value natural form and character may require establishing freshwater objectives that conflict with the objectives required to reflect the value hydro-electric power generation. In this case a council would need to consider whether both values are able to be reflected to an acceptable level, or whether the values are incompatible in that FMU. Where two values use the same attribute, the most stringent attribute state needed to achieve the value becomes the freshwater objective.

Policy CA2(f)(v)

This policy requires the implications arising from potential freshwater objectives and limits to be considered. Councils will need to consider a range of possible scenarios, and the consideration must be in the context of social, cultural and economic effects on resource users, people and communities. Environmental considerations will have been undertaken in determining the environmental flows under Policy B1, and by developing freshwater objectives and limits which give effect to the objectives of the NPS-FM, as required by Policy A1.

The freshwater objectives written in a regional plan should be the result of an iterative process that considers the value(s), attribute states, the limits needed, and the effect those limits will have. The intention is that this occurs throughout the planning process. It should be done in a way that provides relevant information to help communities make informed decisions on freshwater objectives and limits.

For example, a community may initially decide they want a freshwater objective set at the 'A' state. However, when the limits to achieve this are determined it may reveal that it will have a significant effect on current land use and businesses in the area. The community might agree that the effects are too great, and decide that a 'B' state is acceptable. The requirement under Objective A2 to maintain or improve overall water quality must still be given effect to, however.

Policy CA2(f)(vi)

An important consideration when setting freshwater objectives is an appropriate timeframe for meeting the freshwater objectives (where they are not already met) and/or a timeframe to meet limits, particularly any targets set under Policy A2. Policy CA2(f)(vi) reminds regional councils they have the ability to use long timeframes to achieve target limits. This is relevant where aspirational freshwater objectives have been set, where there will be significant lag times for nutrients in a FMU, or where water quality is below a national bottom line.

Policy CA2(f)(vii)

Policy CA2 (f) (vii) instructs regional councils to consider any other matters reasonably necessary to give effect to the objectives and policies in the NPS-FM, in particular the requirement to maintain or improve overall water quality within a region (Objective A2). This would also include matters

necessary to give effect to provisions around integrated management of land and water bodies and the involvement of iwi and hapū.

Policy CA3

By every regional council ensuring that freshwater objectives for the compulsory values are set at or above the national bottom lines for all freshwater management units, unless the existing freshwater quality of the freshwater management unit is already below the national bottom line and the regional council considers it appropriate to set the freshwater objective below the national bottom line because:

- a) the existing freshwater quality is caused by naturally occurring processes; or
- b) any of the existing infrastructure listed in Appendix 3 contributes to the existing freshwater quality.

National bottom lines represent the minimum acceptable standard of water quality for the attributes associated with the two compulsory national values. National bottom lines are minimum acceptable states, they are not targets.

Objective A2 requires that overall water quality within each region is maintained or improved. Therefore, regional councils are expected to set freshwater objectives that reflect current water quality or better. Limited balancing of water quality across a region is acceptable, although not to the extent that the water quality of any FMU would be managed to be below a national bottom line.

National bottom lines will only be a matter for consideration if the current water quality is below a bottom line or trending towards it. Freshwater objectives must be set above the bottom lines. If water quality for a compulsory value attribute is currently below a bottom line (or trending that way), it must be improved over time to achieve a freshwater objective above the bottom line.

However, Policy CA3 allows for two situations in which a freshwater objective can be set below a national bottom line for a period determined by the regional council. The use of this policy is likely to be rare and must be used only in these defined circumstances.

Naturally occurring processes

The first situation is where water quality is below a national bottom line due to naturally occurring processes (Policy CA3(a)). These are defined in the NPS-FM as processes that could have occurred in New Zealand prior to the arrival of humans (for example, where nesting birds adjacent to a water body might cause high *E. coli* concentrations or volcanic/geothermal activity resulting in low pH, high temperature or heavy metals in the water).

Decisions on whether to set a freshwater objective below a national bottom line due to naturally occurring processes will be made through the regional plan development process.

Existing infrastructure listed in Appendix 3

Policy CA3(b) allows for a freshwater objective to be set below a national bottom line in a FMU that contains infrastructure listed in Appendix 3, where that infrastructure is contributing to the existing water quality being below a national bottom line.

This policy is intended to be used in limited situations, and apply to FMUs that do not meet bottom lines because of the contribution of effects from existing infrastructure such as hydro-electricity generation or drinking water dams.

Appendix 3 does not currently contain a list of infrastructure for the purposes of Policy CA3(b). Adding eligible infrastructure to Appendix 3 will require a further amendment to the NPS-FM which will follow the process outlined in the RMA for amending a national policy statement. The Minister for the Environment intends to progress amendments to Appendix 3 in 2015.

Before a regional council could consider whether setting a freshwater objective below a national bottom line under Policy CA3(b) may be appropriate, it would need to both:

- determine whether the existing freshwater quality of the freshwater management unit is already below any national bottom line
- demonstrate that any of the existing infrastructure listed in Appendix 3 is contributing to the existing water quality being below a national bottom line.

