Draft National Policy Statement for Freshwater Management

Proposals for consultation September 2019

Authority

This National Policy Statement is issued by the Minister for the Environment under section 54 of the Resource Management Act 1991.

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Part 1: Preliminary provisions

1.1 Title

This is the National Policy Statement for Freshwater Management 2019.

1.2 Commencement

This National Policy Statement comes into force on [*to come*].

1.3 Purpose of National Policy Statement

The purpose of this National Policy Statement is to set out objectives and policies in relation to freshwater management and to specify what local authorities, in their governance and management roles, must do to help achieve those objectives and policies.

1.4 Matter of national significance

The matter of national significance that this National Policy Statement is about is freshwater management.

1.5 Fundamental concept – Te Mana o te Wai

Te Mana o te Wai, "the mana of the water", refers to the fundamental value of water and the importance of prioritising the health and wellbeing of water before providing for human needs and wants. It expresses New Zealanders' special connection with freshwater. When Te Mana o te Wai is upheld, the future wellbeing of people and our unique ecosystems is protected.

Upholding Te Mana o te Wai protects the mauri of the water and requires that Te Hauora o te Taiao (the health of the environment), Te Hauora o te Wai (the health of the waterbodies), and Te Hauora o te Tangata (the health of the people) are all provided for.

[Placeholder for reference to the Treaty of Waitangi, if it's not included in a preamble. For example: Te Mana o te Wai is cross-cultural in application. The Treaty of Waitangi /Te Tiriti o Waitangi is the underlying foundation of the Crown and Māori relationship, and is important to all New Zealanders. Te Tiriti upholds Te Mana o te Wai.]

As it applies to freshwater management, Te Mana o te Wai is a framework that has a number of features. These may be interpreted differently by different people in different contexts. It is relevant to the application of various regulatory and non-regulatory tools. The features of Te Mana o te Wai that are relevant to, and reflected in, this National Policy Statement, are:

- the principles of mana whakahaere/governance, kaitiakitanga/stewardship and manaakitanga/respect and care;
- the **hierarchy of obligations** – to waterbodies first, then to the essential needs of people, and finally for other uses.

In the context of this National Policy Statement, giving effect to Te Mana o te Wai requires the following, and may include other things as determined locally:

a) adopting the priorities set out in the hierarchy of obligations;

b) providing for the involvement of iwi and hapū in freshwater management and identifying and reflecting tangata whenua values and interests;
c) engaging with tangata whenua and communities to identify matters that are important to them in respect of waterbodies and their catchments;
d) enabling the application of broader systems of values and knowledge, such as mātauranga Māori, to the health and wellbeing of waterbodies and freshwater ecosystems;
e) adopting an integrated approach, ki uta ki tai, to the management of waterbodies and freshwater ecosystems.

1.6 Definitions

(1) In this National Policy Statement:

Act means the Resource Management Act 1991

attribute means a measurable characteristic that can be used to assess a particular component of a value applied to water under the national objectives framework (*see* clauses 3.5 – 3.14)

commencement date means the date on which this National Policy Statement comes into force

compulsory value means any of the 3 [4] values of: Ecosystem Health, Human Contact, [Mahinga Kai or Tangata Whenua Value,] and Threatened Species, as described in Appendix 1A

ecosystem health has the meaning given in Appendix 1A

ecosystem services are the benefits obtained from ecosystems, which include:
a) supporting services (e.g. nutrient cycling, soil formation, habitat creation);
b) provisioning services (e.g. food, freshwater, wood, fibre, fuel);
c) regulating services (e.g. water purification, climate regulation, flood regulation, disease regulation); and
d) cultural services (e.g. aesthetic, spiritual, educational, recreational)

efficient allocation, in relation to water, includes economic, technical, and dynamic efficiency

environmental outcome means an environmental outcome for an FMU, or for individual waterbody or freshwater ecosystem that is described as required by clause 3.7

FMU, or **freshwater management unit**, means all or any part of a waterbody or waterbodies, and their related catchments, that a regional council determines under clause 3.6 is an appropriate unit for freshwater management and accounting purposes

inland wetland has the meaning in clause 3.15

ki uta ki tai ("from the mountains to the sea"), as used in the context of this National Policy Statement, refers to a holistic and integrated approach to freshwater management

limit refers to either a limit on resource use or a take limit

limit on resource use means a limit as defined in clause 3.10

national bottom line means an attribute state identified as such in Appendix 2A or 2B

natural wetland has the meaning in clause 3.15

outstanding waterbody means a waterbody identified in a regional policy statement or plan as having outstanding values (such as ecological, landscape, recreational, or spiritual values)

over-allocation, in relation to both the quantity and quality of water, is the situation where the water:

a) has been allocated to users beyond a limit on resource use or a take limit; or
b) is being used to a point where one or more target attribute states is not being met.

primary contact site means a site identified by a regional council that it considers is regularly used, or would be regularly used, but for existing freshwater quality, for recreational activities such as swimming, paddling, boating, or watersports, and particularly for activities where there is a high likelihood of water or water vapour being ingested or inhaled

publish, in relation to an obligation on a local authority to publish material, means to make the material freely available to the public on the local authority's Internet site

stream has the same meaning as **river** in the Act, and is used interchangeably with that term, as consistent with common usage

take limit means a limit on the amount of water that can be taken from an FMU, as set under clause 3.12

Te Mana o te Wai has the meaning set out in clause 1.5

terrestrial environment means land above mean high water springs

threatened species are taxa that meet the criteria specified by Townsend et al. (2008) for the categories Nationally Critical, Nationally Endangered, and Nationally Vulnerable Species (*Andrew J. Townsend, Peter J. de Lange, Clinton A.J. Duffy, Colin M. Miskelly, Janice Molloy and David A. Norton (2008). The New Zealand Threat Classification System Manual*, available at:

https://www.doc.govt.nz/globalassets/documents/science-and-technical/sap244.pdf.)

waterbody has the meaning in the Act, except that it does not include geothermal water.

(2) Terms defined in the Act and used in this National Policy Statement have the meanings in the Act, except as otherwise specified.

1.7 Application

Geographic application

(1) This National Policy Statement applies to freshwater in the terrestrial environment throughout New Zealand, except that any consideration of receiving environments includes consideration of environments in the coastal marine area.

Temporal application

(2) This National Policy Statement applies as from the date [*to come*], which means, for instance, that:

a) references to "current" or "existing" means existing as at that date; and
b) a requirement to "maintain" something is a requirement to maintain the thing as it was at that date.

(3) *See* Part 4 for provisions about the timing of the implementation of this National Policy Statement.

Information note

The coastal marine area is covered by the New Zealand Coastal Marine Policy.

1.8 Application of section 55(2) of Act

(1) A requirement in this National Policy Statement to include a specific objective or policy (as, for instance, in clauses 3.2(1) and 3.15(2)) is a requirement referred to in section 55(2)(a) of the Act.

(2) This means the specified objective or policy must be included in policy statements or plans (as required) without using the process in Schedule 1 of the Act.

Part 2: Objective and policies

2.1 Objective

The objective of this National Policy Statement is to ensure that resources are managed in a way that prioritises:

a) first, the health and wellbeing of waterbodies and freshwater ecosystems; and
b) second, the essential health needs of people; and
c) third, the ability of people and communities to provide for their social, economic, and cultural wellbeing, now and in the future.