These two steps – determining the current state of water quality, and identifying the reasons for that state – are important steps in the objective and limit-setting process in any FMU regardless of whether infrastructure exists which is listed in Appendix 3. Therefore these parts of the planning process can continue in the absence of a populated Appendix 3.

While Policy CA3(b) allows regional councils to set freshwater objectives below a bottom line, it does not require them to do so. Councils are still required to consider the matters specified in Policy CA2(f) before they set an objective in a regional plan, and must follow both the process set out in the NPS-FM and the process set out in Schedule 1 of the RMA. As part of the objective-setting process councils could consider whether it would be appropriate to set a freshwater objective below a bottom line under Policy CA3(b), or to set a freshwater objective:

- above a bottom line using targets over a specified timeframe to achieve the objective
- below a bottom line on a transitional basis under Policy CA4 by having the FMU added to Appendix 4 of the NPS-FM, if a community is concerned about the significant impacts due to the adjustment required to meet a national bottom line.

If a regional council considers that infrastructure exists in a FMU that may justify setting a freshwater objective below a bottom line, or wants to ensure that the full range of options is presented to the community, it may choose to defer setting objectives for that FMU until decisions have been made about populating Appendix 3.

Using a collaborative planning process would provide opportunities for a council to determine whether their community supports the setting of a freshwater objective below a national bottom line, and would also allow for involvement from infrastructure operators.

The requirement for an evaluation report under section 32 of the RMA to examine the appropriateness of proposed objectives and provisions (policies and methods) to achieve the objectives, will form an important part of documenting the decision points and trade-offs that have been considered by a council in determining whether or not to set a freshwater objective below a bottom line under Policy CA3. Interim guidance on section 32 analysis is provided on the Ministry for the Environment's website.²³

Policy CA4

A regional council may set a freshwater objective below a national bottom line on a transitional basis for the freshwater management units and for the periods of time specified in Appendix 4.

Currently, there are no freshwater management units specified in Appendix 4. If a regional council and/or a community wish to set a freshwater objective below a national bottom line on a transitional basis for a particular FMU, an amendment to the NPS-FM would need to be made by the Government.

The intent of this policy is to provide a mechanism whereby a regional council may approach the Minister for the Environment to populate Appendix 4 by an amendment to the NPS-FM so that a freshwater objective may be temporarily set below a bottom line in a regional plan.

The decision to seek this transitional arrangement would ideally be made with community collaboration and/or consultation, as part of their plan preparation.

The water body and time period would be specified in Appendix 4 through the amendment to the NPS-FM. The proposed transitional period would be publicly consulted on using the process specified under the RMA for amending a NPS, before a final decision by the Minister for the Environment. The length of any transitional period and the area to which it applies would be decided on a case by case basis.

A transitional period might be employed if a community is concerned about the significant impacts due to the adjustment required to meet a national bottom line. A community may decide that they want to maintain water quality at current levels for a period (but halt further degradation) to allow for the community to plan for the necessary adjustments to meet bottom lines. The transitional timeframe would provide reassurance to the community that water quality improvements will not be delayed indefinitely but are not expected to occur at the expense of livelihoods, particularly if the effectiveness or total cost of the changes is uncertain.

During any transitional period the requirement to maintain or improve overall water quality within a region would still apply. Once the specified transitional period ends, the regional plan would need to be changed and a new freshwater objective set to meet or exceed the national bottom line. This plan change would be required to follow the Schedule 1 public consultation process described in the RMA.

²³ <http://www.mfe.govt.nz/publications/rma/guide-s32-resource-management-act-changes.html>

5.9 Part CB. Monitoring Plans

Objective CB1

To provide for an approach to the monitoring of progress towards, and the achievement of, freshwater objectives.

Policy origins

The monitoring requirements stem from the recommendations of the Land and Water Forum. The Forum recommended that regional councils should monitor and review the achievement of freshwater objectives and limits (recommendation 8, Third Report).

Policy intent and implementation

It is important to have appropriate monitoring systems in place to measure progress towards the freshwater objectives. This monitoring information will in turn assess whether the community's values for fresh water are being provided for.

The information obtained from monitoring will in part fulfil the requirements to account for relevant contaminants under part CC of the NPS-FM.

Outcomes from monitoring will contribute to future decision-making. Monitoring results can be used to inform revisions of freshwater objectives or limits when the regional plan is reviewed. For example, if monitoring shows that progress towards freshwater objectives is slower than planned, then more stringent limits may need to be set.

This part (part CB) of the NPS-FM is not intended to result in duplication of current monitoring regimes. Regional councils can still use existing monitoring sites, as long as there are sufficient representative site(s) for each FMU. Existing long term records will be essential in setting freshwater objectives and limits.