2.2 Policies

The policies that this National Policy Statement is intended to achieve are as follows:

Policy 1: Freshwater is managed in a way that gives effect to Te Mana o te Wai;

Policy 2: Freshwater is managed through a national objectives framework, in order to ensure that the health and wellbeing of waterbodies and freshwater ecosystems is maintained or improved;

Policy 3: The condition of waterbodies and freshwater ecosystems is systematically monitored over time, and action is taken to reverse deteriorating trends;

Policy 4: Freshwater is managed in an integrated way that considers the effects of the use and development of land on a whole-of-catchments basis, including the effects on sensitive receiving environments;

Policy 5: Iwi and hapū are involved in freshwater management, and tangata whenua values and interests are identified and reflected in the management of, and decisions relating to waterbodies and freshwater ecosystems;

Policy 6: The national target for water quality improvement (as set out in Appendix 3) is achieved;

Policy 7: Freshwater is allocated and used efficiently, all existing over-allocation is phased out, and future over-allocation is avoided;

Policy 8: There is no further loss or degradation of natural inland wetlands;

Policy 9: There is no further net loss of streams;

Policy 10: The significant values of outstanding waterbodies are protected;

Policy 11: The habitats of indigenous freshwater species are safeguarded;

Policy 12: Information about the state of waterbodies and freshwater ecosystems, and the challenges to their health and wellbeing, is regularly reported on and published;

Policy 13: Communities are enabled to provide for their economic wellbeing while managing freshwater in a manner consistent with Te Mana o te Wai and as required by the national objectives framework and other requirements of this National Policy Statement.

Part 3: Implementing objective and policies

3.1 Overview of Part

This Part sets out what local authorities must do to implement or give effect to the objective and policies of this National Policy Statement as follows:

a) subpart 1 is about the manner in which local authorities must go about implementing this National Policy Statement;
b) subpart 2 sets out the national objectives framework for managing freshwater;
c) subpart 3 set out additional specific obligations on regional councils;
d) subpart 4 sets out exceptions applying to requirements on regional councils.

Subpart 1 Approaches to implementing objective and policies

3.2 Te Mana o te Wai

(1) Every regional council must include the following objective (or words to the same effect) in its regional policy statement:

"The management of freshwater in our region must be carried out in a manner that gives effect to Te Mana o te Wai, as it is described in the National Policy Statement for Freshwater Management 2019 and understood locally."

(2) Every regional council must give effect to Te Mana o te Wai in implementing this National Policy Statement.

(3) Te Mana o te Wai must inform the interpretation of:
a) the objective and policies of this National Policy Statement; and
b) the objectives and policies required by this National Policy Statement to be included in local authority policy statements and plans.

(4) As part of the requirement to give effect to Te Mana o te Wai, when implementing this National Policy Statement regional councils must specifically engage in discussion with communities and tangata whenua to determine local understandings of Te Mana o te Wai as applied to freshwater bodies in the region.

(5) In particular, every regional council must develop, and articulate in its regional policy statement, a long-term vision that gives effect to Te Mana o te Wai.

(6) The long-term vision must:

a) be developed through discussion with communities and tangata whenua about their long-term wishes for waterbodies in the region; and
b) be informed by an understanding of the history of, and current pressures on, waterbodies in the region; and
c) express what communities and tangata whenua want their waterbodies to be like in the future.

(7) Every regional council must assess whether waterbodies in the region can both sustain current pressures on them and provide for the long-term vision articulated in its regional policy statement.

(8) The long-term vision and the discussions that led to it must inform and provide the context for all subsequent freshwater management and freshwater planning decisions in the region.

3.3 Tangata whenua roles and interests

(1) As part of the requirement to give effect to Te Mana o te Wai, regional councils must engage with tangata whenua in the management of waterbodies and freshwater ecosystems.

(2) Engagement with tangata whenua requires taking reasonable steps to:

a) involve tangata whenua in freshwater management and decision-making regarding freshwater planning; and
b) identify tangata whenua values and interests in relation to waterbodies and freshwater ecosystems; and
c) reflect those values and interests in the management of, and decision-making regarding, the waterbodies and freshwater ecosystems in the region.

3.4 Integrated management

(1) Regional councils must, consistent with Te Mana o te Wai:

a) recognise the interactions ki uta ki tai between freshwater, land, waterbodies, freshwater ecosystems, other ecosystems, and sensitive receiving environments, including the coastal environment; and
b) manage freshwater, and land use and development, in catchments in an integrated and sustainable way to avoid, remedy, or mitigate adverse effects, including cumulative effects.

(2) Regional councils must make or change their regional policy statements to the extent needed to provide for the integrated management of the effects of:

a) the use and development of land on freshwater; and
b) the use and development of land and freshwater on sensitive receiving environments.

(3) Giving effect to subclause (2) includes encouraging the co-ordination and sequencing of regional or urban growth, land use and development, and the provision of infrastructure.

(4) In order to give effect to this National Policy Statement, local authorities that share jurisdiction over a catchment should co-operate in the integrated management of the effects on freshwater of land use and development.

(5) Every regional council must insert the following method (or words to the same effect) into its regional policy statement:
"District plans must include objectives, policies, and methods to avoid, remedy, or mitigate the cumulative adverse effects of land use on freshwater bodies, freshwater ecosystems, and sensitive receiving environments resulting from urban development."

(6) Every territorial authority must include objectives, policies, and methods in its district plan at the next review of the plan to avoid, remedy, or mitigate the cumulative adverse effects of land use resulting from urban development on waterbodies and sensitive receiving environments.

Information note:

The following are examples of the kinds of methods territorial authorities could use to comply with clause 3.4(6):

- Regulating impervious surface cover and/or requiring on-site infiltration;
- Requiring treatment of contaminants at source;
- Using zoning/designations to avoid all, or certain types of development in areas where the effects on freshwater could not be adequately managed;
- Provision of green infrastructure (especially for stormwater management);
- Use of best practice Water Sensitive Urban Design or Low Impact Design techniques.

Subpart 2 National objectives framework

3.5 Overview of national objectives framework

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

(2) At every stage of the process, regional councils must engage with communities and tangata whenua in order to give effect to Te Mana o te Wai, as required by clause 3.2.

3.6 Identifying FMUs and monitoring sites

(1) Every regional council must identify FMUs for its region.

(2) Every waterbody in the region must be located within an FMU.

(3) Every regional council must also identify the following (if present) within each FMU:
a) sites to be used for monitoring attributes;
b) primary contact sites;
c) the location of habitats of threatened species;
d) outstanding waterbodies;
e) inland wetlands (*see* clause 3.15).

(4) Monitoring sites in an FMU must be located at sites that are either or both of the following:
a) representative of the FMU:

b) representative of one or more primary contact sites in the FMU.

3.7 Identifying values and environmental outcomes

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

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

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

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

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

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

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

3.8 Identifying current attribute states

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

(2) The current state need not be a single measure but may take into account natural variability and sampling error.

(3) If a regional council does not have complete and scientifically robust data on which to establish the current state of an attribute, it must use its best efforts to identify a current state using the information that is available, including partial data, local knowledge, and information obtained from other sources.

3.9 Setting target attribute states

(1) In order to achieve the environmental outcomes described under clause 3.7, every regional council must set a target attribute state for every attribute, as at each relevant monitoring site.

(2) Every target attribute state must:

a) for attributes relating to the value Human Contact, be above the current state of that attribute as determined under clause 3.8; and
b) for all other attributes, be at or above the current state of that attribute as determined under clause 3.8.