Policy CB1

By every regional council developing a monitoring plan that:

- a) Establishes methods for monitoring progress towards, and the achievement of, freshwater objectives established under Policies CA1-CA3;
- b) Identifies a site or sites at which monitoring will be undertaken that are representative for each freshwater management unit; and
- c) Recognises the importance of long-term trends in monitoring results.

Establishing methods

Policy CB1(a) requires regional councils to have a monitoring plan that will track progress toward and achievement of freshwater objectives. Where not already undertaken, regional councils should begin monitoring the attributes in Appendix 2 as soon as is practicable. This is because setting some freshwater objectives (eg, periphyton) requires several years of data before the current state can be established. In many cases, councils may already have monitoring data that can contribute to establishing trends. Monitoring freshwater objectives should continue in a way that makes use of any existing long-term trend data.

Representative sites

Representative sites are sites within a FMU that collectively give an indication of the state of the entire FMU. If the FMU is large, then more sites are likely to be needed to isolate particular hotspots and to give a representative sample of the state of the FMU.

Importance of long-term trends

Water quality will need to be measured consistently over a long-term period in order to establish a trend. This trend is what should be used to determine progress towards freshwater objectives, rather than short-term water quality measures.

5.10 Part CC. Accounting for freshwater takes and contaminants

Objective CC1

To improve information on freshwater takes and sources of freshwater contaminants, in order to:

- a) ensure the necessary information is available for freshwater objective and limit setting and freshwater management under this national policy statement; and
- b) ensure information on resource availability is available for current and potential resource users.

Policy origins

The freshwater accounting requirements in part CC stem from the recommendations of the Land and Water Forum. The Forum recommended that regional councils should account for sources and loads of contaminants of concern,²⁴ and for all water takes.²⁵ The Forum noted that an accounting system would inform limit-setting, planning and monitoring.

Policy intent

Accurate information on the quantity of water being taken from freshwater bodies and the type and amount of contaminants going into freshwater bodies is essential for a number of reasons.

Accounting for existing uses of water and existing sources of contaminants is needed to:

- inform decisions on freshwater objectives and limits by providing an understanding of the existing use of water, and sources and amount of contaminants, when testing the economic and social impacts of various scenarios for objectives and limits
- inform decisions on how to manage within limits (eg, to determine the most equitable and cost-effective way to reduce current discharges)
- provide feedback to communities on their progress in meeting freshwater objectives, and act as a trigger for changes in management (eg, when existing initiatives are not having the required effect and targets are not being met)
- provide consistent regional accounting information for investors on catchments where there is headroom for expansion.

A freshwater accounting requirement is already implied through the duties imposed on local authorities by sections 35(1) and 35(2) of the RMA. Section 35(1) requires local authorities to gather

²⁴ Recommendation 8, Third Report

²⁵ Recommendation 26, Third Report

such information as is necessary to effectively carry out their functions under the Act. For regional councils those functions include the control of the taking, use, damming and diversion of water, and of the quantity, level and flow of water in any water body (section 30(1)(e)) and the control of discharges of contaminants into or onto land or water (section 30(1)(f)). Section 35(2)(d) requires local authorities to monitor the exercise of resource consents.

The aim of Objective CC1 is to provide additional specificity for councils on how to undertake the functions required of them – in this case, effective accounting in order to manage freshwater resources.

The intention is that the accounting system includes all freshwater takes and all sources of relevant contaminants.

Accounting for freshwater takes

To meet the policy intent will require accounting for all freshwater takes. It will involve:

- identifying who is taking water (consented or otherwise)
- collecting information on, or estimating, how much is used (ie, the total actual take), the proportion taken by category, and eventually, when limits have been set, the proportion of the limit that is being used.

The data can be measured, modelled or estimated, depending on the significance of the resource issue. If modelling or estimates are used some data verification may be necessary, and the information should be consolidated and available for the community at the time of setting or reviewing freshwater objectives and limits. The level of detail and precision that is appropriate in a freshwater accounting system will depend on the extent to which the water in the FMU (and the ability for the FMU to meet freshwater objectives) is affected by water use.

Accounting needs to include unmetered takes, takes that do not require a consent (eg, stock water), non-consumptive and unauthorised takes. Simple models can be used to estimate permitted, stock water and domestic takes; for example, multiplying stock numbers by average daily intake, with intake coefficients validated using sample surveys and other data (eg, from metered takes). Regional councils may choose to account for metered and/or consented takes in more detail than the NPS-FM amendments require, (eg, accounting for irrigation takes by land use or crop type).

The information collected under the Resource Management (Measurement and Reporting of Water Takes) Regulations 2010 will contribute a significant amount of the information required for the water quantity accounting requirements. However, regional councils will also need to account for water takes that are not covered by these regulations (less than 5 L/s and non-consumptive takes), as well as water takes that do not need a resource consent (ie, permitted) and any illegal takes.

Accounting for freshwater contaminants

The phrase 'all sources' includes both point source and non-point source or diffuse discharges, and includes background or naturally occurring contaminant sources.