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

(4) Every target attribute state must:
a) specify a timeframe for achieving the target attribute state; and
b) for attributes for compulsory values, be set in terms of the requirements of Appendix 2A or 2B, as appropriate; and
c) for any other attribute, be set in any way appropriate to the attribute.

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

(6) When setting target attribute states, regional councils must:
a) have regard to the following:
i. the foreseeable impacts of climate change;
ii. the long-term vision set under clause 3.2;
iii. the environmental outcomes set under clause 3.7(2);
iv. the connections between waterbodies;
v. the connection of waterbodies and coastal water; and
b) use the best information available at the time; and
c) not delay making decisions because of uncertainty about the quality or quantity of the information; and
d) take into account results or information from freshwater accounting systems; and
e) consider the requirements of all other national directions.

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

3.10 Identifying limits on resource use and preparing action plans

(1) In order to achieve the target attribute states for the attributes in Appendix 2A, every regional council:
a) must identify limits on resource use that will achieve the target attribute state; and
b) must include the limits on resource use as rules in its regional plan; and
c) may prepare and publish action plans; and
d) may impose conditions on resource consents.

(2) In order to achieve the target attribute states for the attributes in Appendix 2B, every regional council:
a) must prepare an action plan for achieving the target attribute state within the specified timeframe; and
b) must publish the action plan; and
c) may identify limits on resource use and include them as rules in its regional plan; and
d) may impose conditions on resource consents.

(3) In order to achieve any other target attribute states, a regional council may do any or all of the following:
a) identify limits on resource use and include them as rules in its regional plan;
b) prepare and publish action plans;
c) impose conditions on resource consents.

(4) Limits on resource use may:
a) apply to any activity or land use practice; and
b) apply at any scale (such as to all or any part of an FMU, or to a specific waterbody or individual property); and
c) be expressed as an input control (such an amount of fertiliser that may be applied) or an output control (such as a volume or rate of discharge); and
d) describe the circumstances in which the limit applies.

(5) In setting limits on resource use, regional councils must:
a) use the best information available at the time (which may include measured, modelled, or estimated data); and
b) take into account results or information from freshwater accounting systems.

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

3.11 Setting environmental flows and levels

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

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

(3) The environmental flows and levels must be expressed in terms of the water level, flow rate, and variability of flow (as appropriate to the waterbody) at which:
a) for flows and levels in rivers, the taking, damming, or diverting of water meets the environmental outcomes for the river and any connected waterbody; and
b) for levels of lakes, the taking, damming, or diverting of water meets the environmental outcomes for the lake and any connected waterbody; and
c) for levels of groundwater, the taking, damming, or diverting of meets the environmental outcomes for the groundwater and any connected surface water.

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

3.12 Identifying take limits

(1) In order to meet environmental flows and levels, every regional council:
a) must identify take limits for each FMU; and
b) must include the take limits as rules in its regional plan; and
c) must state in its regional plan whether existing water permits will be reviewed to comply with environmental flows and levels; and
d) may prepare and publish action plans; and
e) may impose conditions on resource consents.

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

(3) Take limits must be identified at levels that:
a) provide for flow or level variability that meets the needs of the relevant waterbody and connected waterbodies, and their associated ecosystems; and

b) safeguard ecosystem health from the effects of the take limit on the frequency and duration of lowered flows or levels; and
c) provide for the lifecycle needs of aquatic life; and
d) provide for the essential health needs of people; and
e) take into account the environmental outcomes applying to the relevant waterbodies and any connected waterbodies (such as aquifers and downstream surface waterbodies), whether in the same or another region.

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

3.13 Monitoring

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

(2) The methods must include:
a) measures of the health of indigenous flora and fauna; and
b) mātauranga Māori.

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

3.14 What to do if deterioration detected

(1) If a regional council detects a trend indicating a deterioration in any attribute state, or a failure to achieve identified environmental outcomes for values or components, it must prepare an action plan for halting, and if possible reversing, the deterioration.

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

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

Information notes

Action plans may include, for example:

a) describing the circumstances (ie, minimum flows) at which water takes will be restricted by way of a water shortage direction under section 329 of the Act;

b) points at which monitoring will be increased.

The following table identifies the values, components, and attributes of the compulsory values, and the minimum interventions that regional councils must use to achieve the target attribute states.

Table Number	Value	Component	Attribute	Minimum Intervention
3	Ecosystem health	Water quality	Total nitrogen (lakes) (to be included in Appendix 2A)	Limit
4	Ecosystem health	Water quality	Total phosphorus (lakes) (to be included in Appendix 2A)	Limit
5	Ecosystem health	Water quality	Dissolved inorganic nitrogen (rivers)	Limit
6	Ecosystem health	Water quality	Dissolved reactive phosphorus (rivers)	Limit
7	Ecosystem health	Water quality	Amonia toxicity (rivers)	Limit
8	Ecosystem health	Water quality	Nitrate toxicity (rivers)	Limit
9	Ecosystem health	Water quality	Dissolved oxygen (rivers)	Limit or Action plan
10	Ecosystem health	Water quality	Suspended fine sediment (rivers)	Limit
19	Ecosystem health	Water quality	Dissolved oxygen (general)	Action plan
20	Ecosystem health	Water quality	Dissolved oxygen (lakes) (bottom)	Action plan
21	Ecosystem health	Water quality	Dissolved oxygen (lakes – seasonally stratifying) (mid-hypolimnetic)	Action plan
18	Ecosystem health	Physical habitat	Deposited sediment (rivers - wadeable)	Action plan
1	Ecosystem health	Aquatic life	Phytoplankton (lakes) (to be included in Appendix 2A)	Limit
2	Ecosystem health	Aquatic life	Periphyton (rivers) (to be included in Appendix 2A)	Limit
13	Ecosystem health	Aquatic life	Macroinvertebrates (MCI, QMCI) (rivers - wadeable)	Action plan
14	Ecosystem health	Aquatic life	Macroinvertebrates (ASPM) (rivers - wadeable)	Action plan

Table Number	Value	Component	Attribute	Minimum Intervention
15	Ecosystem health	Aquatic life	Fish (IBI) (rivers)	Action plan
16	Ecosystem health	Aquatic life	Lake submerged plants (native)	Action plan
17	Ecosystem health	Aquatic life	Lake submerged plants (invasive species)	Action plan
22	Ecosystem health	Ecosystem processes	Ecosystem metabolism (rivers)	Action plan
11	Human contact	Human health	*E. coli* (lakes and rivers)	Limit or Action plan
12	Human contact	Human health	Cyanobacteria (lakes and lake-fed rivers)	Limit or Action plan
23	Human contact	Primary contact	*E. coli*	Action plan

Subpart 3 Specific requirements

3.15 Inland wetlands

(1) In this subpart:

coastal wetland means a natural wetland that is influenced by marine or coastal geomorphological processes to the seaward extent of freshwater influence, and includes:

a) saltmarshes (of which mangroves can be a structural component); and
b) seagrass meadows in intertidal and subtidal zones less than 2 m below mean low water spring tide

constructed wetland means a wetland constructed by artificial means that:

a) supports an ecosystem of plants that are suited to wet conditions; and
b) is constructed for a specific purpose in a place where a natural wetland does not already exist

effects management hierarchy means an approach to managing the adverse effects of subdivision, use, and development that requires that:

a) adverse effects are avoided where possible; and
b) adverse effects that cannot be demonstrably avoided are remedied where possible; and
c) adverse effects that cannot be demonstrably remedied are mitigated; and
d) in relation to adverse effects that cannot be avoided, remedied, or mitigated, offsetting is considered; and
e) if offsetting is not demonstrably achievable, compensation is considered

inland wetland means any wetland that is not a coastal wetland, but does not include geothermal wetlands

loss or degradation, in relation to a wetland, means the loss of extent, or a condition of deteriorated or depleted ecosystem health, ecosystem services, processes, or functioning

natural wetland means a wetland as defined in the Act (regardless of whether it is dominated by indigenous or exotic vegetation), except that it does not include:

a) wet pasture or paddocks where water temporarily ponds after rain in places dominated by pasture, or that contain patches of exotic sedge or rush species; or
b) constructed wetlands; or
c) geothermal wetlands

net gain, in relation to a wetland or stream, means the point at which the measurable positive effects on the ecosystem health of the wetland or stream exceed the point of no net loss

net loss means the point at which measurable positive effects from targeted environmental management activities match the environmental losses due to the impacts of a specific development project, so that compared to a baseline there is no net reduction in environmental values over space and time

(2) Every regional council must include in its regional policy statement the following policy (or words to the same effect):
"The loss or degradation of all or any part of a natural inland wetland is avoided."

(3) However, the policy required by subclause (2):

a) must be read subject to any rules that give effect to the requirements of the National Environmental Standards for Freshwater, or to any more stringent rules that the council, as permitted by those Standards, includes in its regional plan; and
b) does not apply to adverse effects from an activity that is for the purpose of restoring a wetland and those effects are temporary and reversible, or are consistent with achieving the long-term restoration aims for the wetland.

(4) Every regional council must make or change its policy statement and plan to ensure that, when considering an application for a consent, adverse effects on any natural inland wetland are managed by applying the effects management hierarchy.

(5) Every regional council must, in respect of natural inland wetlands, and may in respect of constructed wetlands,:

a) identify and map wetlands in its region that are:
    i. 0.05 hectares or greater in size; or
    ii. known to contain threatened species; or
    iii. of a type that is naturally less than 0.05 ha in size (such as ephemeral wetlands or springs); and
b) establish and maintain an inventory of wetlands that includes, at a minimum, the following information about each mapped wetland:
    i. identifier and location;
    ii. area and Geographic Information System (GIS) polygon;
    iii. classification of wetland type;
    iv. values (such as ecosystem services, habitat for indigenous biodiversity, amenity values);

v. results of monitoring.

(6) In case of uncertainty or dispute about the existence or extent of a natural inland wetland, a regional authority must use the wetland delineation protocol available at: https://www.landcareresearch.co.nz/__data/assets/pdf_file/0003/181353/1903-TSDC148-Wetland-delineation-protocols.pdf, and the outcome of applying that protocol must be taken as definitive.

(7) Every regional council must include objectives, policies, or methods in its regional policy statement and plans that provide for and encourage the restoration of natural inland wetlands in its region.

(8) Regional councils must permit the management of a constructed wetlands to prioritise activities and management practices that are necessary for, or consistent with, the purpose for which the wetland was constructed.

(9) Every regional council must:

a) develop and undertake a monitoring plan to monitor the condition of its region's natural inland wetlands by reference to, at a minimum, their extent, vegetation, hydrology, and nutrients (in water, soil, or both); and
b) have methods to respond when degradation of wetland conditions is detected.

Information note:
Examples of constructed wetlands include areas of wetland habitat in or around bodies of water created for, or in connection with, any of the following purposes:

- nutrient attenuation;
- effluent treatment and disposal systems;
- stormwater management;
- reservoir for firefighting;
- hydroelectric power generation;
- irrigation;
- stock watering;
- domestic and community water supply;
- water storage ponds;
- landscaping;
- other artificial water storage facilities, including open drainage channels and engineered soil conservation structures;
- conservation or biodiversity offsetting;
- hunting.

The National Policy Statement on Indigenous Biodiversity 2020 contains additional relevant policies concerning the restoration and enhancement of wetlands.

The National Environmental Standard for Freshwater sets out regulations for the management of wetlands, river bed infilling, and fish passage.

3.16 Streams

(1) Every regional council must include the following policy (or words to the same effect) in its regional policy statement:
"The extent and ecosystem health of rivers and streams in the region, and their associated freshwater ecosystems, are at least maintained".

(2) However, the policy must be read subject to any rules that give effect to the requirements of the National Environmental Standards for Freshwater, or to any more stringent rules that the council, as permitted by those Standards, includes in its regional plan.

(3) Every regional council must make or change its policy statement and plan to ensure that, when considering an application for a consent, adverse effects on any stream are managed by applying the effects management hierarchy.

(4) Every regional council must make or change its regional policy statement and plans to ensure that the following do not result in a net loss in the extent or ecosystem health of a stream:

a) permanently diverting a stream;
b) culverting a stream, where that is allowed and as far as practicable.

(5) Every regional council must make or change its regional policies and plans to ensure that the infilling of river or stream beds is avoided, unless there are no other practicable alternative methods of providing for the activity, and it is part of an activity:

a) designed to restore or enhance the natural values of the stream or of any adjacent or associated ecosystem; or
b) necessary to enable the development, operation, maintenance and upgrade of nationally significant infrastructure; or
c) required for the purposes of flood prevention or erosion control.

(6) However, subclause (5) is subject to any rules that give effect to the requirements of the National Environmental Standards for Freshwater, or to any more stringent rules that the council, as permitted by those Standards, includes in its regional plan.

3.17 Fish passage

(1) Every regional council must make or change its regional plan to include aquatic life objectives to achieve diversity and abundance of fish in all or specified streams.

(2) When preparing the objective, regional councils must:

a) identify the valued species, and their relevant life stages, for which instream structures must provide passage; and
b) identify undesirable species whose passage can or should be prevented; and
c) identify streams where fish passage for undesirable fish species is to be impeded in order to manage their adverse effects on fish populations upstream of any barrier; and
d) take into account any Freshwater Fisheries Management Plans and Sports Fish and Game Management Plans approved by the Minister of Conservation under the Conservation Act 1987; and
e) consult with the Department of Conservation to identify any threatened fish species that may benefit from natural or built barriers to exclude undesirable species.

(3) Regional councils must make or change their plans to require that regard is had to at least the following when considering an application for a consent relating to an instream structure:

a) the extent to which the structure provides, and will continue to provide for the foreseeable life of the structure, the council's aquatic life objective for fish;
b) the extent to which the structure does not cause a greater impediment to fish movements than in adjacent stream reaches;
c) the extent to which it provides efficient and safe passage for all fish (other than undesirable species) at all their life stages;
d) the extent to which it provides a diversity of physical and hydraulic conditions leading to a high diversity of passage opportunities for fish;
e) any proposed monitoring and maintenance plan for ensuring that the structure meets the council's aquatic life objective for fish now and in the future.

(4) Regional councils must establish and implement a work programme to improve the extent to which existing structures achieve the council's aquatic life objectives for fish.

(5) The work programme must include the following:

a) identifying existing instream structures within the region, and evaluating the risk they present as an undesirable barrier to fish migrations;
b) prioritising structures for remediation, applying the ecological criteria described in Table 5.1, of the New Zealand Fish Passage Guidelines;
c) documenting the structures or locations that have been prioritised, the remediation that is required to achieve the desired outcome, and how and when this will be achieved;
d) identification of structures that have been remediated since the commencement date;
e) how the ongoing performance of the remediated structure will be monitored and evaluated.