The phrase 'relevant contaminants' means identifying the contaminants that are, or are likely to become, problematic in meeting a freshwater objective. The Policy does not require regional councils to monitor every possible contaminant, only those that they and the community identify as being relevant to achieving freshwater objectives. Accounting for all sources of relevant contaminants requires broadly identifying the sources of the contaminant(s) which need to be managed in order to achieve particular objectives. Sources are most usefully grouped into background, point and diffuse sources, with diffuse sources potentially broken down further by land use type. This grouping can also assist with assessment of the economic impact of potential objectives to specific sectors or land use types.

Accounting for selected contaminants prior to limit-setting is required so that sufficient information is available to underpin limit-setting processes (eg, information to carry out scenario testing for various possible objectives). A preliminary assessment of likely values and objectives will need to be carried out, along with an initial low cost accounting process for the contaminant(s) most likely to be relevant. Once the possible range of objectives is narrowed, more accurate accounting may be needed (eg, if significant reductions in discharges of relevant contaminants are needed to achieve some of the objectives being considered).

Contaminant sources may in some cases be able to be individually identified and measured (eg, large point sources), and in other cases only broad identification will be possible (eg, estimated loads generated by each land use type). Modelling is needed to identify and estimate diffuse discharges from farmland, urban run-off, native bush, plantation forests, wildlife and septic tanks.

Policy CC1

By every regional council:

- a) establishing and operating a freshwater quality accounting system and a freshwater quantity accounting system for those freshwater management units where they are setting or reviewing freshwater objectives and limits in accordance with Policy A1, Policy B1, and Policies CA1-CA4; and
- b) maintaining a freshwater quality accounting system and a freshwater quantity accounting system at levels of detail that are commensurate with the significance of the freshwater quality and freshwater quantity issues, respectively, in each freshwater management unit.

This Policy requires that regional councils establish and operate freshwater quality and quantity accounting systems. The information is to be collected and recorded for all FMUs. This is to be done at a level of detail that reflects the scale of the water quality/quantity issues in the FMU. Therefore, the information gathered may include direct measurements, modelling results or estimates.

Definition of a freshwater quality accounting system

“A system that, for each freshwater management unit, records, aggregates and keeps regularly updated, information on the measured, modelled or estimated:

- *loads and/or concentrations of relevant contaminants;*
- *sources of relevant contaminants;*
- *amount of each contaminant attributable to each source; and*
- *where limits have been set, proportion of the limit that is being used” (NPS-FM definition).*

A freshwater quality accounting system will keep account of the type and amount of relevant contaminants affecting a FMU. The system will also keep account of where those contaminants are coming from by broad category (eg, stormwater, treated sewage, industrial, agriculture, background sources), and the amount generated by each source category. This will include both point and diffuse discharges. When limits are set the accounting system will also be able to identify the proportion of any limit that is being used in a FMU.

Definition of a freshwater quantity accounting system

“A system that, for each freshwater management unit, records, aggregates and keeps regularly updated, information on the measured, modelled or estimated:

- *total freshwater take;*
- *proportion of freshwater taken by each major category of use; and*
- *where limits have been set, proportion of the limit that has been taken” (NPS-FM definition).*

A freshwater quantity accounting system will keep account of how much water is allocated, as well as how much is being taken from freshwater bodies, and broadly what that water is being used for (eg, municipal, irrigation, hydroelectric power). A freshwater quality accounting system will also keep account of how much of the limit is being used in each FMU.

Extent and Timing

Regional councils are required to establish freshwater quality and quantity accounting systems in FMUs where they are setting or reviewing freshwater objectives and limits. This means that freshwater accounting systems do not have to be established for the whole region and data gathered for all FMUs at once. Regional councils can take a staged approach to setting up accounting systems and data gathering. Eventually, just as a region is required to be covered by FMUs, a region will also be covered by an accounting system at a scale or scales commensurate with the issues affecting each FMU.

A two-year period has been allowed before the accounting requirements take effect (from 1 August 2014 – the date that NPS-FM came into effect). The two-year delay provides time to establish an

accounting system and collect the data for the first FMU where the regional council is setting or reviewing freshwater objectives and/or limits after the NPS-FM takes effect.

Methodologies

The level of detail of the accounting systems will depend on the type and significance of issues in each FMU. The Policy provides the flexibility for regional councils to determine this at a local level.

It is appropriate to have a targeted focus on the relevant contaminants (ie, those that are most critical to manage in order to achieve the objective specified for the FMU). It is also appropriate to tailor the accounting system commensurate with the scale of resource use and the drivers and pressures affecting that FMU. For example, where significant reductions in a contaminant are needed to achieve an objective, a more detailed breakdown of sources would be required in order to assess, and if necessary, refine the management approaches being taken.

Policy CC2

By every regional council taking reasonable steps to ensure that information gathered in accordance with Policy CC1 is available to the public, regularly and in a suitable form, for the freshwater management units where they are setting or reviewing, and where they have set or reviewed, freshwater objectives and limits in accordance with Policy A1, Policy B1, and Policies CA1-CA4.

Objective CC1 and Policies CC1 and CC2 will take effect 24 months from the date of entry into effect of the National Policy Statement for Freshwater Management 2014.

This policy requires that the information collected under Policy CC1 is available to inform the process of setting (or reviewing) freshwater objectives and limits. The information collected must be available in a suitable form for the council and the community when making decisions as part of the iterative process of setting and managing within freshwater objectives and limits. This means the data can be aggregated or collated and should clearly reflect any change over time.

For water quantity, the system used to gather and report data as part of the Resource Management (Water Measurement and Reporting of Water Takes) Regulations 2010 can incorporate those takes not covered by the regulations (ie, takes <5L/sec and non-consumptive takes) to enable a full account of water taken and used in FMUs within a region and provided on an annual basis.

For water quality, the system used to manage data will depend in part on the level of detail required from the accounting system, this in turn will reflect the complexity and seriousness of issues affecting a particular FMU. The regional accounting system needs to be flexible enough to allow for various scales of complexity and still enable comparisons between FMUs to be made. The reporting period for water quality accounts may vary for each FMU depending on the pressure on the resource, complexity of the accounting undertaken, and information needs (for setting and reviewing freshwater objectives and limits, providing information to the community on available resource use, and tracking progress toward targets).

5.11 Part D. Tāngata whenua roles and interests

Objective D1

To provide for the involvement of iwi and hapū, and to ensure that tāngata whenua values and interests are identified and reflected in the management of fresh water including associated ecosystems, and decision-making regarding freshwater planning, including on how all other objectives of this national policy statement are given effect to.

Objective D1 supports and clarifies the requirements of the RMA. It provides for the involvement of iwi and hapū and ensures tāngata whenua values and interests are identified and reflected in the management of, and decision-making for, freshwater planning.

Changes may be required to the processes followed by councils when they engage with iwi and hapū in giving effect to the objectives and policies under the NPS-FM.

The terms 'provide for' and 'to ensure' imply an imperative for action on the part of councils in relation to this objective.

The NPS-FM Objective relates to involvement generally in freshwater management, and in decision-making in so far as it relates to freshwater planning. Existing RMA requirements still apply to other types of decision-making (for example, in respect of consenting notification requirements).

The term 'involvement' allows for different approaches to hapū and iwi roles in the management of fresh water. Regional councils can engage with iwi and hapū so that both parties can equally determine what involvement in freshwater management might look like.

The NZCPS 2010 contains Objective 3 and Policies 2, 21(e) and 23(3) that also relate to tāngata whenua roles and interests in the coastal environment. While NZCPS 2010 Objective 3 and Policy 2 and NPS-FM Objective D1 and Policy D1 use different terminology in places, they are compatible provisions, and implementation of both should be achieved for fresh water in the coastal environment.

Policy D1

Local authorities shall take reasonable steps to:

- a) involve iwi and hapū in the management of fresh water and freshwater ecosystems in the region;
- b) work with iwi and hapū to identify tāngata whenua values and interests in fresh water and freshwater ecosystems in the region; and
- c) reflect tāngata whenua values and interests in the management of, and decision-making regarding, fresh water and freshwater ecosystems in the region.

Policy D1 refers to local authorities and hence applies to both regional and territorial authorities in relation to their water management functions within the scope of Objective D1. It has immediate effect and is relevant to local authority work programmes to give effect to the NPS-FM.

Response to Policy D1 is not a one-off review and requires an ongoing response. Councils will need to review the processes and policies related to involving iwi and hapū for matters within the scope of Objective D1, and work with iwi and hapū to reflect tāngata whenua values and interests in decision-making regarding fresh water and freshwater ecosystems. Changes will need to be made to processes that do not give effect to Objective D1. The statement in the NPS-FM recognising the national significance of Te Mana o te Wai will be particularly relevant to implementing this policy.

The Policy does not specifically require amendment to the councils' policy statements or plans, but this may be an appropriate response.

To 'take reasonable steps' anticipates councils will provide appropriate opportunities for the iwi and hapū to be involved in implementing the NPS-FM based on current good practice. What constitutes reasonable steps will depend on the local context and available resourcing for both the council and iwi and hapū. Options beyond the RMA can be considered (for example, Local Government Act committee arrangements or memoranda of understanding). Plan provisions may be necessary in some cases, particularly to ensure that appropriate weight can be given to identified values.

The NPS-FM refers to iwi and hapū rather than tāngata whenua. The definition of tāngata whenua in the RMA includes iwi or hapū. The more explicit reference to iwi and hapū in the NPS-FM is not intended to expand the nature of who councils should involve and work with in implementing the NPS-FM. It clarifies that councils' obligations with regard to tāngata whenua and fresh water are to work with local iwi and hapū. Who the council involves and works with will depend on local circumstances.