(6) Regional councils must collect, maintain, and publish records of new and (known) existing instream structures and assess their likely impact on fish passage and river connectivity.

Information note:
The following is a useful tool to help with managing fish passage:

Franklin, P., Gee, E., Baker, C., Bowie, S. 2018; New Zealand Fish Passage Guidelines for structures up to 4 metres: NIWA client report 2018019HN. Report Date: April 2018. Version 1.0. 229 p.

3.18 Primary contact sites

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

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

(2) For every primary contact site in an FMU, regional councils must identify a sampling site or sites representative of the primary contact site or a number of primary contact sites.

(3) Between 1 November and 31 March each year, every regional council must undertake weekly sampling for *E. coli*, unless:

a) a single sample from the sampling site is greater than 260 *E. coli* per 100 mL, in which case:
    i. sampling frequency must be increased to daily, where practicable; and
    ii. the regional council must take all reasonable steps to identify potential causes of microbial contamination; or

b) a single sample from the sampling site is greater than 540 *E. coli* per 100 mL, in which case the regional council must take all reasonable steps to notify the public, and keep them informed, that the site is unsuitable for primary contact until further sampling shows a result of 540 *E. coli* per 100 mL or less.

3.19 Water allocation

(1) Every regional council must make or change its regional plan to include criteria for:

a) deciding applications to approve transfers of water take permits; and
b) deciding how to improve and maximise the efficient allocation of water.

(2) Every regional council must identify in regional plans methods to encourage the efficient use of water.

(3) Regional councils must define a timeframe within which over-allocation is phased out, and methods to achieve that, so that the limits on resource use and take limits are reduced to levels that meet the objective and policies of this National Policy Statement.

3.20 Accounting systems

(1) Every regional council must operate and maintain, for every FMU for which target attribute states and limits have been or are being set,:

a) a freshwater quality accounting system; and
b) a freshwater quantity accounting system.

(2) The purpose of the accounting systems is to provide the baseline information required:

a) for setting target attribute states, environmental flows and levels, and limits; and
b) to assess whether an FMU is over-allocated or not; and
c) to track over time the cumulative effects of activities (such as the granting of resource consents).

(3) The accounting systems must be maintained at a level of detail commensurate with the significance of the water quality or quantity issues applicable to each particular FMU.

(4) Every regional council must make information from those systems available to the public, regularly and in a suitable form, for every FMU for which target attribute states have been, or are being, set.

(5) The freshwater quality accounting system must (where possible), for each FMU, record, aggregate, and regularly update information on the measured, modelled, or estimated:

a) loads, concentrations, or both, of relevant contaminants; and
b) where a load or concentration has been set on the amount of a contaminant that is acceptable in a waterbody, the proportion of that amount recorded at monitoring sites for that contaminant; and
c) sources of relevant contaminants; and
d) the amount of each contaminant attributable to each source.

(6) The freshwater quantity accounting system must, for each FMU, record, aggregate, and regularly update information on the measured, modelled, or estimated:

a) amount of freshwater take; and
b) the proportion of freshwater taken by each major category of use; and
c) where a take limit has been set, the proportion of the allocation taken.

(7) In this section, **freshwater take** refers to all takes, whether metered or not, whether subject to a consent or not, and whether authorised or not.

Information note:
The Resource Management (Measurement and Reporting of Water Takes) Regulations 2010 require water takes of more than 5 l per second to be measured and reported on.

3.21 Assessing and reporting

(1) Every regional council must produce a report annually on freshwater management in its region that sets out:

a) actual data, or a link to those data, about each component of the values Ecosystem Health and Human Contact, as obtained from monitoring sites for the attributes of the components; and if no data has been collected in relation to any attribute, this must be identified; and
b) actual data, or a link to those data, from any other monitoring done for the purpose of freshwater management; and
c) a description of any uncertainties associated with the data.

(2) As part of the report required by section 35 of the Act (which is required at least every 5 years), every regional council must assess the freshwater management in its region and produce a synthesis report on it.

(3) The assessment required for the synthesis report must cover at least the following:

a) a comparison of the present state of attributes (and other things that are monitored) as at the time of the assessment as compared with any target attribute states for those things, including the extent to which the present state aligns with the environmental outcomes sought, in relation to each value, for each FMU; and
b) an assessment of the cumulative effect of changes across multiple sites within an FMU and multiple attributes during the period covered by the assessment;
c) if monitoring shows a deterioration from the current state or a downward trend, information on the known or likely causes;
d) an assessment of the actions taken since the last assessment, whether regulatory or non-regulatory and whether by local authorities or others, that contribute to the implementation of this NPS;
e) an assessment of whether the target attribute states and environmental outcomes for each FMU in the region are being achieved and, if not, whether and when they are likely to be;
f) the environmental pressures on each FMU (such as water takes, sources of contaminants, or waterbody modification) as indicated by information from the freshwater accounting systems referred to in clause 3.20;
g) any uncertainties in the data, evidence, or other information referred to or relied on in the assessment;
h) predictions of changes that are likely to affect waterbodies and freshwater ecosystems in the region;
i) an account of the extent to which, in the region,:
    i. the long-term visions for waterbodies, as identified under clause 3.2, are being achieved; and
    ii. the objective and policies of this National Policy Statement are being met.

(4) The synthesis report must set out the results of the assessments and also:

a) report on the state of each component of the value Ecosystem Health, and identify where any data or information is missing; and
b) provide a single ecosystem health score (by reference to the 5 components of Ecosystem Health) for each FMU in the region.

(5) The synthesis report must:
a) be written and presented in a way that members of the public are likely to understand easily; and
b) include specific data, or a link to where that data may be viewed; and
c) be freely available on the regional council's website.

Information note

A framework for assessing and communicating overall ecosystem health is described in Clapcott J, Young R, Sinner J, Wilcox M, Storey R, Quinn J, Daughney C, Canning A, 2018. *Freshwater biophysical ecosystem health framework.* Prepared for Ministry for the Environment. Cawthron Report No. 3194. 89 p. plus appendices. This is available from: https://www.mfe.govt.nz/publications/fresh-water/freshwater-biophysical-ecosystem-health-framework.

Subpart 4 Exceptions

3.22 Exception for large hydro schemes

(1) This section applies to the following 6 hydro-electricity generation schemes (referred to as **Schemes**):
a) Waikato Hydro Scheme;
b) Tongariro Power Scheme;
c) Waikaremoana Power Scheme;
d) Waitaki Hydro Scheme;
e) Manapouri Power Scheme;
f) Clutha Hydro Scheme.

(2) When setting limits or developing action plans, and when making plan changes required by this National Policy Statement, regional councils must have regard to the importance of not adversely impacting the generation capacity, storage and operational flexibility of a Scheme.

(3) Regional councils may accordingly set target attribute states that are below national bottom lines in respect of waterbodies or freshwater ecosystems that are adversely impacted by structures that form part of any Schemes, to the extent of such an impact.

(4) Despite subclause (3), regional councils must still set target attributes states that, to the extent possible, improve any waterbody or freshwater ecosystem affected by any Scheme.

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

3.23 Exception for naturally occurring processes

(1) If all or part of a waterbody is affected by naturally occurring processes that mean that the current state is worse than the national bottom line, and a target attribute state at or better than the national bottom line cannot be achieved, the regional council may set a target attribute state that is worse than the national bottom line, but must still set it to achieve an improved attribute state to the extent feasible given the natural processes.