This policy does not override or alter any existing or future obligations councils have under Treaty settlements.

Key words to consider in implementing this policy are:

Involve: This policy does not dictate the form of iwi and hapū involvement in the management of, and decision-making regarding, fresh water. There is a range of ways that iwi and hapū can be involved in the management of fresh water under existing legislation. Involvement may include consultation but may also include other methods for iwi and hapū to participate in freshwater management. Methods can include, but are not limited to, joint management agreements, joint committees, decision-making roles, relationship agreements and statutory acknowledgements.

Work with: Policy D1 (b) clarifies that councils should work with iwi and hapū and should not identify values and interests on their behalf. Council can work with iwi and hapū in a number of ways including, but not limited to:

- seeking technical advice and input to inform plan and/or plan change preparation
- commissioning reports from iwi or hapū
- using Mātauranga Māori to inform policy decisions
- including members of relevant iwi or hapū on plan hearing committees.

Reflect: Policy D1 requires that local authorities do more than just have regard to tāngata whenua values and interests in the management of, and decision-making regarding, fresh water and freshwater ecosystems. Policy-making needs to reflect tāngata whenua values and interests and take them into account in freshwater management decisions. Councils need to be transparent in their decisions and demonstrate how they have reflected the values and interests.

The actions of 'involve', 'work with' and 'reflect' are all under the heading of 'reasonable steps' noted above.

5.12 Part E. Progressive implementation programme

Policy E1

- a) This policy applies to the implementation by a regional council of a policy of this national policy statement.
- b) Every regional council is to implement the policy as promptly as is reasonable in the circumstances, and so it is fully completed by no later than 31 December 2025.
- ba) A regional council may extend the date in Policy E1(b) to 31 December 2030 if it considers that:
 - i. meeting that date would result in lower quality planning; or
 - ii. it would be impracticable for it to complete implementation of a policy by that date.
- c) Where a regional council is satisfied that it is impracticable for it to complete implementation of a policy fully by 31 December 2015, the council may implement it by a programme of defined time-limited stages by which it is to be fully implemented by 31 December 2025 or 31 December 2030 if Policy E1(ba) applies.
- d) Any programme of time-limited stages is to be formally adopted by the council by 31 December 2015, and publicly notified.
- e) Where a regional council has adopted a programme of staged implementation, it is to publicly report, in every year, on the extent to which the programme has been implemented.
- f) Any programme adopted under Policy E1(d) by a regional council is to be reviewed, revised if necessary, and formally adopted by the regional council by 31 December 2015 and publically notified.

Policy E1 outlines the expectations and time frames for regional councils to implement the policies in the NPS-FM. The Policy recognises that each region will have different circumstances in determining when and how to give effect to this national policy statement.

All implementation is expected as promptly as is reasonable in the circumstances. Full implementation under the NPS-FM 2014 is required by 31 December 2025. However, the Policy allows for the implementation timeframe to be extended to 2030 if the 2025 timeframe will affect plan quality or it would be impracticable for the council to complete implementation of a policy by 2025.

Any regional council that has not fully implemented the NPS-FM by end of 2015, must develop or update a formal progressive implementation programme (PIP). The PIP will outline the planned progress toward meeting the 31 December 2025 (or 2030, if applicable) timeframe.

Where policies of the NPS-FM require regional councils to make or change regional policy statements or regional plans, these changes must be fully operative for this Policy to be considered implemented. The timelines in this policy relate to putting in place the necessary policies, plans and/or methods; improvements in water quality will have their own timeframes identified in relation to achieving specific freshwater objectives.

Where a change to the regional policy statement or regional plans is required, section 55(2C) requires the Schedule 1 process to be used (except for Policies A4 and B7). This may involve a series of plan changes. The NPS-FM does not need to be given effect to with one plan change, nor in the first available plan change. Nevertheless, any plan change that is made, including project-specific plan changes, must give effect to the NPS-FM in relation to all matters within the scope of that plan change. The PIP will need to set out how a council plans to give effect to the NPS-FM in its entirety by the 2025 (or 2030) deadline.

Following any amendment to the NPS-FM, good practice would be that a regional council would review and revise their PIP, using the process outlined above.

The regional council must develop a PIP that sets out the stages and timeframes for their region. The council must formally adopt the programme, and publicly notify that the programme has been adopted. Preparing and adopting a PIP will need to meet Local Government Act 2002 obligations, as it involves resources and priorities and may be a significant part of the council work programme. Public notification of the PIP, along with the annual progress reports, is intended to engage the public in the approach and achievements of the council. Annual reporting could be through the annual plan and annual report under the Local Government Act 2002. Similarly, if possible, it would be appropriate for the implementation programme to be part of a council's Long Term Plan.

The options available for implementation recognise the differences in resourcing and in the extent of work that may be required in various regions. Where considerable cost and effort has to be applied in a region to fully achieve the NPS-FM, a progressive implementation programme provides scope to identify priorities, resourcing and how the council will respond to the NPS-FM's requirements.

An implementation programme may outline:

- the consultation strategy/programme
- the prioritising of plan changes by catchment and/or management issues
- the expected time for key milestones, such as notification of plan changes setting limits, timing for hearings, and timing for any review of consents.

As well as plan changes, the programme may outline other activities, initiatives and methods to be implemented, indicating timing, priorities and resourcing. Examples include consent reviews, capital works initiatives, changes to the council's own work programmes, and/or landowner liaison programmes. Implementation programmes will necessarily be flexible; for example, dates and/or catchment priorities may change.

Engagement with communities and robust durable solutions can take time. This policy recognises the importance of quality rather than quick processes and frameworks.

Policy E1 does not create a requirement for all objectives and limits under Policies A1, A2, B1 and B2 to be achieved by 2025, although objectives, limits and targets (including time frames for achieving the targets) must be set. In some cases, where there are significant legacy issues and long lag times to be dealt with (ie, nutrients from past land use still in transit to water bodies), freshwater objectives and limits may take longer to achieve.

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5.13 NPS-FM Appendices

Appendix 1

The 2011 NPS-FM preamble included a list of national values of fresh water. The values were derived from the RMA, the proposed NPS, submissions and evidence to the Board of Inquiry. Two groupings of national values were identified, first those providing for the wellbeing and amenity of people and communities, and second, those recognising and respecting fresh water's intrinsic values.

The national values in the preamble of the 2011 NPS-FM are replaced by Appendix 1 in the 2014 NPS-FM. Appendix 1 is to be used in conjunction with Policy CA2. This policy directs councils and communities to consider the entire list of values in Appendix 1 and how they apply to local and regional circumstances. Councils can also derive their own values which reflect what is important to the local community. Appendix 1 contains two compulsory national values (ecosystem health and human health for recreation), plus additional national values and uses for freshwater that councils must consider (Policy CA2 (a)).

The compulsory values (ecosystem health and human health for recreation) need to be provided for in each FMU through freshwater objectives included in the regional plan. If a council decides that one or more of the additional values are also relevant, then the council must also provide for these in the regional plan through establishing freshwater objectives. In developing freshwater objectives, councils must use the process outlined in Policy CA2. The freshwater objectives state what level of water quality is selected to provide for the identified values.

The value descriptions are intended to guide community and council discussions on what is considered important (valued) for water bodies in each region. The additional national value descriptions do not imply legal rights or prioritise certain values above others. Appendix 1 contains both intrinsic and amenity/economic values. Intrinsic values of fresh water are substantial in themselves and not subordinate to economic values of fresh water for potential use for people and community wellbeing. At a national level it is not possible to prioritise individual activities and values, given the range of local circumstances and considerations that might apply. It is for regional communities, facilitated by regional councils, to consider values and priorities locally and determine how to respond to those values at a local level in implementing the policies of the NPS-FM.

The matters considered for whether or not a value is included in the NPS-FM were:

- a. whether the value is an intrinsic value of the water body itself, or is a use that relies on the water body, and can be used to describe qualities or characteristics of the water that support the value or use
- b. whether the value reflects and helps clarify matters in Part 2 of the RMA
- c. the value should not imply a priority over other values, especially the compulsory values
- d. values should not duplicate one another, although some overlap in attributes for different values is anticipated
- e. the value description is broad enough to encompass the different ways people express the value and the different water bodies to which it might apply
- f. the value can be linked to attributes so that freshwater objectives can be set in regional plans
- g. the value should not be highly localised.²⁶

Descriptions of each value are given in Appendix 1 of the NPS-FM.

²⁶ Regulatory Impact Statement: Amendments to the National Policy Statement for Freshwater Management 2011.
www.mfe.govt.nz/publications/rma/nps-freshwater-management-2014/NPS-freshwater-management-RIS-2014.pdf

Appendix 2

Each value has several water quality characteristics, or attributes, that need to be maintained at or above a certain level in order for that value to be protected. Appendix 2 of the NPS-FM contains the attributes that are relevant for some of the values in Appendix 1. Freshwater objectives are derived using the attributes in Appendix 2.

This is not an exhaustive list and not all of the relevant attributes are listed yet, but work is continuing to identify additional relevant attributes and states that can be applied nationwide.

Where attributes are provided, these must be used where relevant. Where a numeric freshwater objective is able to be derived using the attributes in Appendix 2 these must be included in regional plans. It is expected that regional councils will identify any additional attributes that are not in Appendix 2 that are relevant to achieving the identified value.