(2) In any dispute about whether this exception should apply, the onus is on the relevant regional council to demonstrate that it is naturally occurring processes that prevent the national bottom line being achieved.

(3) For the purposes of this section, **naturally occurring processes** means processes that could have occurred in New Zealand before the arrival of humans.

3.24 Transitional exception

Regional councils may set target attribute states that are worse than national bottom lines in respect of freshwater ecosystems identified in Appendix 4, until the times, or for the periods, specified in that appendix.

Part 4 Timing

4.1 Timing

(1) Every regional council must implement the objective and policies of this National Policy Statement as soon as reasonably practicable.

(2) The final decisions on changes to policy statements and plans that are necessary to give effect to this National Policy Statement must be publicly notified no later than 31 December 2025.

(3) To the extent that regional policy statements and plans already implement the objective and policies of this National Policy Statement, regional councils are not obliged to make changes to wording or terminology merely for consistency with it.

(4) However, in case of dispute, the onus is on the regional council to show that, despite the different wording or terminology used, their regional policy statement or plan does implement the objective and policies of this National Policy Statement.

Appendices

Appendix 1A: Compulsory values

1 Ecosystem health

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

There are 5 biophysical components that contribute to freshwater ecosystem health, and it is necessary that all of them are managed. They are:

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

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

Habitat - the physical form, structure and extent of the waterbody, its bed, banks and margins, riparian vegetation and connections to the floodplain.

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

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

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

2 Human contact

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

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

3 Threatened species

This refers to the extent to which an FMU that supports a population of threatened species has the conditions necessary to support the continued presence and survival of the threatened species. The basic conditions relate to aquatic habitat, water quality, and flows or water levels, but may also include specialised habitat or conditions needed for only part of the life-cycle of the threatened species.

4 [Placeholder for possible Mahinga Kai (described below) or Tangata Whenua Value]

Mahinga kai – Kai are safe to harvest and eat.

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

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

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

Appendix 1B: Other values that must be considered

Contents

1 Natural form and character

2 [Mahinga kai]

3 [Mahinga kai]

4 Fishing

5 Irrigation, cultivation, and food productions

6 Animal drinking water

7 Wai tapu

8 Potable water supply

9 Commercial and industrial use

10 Hydro-electric power generation

11 Transport and Tauranga waka

Descriptions of other values

Natural form and character – Where people value particular natural qualities of the freshwater management unit.

Matters contributing to the natural form and character of a freshwater management unit are its biological, visual and physical characteristics that are valued by the community, including:

i. its biophysical, ecological, geological, geomorphological and morphological aspects;

ii. the natural movement of water and sediment including hydrological and fluvial processes;

iii. the location of the waterbody relative to its natural course;

iv. the relative dominance of indigenous flora and fauna;

v. the presence of culturally significant species;

vi. the colour of the water; and

vii. the clarity of the water.

They may be freshwater management units with exceptional, natural, and iconic aesthetic features.

[To be omitted if Mahinga kai is included as a compulsory value] **Mahinga kai** – Kai are safe to harvest and eat. Mahinga kai generally refers to indigenous freshwater species that have traditionally been used as food, tools, or other resources. It also refers to the places those species are found and to the act of catching them. Mahinga kai provide food for the people of the rohe and these sites give an indication of the overall health of the water. For this value, kai would be safe to harvest and eat. Transfer of knowledge would occur about the preparation, storage and cooking of kai. In freshwater management units that are used for providing mahinga kai, the desired species are plentiful enough for long-term harvest and the range of desired species is present across all life stages.
[To be omitted if Mahinga kai is included as a compulsory value] **Mahinga kai** – Kei te ora te mauri (the mauri of the place is intact). For this value, freshwater resources would be available and able to be used for customary use. In freshwater management units that are valued for providing mahinga kai, resources would be available for use, customary practices able to be exercised to the extent desired, and tikanga and preferred methods are able to be practised.
Fishing – The freshwater management unit supports fisheries of species allowed to be caught and eaten. For freshwater management units valued for fishing, the numbers of fish would be sufficient and suitable for human consumption. In some areas, fish abundance and diversity would provide a range in species and size of fish, and algal growth, water clarity and safety would be satisfactory for fishers. Attributes will need to be specific to fish species such as salmon, trout, eels, lamprey, or whitebait.
Irrigation, cultivation and food production – The freshwater management unit meets irrigation needs for any purpose. Water quality and quantity would be suitable for irrigation needs, including supporting the cultivation of food crops, the production of food from domesticated animals, non-food crops such as fibre and timber, pasture, sports fields and recreational areas. Attributes will need to be specific to irrigation and food production requirements.
Animal drinking water – The freshwater management unit meets the needs of stock. Water quality and quantity would meet the needs of stock, including whether it is palatable and safe.

Wai tapu – Wai tapu represent the places where rituals and ceremonies are performed, or where there is special significance to iwi/hapū. Rituals and ceremonies include, but are not limited to, tohi (baptism), karakia (prayer), waerea (protective incantation), whakatapu (placing of raahui), whakanoa (removal of raahui), and tuku iho (gifting of knowledge and resources for future generations). In providing for this value, the wai tapu would be free from human and animal waste, contaminants and excess sediment, with valued features and unique properties of the wai protected. Other matters that may be important are that there is no artificial mixing of the wai tapu and identified taonga in the wai are protected.
Water supply – The freshwater management unit can meet people's potable water needs. Water quality and quantity would enable domestic water supply to be safe for drinking with, or in some areas without, treatment.
Commercial and industrial use – The freshwater management unit provides economic opportunities to people, businesses and industries. Water quality and quantity can provide for commercial and industrial activities. Attributes will need to be specific to commercial or industrial requirements.
Hydro-electric power generation – The freshwater management unit is suitable for hydro electric power generation. Water quality and quantity and the physical qualities of the freshwater management unit, including hydraulic gradient and flow rate, can provide for hydro-electric power generation.
Transport and tauranga waka – The freshwater management unit is navigable for identified means of transport. Transport and tauranga waka generally refers to places to launch waka and water craft, and appropriate places for waka to land (tauranga waka).

Appendix 2A: Attributes requiring limits

Table 1 - Phytoplankton (Trophic state)

Value (and component)	Ecosystem Health (Aquatic Life)	
Freshwater Body Type	Lakes	
Attribute Unit	mg chl-*a*/ m^3 (milligrams chlorophyll-*a* per cubic metre)	
Attribute band and description	**Numeric attribute state**	
	Annual median	Annual Maximum
A Lake ecological communities are healthy and resilient, similar to natural reference conditions.	≤2	≤10
B Lake ecological communities are slightly impacted by additional algal and/or plant growth arising from nutrient levels that are elevated above natural reference conditions.	>2 and ≤5	>10 and ≤25
C Lake ecological communities are moderately impacted by additional algal and plant growth arising from nutrient levels that are elevated well above natural reference conditions. Reduced water clarity is likely to affect habitat available for native macrophytes.	>5 and ≤12	>25 and ≤60
National Bottom Line	**12**	**60**
D Lake ecological communities have undergone or are at high risk of a regime shift to a persistent, degraded state (without native macrophyte/ seagrass cover), due to impacts of elevated nutrients leading to excessive algal and/or plant growth, as well as from losing oxygen in bottom waters of deep lakes.	>12	>60
For lakes and lagoons that are intermittently open to the sea, monitoring data should be analysed separately for closed periods and open periods.		