The matters considered when assessing whether to include an attribute in Appendix 2 of the NPS-FM included:

- a. Link to the National Value
 - i. Is the attribute required to support the value?
 - ii. Does the attribute represent the value?
- b. Measurement and band thresholds
 - i. Are there established protocols for measurement of the attribute?
 - ii. Do experts agree on the summary statistic and associated time period?
 - iii. Do experts agree on thresholds for the numerical bands and associated band descriptors?
- c. Relationship to limits and management
 - i. Do we know what to do to manage this attribute?
 - ii. Do we understand the drivers associated with the attribute?
 - iii. Do quantitative relationships link the attribute state to resource use limits and/or management interventions?
- d. Evaluation of current state of the attribute on a national scale
 - i. What do we know about the current state of the attribute at a national scale?
 - ii. Is there data of sufficient quality, quantity and representativeness to assess the current state of the attribute on a national scale?
- e. Implications of including the attribute in the NOF
 - i. Do we understand/can we estimate the extent (spatial), magnitude, and location of failures to meet the proposed bottom line for the attribute on a national scale?²⁷

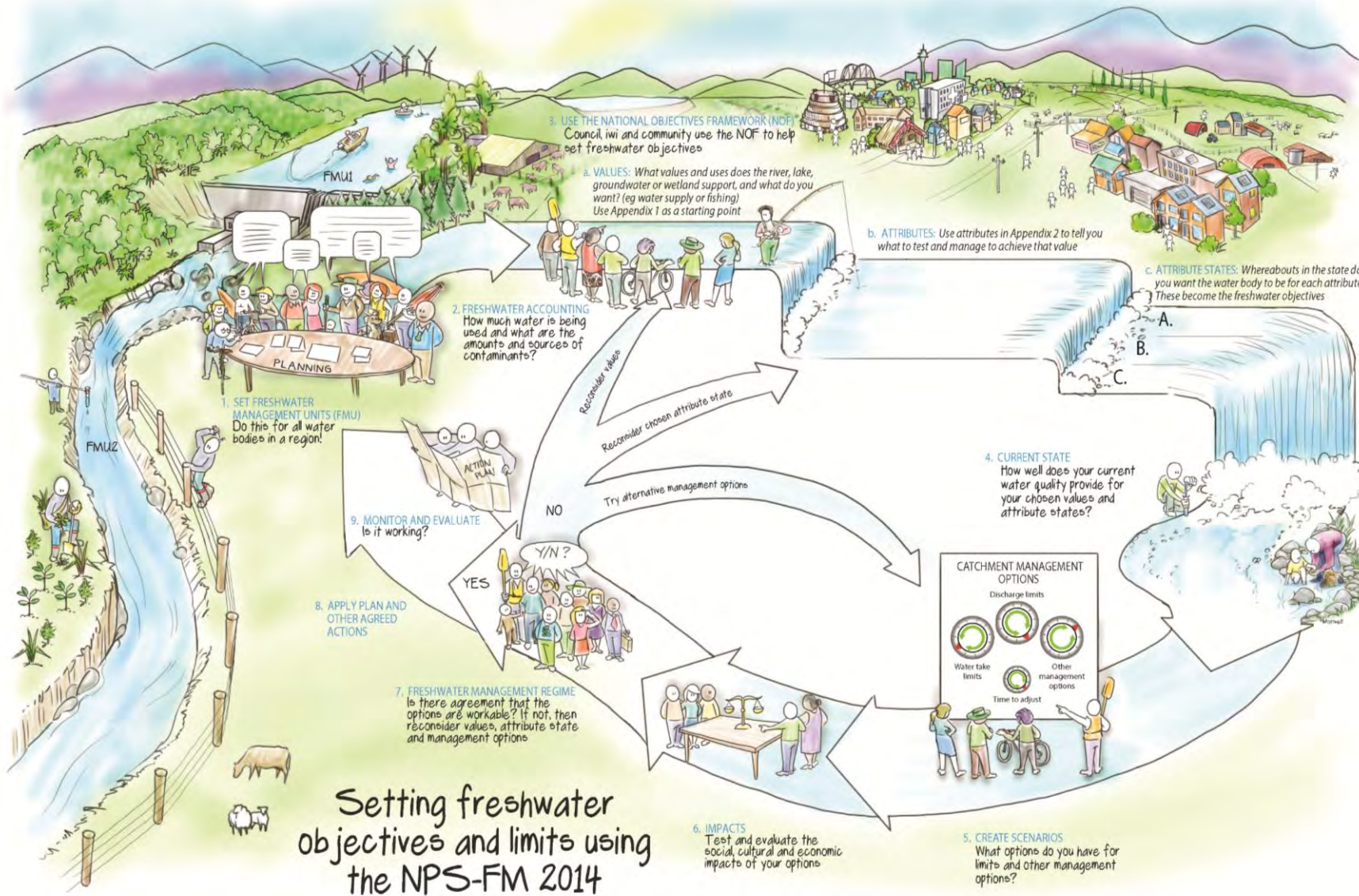
²⁷ Regulatory Impact Statement: Amendments to the National Policy Statement for Freshwater Management 2011.
www.mfe.govt.nz/publications/rma/nps-freshwater-management-2014/NPS-freshwater-management-RIS-2014.pdf

6 References

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