Table 2 - Periphyton (Trophic state)

Value (and component)	Ecosystem health (Aquatic Life)	
Freshwater Body Type	Rivers	
Attribute Unit	mg chl-*a*/m^2 (milligrams chlorophyll-*a* per square metre)	
Attribute band and description	**Numeric Attribute State (default class)**	**Numeric Attribute State (productive class)**
	Exceeded no more than 8% of samples	Exceeded no more than 17% of samples
A Rare blooms reflecting negligible nutrient enrichment and/or alteration of the natural flow regime or habitat.	≤50	≤50
B Occasional blooms reflecting low nutrient enrichment and/ or alteration of the natural flow regime or habitat.	>50 and ≤120	>50 and ≤120
C Periodic blooms reflecting moderate nutrient enrichment and/ or moderate alteration of the natural flow regime or habitat.	>120 and ≤200	>120 and ≤200
National Bottom Line	**200**	**200**
D Regular and/or extended-duration nuisance blooms reflecting very high nutrient enrichment and/or very significant alteration of the natural flow regime or habitat.	>200	>200
Classes are streams and rivers defined according to types in the River Environment Classification system (REC). Numeric attribute states must be derived from the rolling median of monthly monitoring over five years.		

Note: To achieve a freshwater objective for periphyton within a freshwater management unit, regional councils must at least set appropriate instream concentrations and exceedance criteria for dissolved inorganic nitrogen (DIN) and dissolved reactive phosphorus (DRP). Where there are nutrient sensitive downstream receiving environments, criteria for nitrogen and phosphorus will also need to be set to achieve the outcomes sought for those environments. Regional councils must use the following process, in the following order, to determine instream nitrogen and phosphorus criteria in a freshwater management unit:

a) either:
   i. if the freshwater management unit supports, or could support, conspicuous periphyton, derive instream concentrations and exceedance criteria for DIN and DRP to achieve a periphyton objective for the freshwater management unit; or
   ii. if the freshwater management unit does not support, and could not support, conspicuous periphyton, consider the nitrogen and phosphorus criteria (instream concentrations or instream loads) needed to achieve any other freshwater objectives.

b) if there are nutrient sensitive downstream environments, for example, a lake and/or estuary, derive relevant nitrogen and phosphorus criteria (instream concentrations or instream loads) needed to achieve the outcomes sought for those sensitive downstream environments:
c) compare all nitrogen and phosphorus criteria derived in steps (a) – (b) and adopt those necessary to achieve the freshwater objectives for the freshwater management unit and outcomes sought for the nutrient sensitive downstream environments.

Table 3 – Total Nitrogen (Trophic state)

Value (and component)	Ecosystem Health (water quality)	
Freshwater Body Type	Lakes	
Attribute Unit	mg/m^3 (milligrams per cubic metre)	
Attribute band and description	**Numeric attribute state**	
	Annual Median	Annual Median
	Seasonally Stratified and Brackish	Polymictic
A Lake ecological communities are healthy and resilient, similar to natural reference conditions.	≤160	≤300
B Lake ecological communities are slightly impacted by additional algal and/ or plant growth arising from nutrient levels that are elevated above natural reference conditions.	>160 and ≤350	>300 and ≤500
C Lake ecological communities are moderately impacted by additional algal and plant growth arising from nutrient levels that are elevated well above natural reference conditions.	>350 and ≤750	>500 and ≤800
National Bottom Line	**750**	**800**
D Lake ecological communities have undergone or are at high risk of a regime shift to a persistent, degraded state (without native macrophyte/seagrass cover) due to impacts of elevated nutrients leading to excessive algal and/or plant growth, as well as from losing oxygen in bottom waters of deep lakes.	>750	>800
For lakes and lagoons that are intermittently open to the sea, monitoring data should be analysed separately for closed periods and open periods.		

Table 4 – Total Phosphorus (Trophic state)

Value (and component)	Ecosystem Health (water quality)
Freshwater Body Type	Lakes
Attribute Unit	mg/m^3 (milligrams per cubic metre)
Attribute band and description	**Numeric attribute state**
	Annual Median
A Lake ecological communities are healthy and resilient, similar to natural reference conditions.	≤10
B Lake ecological communities are slightly impacted by additional algal and plant growth arising from nutrient levels that are elevated above natural reference conditions.	>10 and ≤20
C Lake ecological communities are moderately impacted by additional algal and plant growth arising from nutrient levels that are elevated well above natural reference conditions.	>20 and ≤50
National Bottom Line	**50**
D Lake ecological communities have undergone or are at high risk of a regime shift to a persistent, degraded state (without native macrophyte/seagrass cover), due to impacts of elevated nutrients leading to excessive algal and/or plant growth, as well as from losing oxygen in bottom waters of deep lakes.	>50
For lakes and lagoons that are intermittently open to the sea, monitoring data should be analysed separately for closed periods and open periods.	

Table 5 – Dissolved inorganic nitrogen

Value (and component)	Ecosystem health (water quality)	
Freshwater Body Type	Rivers	
Attribute Unit	DIN mg/L (milligrams per litre)	
Attribute band and description	**Numeric Attribute State**	
	Median	95th percentile
A Ecological communities and ecosystem processes are similar to those of natural reference conditions. No adverse effects attributable to DIN enrichment are expected.	≤ 0.24	≤ 0.56
B Ecological communities are slightly impacted by minor DIN elevation above natural reference conditions. If other conditions also favour eutrophication, sensitive ecosystems may experience additional algal and plant growth, loss of sensitive macroinvertebrate taxa, and higher respiration and decay rates.	> 0.24 and ≤0.50	> 0.56 and ≤01.10
C Ecological communities are impacted by moderate DIN elevation above natural reference conditions, but sensitive species are not experiencing nitrate toxicity. If other conditions also favour eutrophication, DIN enrichment may cause increased algal and plant growth, loss of sensitive macroinvertebrate & fish taxa, and high rates of respiration and decay.	> 0.5 and ≤ 1.0	> 1.10 and ≤ 2.05
National Bottom Line	**1.0**	**2.05**
D Ecological communities impacted by substantial DIN elevation above natural reference conditions. In combination with other conditions favouring eutrophication, DIN enrichment drives excessive primary production and significant changes in macroinvertebrate and fish communities, as taxa sensitive to hypoxia and nitrate toxicity are lost.	>1.0	>2.05
Groundwater concentrations also need to be managed to ensure resurgence via springs and seepage does not degrade rivers through DIN enrichment. Numeric attribute state must be derived from the rolling median of monthly monitoring over five years.		

Table 6 – Dissolved reactive phosphorus

Value (and component)	Ecosystem health (water quality)	
Freshwater Body Type	Rivers	
Attribute Unit	DRP mg/L (milligrams per litre)	
Attribute band and description	**Numeric Attribute State**	
	Median	95th percentile
A Ecological communities and ecosystem processes are similar to those of natural reference conditions. No adverse effects attributable to DRP enrichment are expected.	≤ 0.006	≤ 0.021
B Ecological communities are slightly impacted by minor DRP elevation above natural reference conditions. If other conditions also favour eutrophication, sensitive ecosystems may experience additional algal and plant growth, loss of sensitive macroinvertebrate taxa, and higher respiration and decay rates.	> 0.006 and ≤0.010	> 0.021 and ≤0.030
C Ecological communities are impacted by moderate DRP elevation above natural reference conditions. If other conditions also favour eutrophication, DRP enrichment may cause increased algal and plant growth, loss of sensitive macro-invertebrate & fish taxa, and high rates of respiration and decay.	> 0.010 and ≤ 0.018	> 0.030 and ≤ 0.054
National Bottom Line	**0.018**	**0.054**
D Ecological communities impacted by substantial DRP elevation above natural reference conditions. In combination with other conditions favouring eutrophication, DRP enrichment drives excessive primary production and significant changes in macroinvertebrate and fish communities, as taxa sensitive to hypoxia are lost.	>0.018	>0.054
Numeric attribute state must be derived from the rolling median of monthly monitoring over five years.		

Table 7 – Ammonia (Toxicity)

Value (and component)	Ecosystem Health (Water Quality)	
Freshwater Body Type	Rivers	
Attribute Unit	mg NH4-N/L (milligrams ammoniacal-nitrogen per litre)	
Attribute band and description	**Numeric Attribute State**	
	Annual Median	Annual Maximum
A 99% species protection level: No observed effect on any species tested	≤0.03	≤0.05
B 95% species protection level: Starts impacting occasionally on the 5% most sensitive species	>0.03 and ≤0.24	>0.05 and ≤0.40
C 80% species protection level: Starts impacting regularly on the 20% most sensitive species (reduced survival of most sensitive species)	>0.24 and ≤1.30	>0.40 and ≤2.20
National Bottom Line	**1.30**	**2.20**
D Starts approaching acute impact level (ie risk of death) for sensitive species	>1.30	>2.20
Numeric attribute state is based on pH 8 and temperature of 20°C. Compliance with the numeric attribute states should be undertaken after pH adjustment.		

Table 8 – Nitrate (Toxicity)

Value (and component)	Ecosystem Health (water quality)	
Freshwater Body Type	Rivers	
Attribute Unit	mg NO_3 - N/L (milligrams nitrate-nitrogen per litre)	
Attribute band and description	**Numeric Attribute State**	
	Annual Median	Annual 95th Percentile
A High conservation value system. Unlikely to be effects even on sensitive species.	≤1.0	≤1.5
B Some growth effect on up to 5% of species.	>1.0 and ≤2.4	>1.5 and ≤3.5
C Growth effects on up to 20% of species (mainly sensitive species such as fish). No acute effects.	>2.4 and ≤6.9	>3.5 and ≤9.8
National Bottom Line	**6.9**	**9.8**
D Impacts on growth of multiple species, and starts approaching acute impact level (ie risk of death) for sensitive species at higher concentrations (>20 mg/L).	>6.9	>9.8

Note: This attribute measures the toxic effects of nitrate, not the trophic state. Where other attributes measure trophic state, for example periphyton, freshwater objectives, limits and/or methods for those attributes will be more stringent.

Table 9 – Dissolved oxygen

Value (and component)	Ecosystem health (Water Quality)	
Freshwater Body Type	Rivers (below point sources only)	
Attribute Unit	mg/L (milligrams per litre)	
Attribute band and description	**Numeric Attribute State**	
	7-day mean minimum (Summer Period: 1 November to 30th April)	1-day mean minimum (Summer Period: 1 November to 30th April)
A No stress caused by low dissolved oxygen on any aquatic organisms that are present at matched reference (near-pristine) sites.	≥8.0	≥7.5
B Occasional minor stress on sensitive organisms caused by short periods (a few hours each day) of lower dissolved oxygen. Risk of reduced abundance of sensitive fish and macroinvertebrate species.	≥7.0 and <8.0	≥5.0 and <7.5
C Moderate stress on a number of aquatic organisms caused by dissolved oxygen levels exceeding preference levels for periods of several hours each day. Risk of sensitive fish and macroinvertebrate species being lost.	≥5.0 and <7.0	≥4.0 and <5.0
National Bottom Line	**5.0**	**4.0**
D Significant, persistent stress on a range of aquatic organisms caused by dissolved oxygen exceeding tolerance levels. Likelihood of local extinctions of keystone species and loss of ecological integrity.	<5.0	<4.0
The seven day mean minimum is the mean value of 7 consecutive daily minimum values. The one day mean minimum is the lowest daily minimum across the whole summer period.		

Table 10 – Suspended fine sediment

Value (and component)	Ecosystem Health (water quality)											
Freshwater Body Type	Rivers and streams											
Attribute Unit	Turbidity (FNU)											
Attribute band and description	**Numeric attribute state by Suspended Sediment Class**											
	1	2	3	4	5	6	7	8	9	10	11	12
A Minimal impact of suspended sediment on instream biota. Ecological communities are similar to those observed in natural reference conditions.	<2.0	<6.2	<1.3	<3.3	<7.5	<4.8	<2.3	<4.3	<1.2	<1.1	<1.1	<2.4
B Low to moderate impact of suspended sediment on instream biota. Abundance of sensitive fish species may be reduced.	<2.5	<7.9	<1.6	<3.9	<9.8	<6.3	<2.8	<5.2	<1.4	<1.3	<1.3	<2.7
C Moderate to high impact of suspended sediment on instream biota. Sensitive fish species may be lost.	<3.2	<10.5	<2.0	<4.8	<13.1	<8.3	<3.3	<6.4	<1.6	<1.5	<1.6	<3.1
National Bottom Line	**3.2**	**10.5**	**2.0**	**4.8**	**13.1**	**8.3**	**3.3**	**6.4**	**1.6**	**1.5**	**1.6**	**3.1**
D High impact of suspended sediment on instream biota. Ecological communities are significantly altered and sensitive fish and macroinvertebrate species are lost or at high risk of being lost.	>3.2	>10.5	>2.0	>4.8	>13.1	>8.3	>3.3	>6.4	>1.6	>1.5	>1.6	>3.1

The minimum record length for grading a site is two years of at least monthly samples (at least 24 samples).

See Appendix 2C Tables 1 and 3 for the definition of each suspended sediment class and its River Environment Classification composition.

Note: the attribute does not apply in the following rivers and streams due to naturally occurring processes:

1. Naturally highly coloured brown-water streams;
2. Glacial flour affected streams and rivers;
3. Selected lake-fed REC classes (particularly warm climate classes) where high turbidity may reflect autochthonous phytoplankton production (as opposed to organic/inorganic sediment derived from the catchment).

Table 11 – *Escherichia coli* (*E. coli*)

Value (and component)	Human contact (human health)			
Freshwater Body Type	Lakes and rivers			
Attribute	Escherichia coli (*E. coli*)			
Attribute Unit	*E. coli*/100 mL (number of *E. coli* per hundred millilitres)			
Attribute band and description	**Numeric Attribute State**			
Description of risk of Campylobacter infection (based on *E. coli* indicator)	% exceedances over 540 *E. coli*/100 mL	% exceedances over 260 *E. coli*/100 mL	Median concentration *E. coli*/100 mL	95th percentile of *E. coli*/100 mL
A (Blue) For at least half the time, the estimated risk is <1 in 1000 (0.1% risk) The predicted average infection risk is 1%	<5%	<20%	≤130	≤540
B (Green) For at least half the time, the estimated risk is <1 in 1000 (0.1% risk) The predicted average infection risk is 2%	5-10%	20-30%	≤130	≤1000
C (Yellow) For at least half the time, the estimated risk is <1 in 1000 (0.1% risk) The predicted average infection risk is 3%	10-20%	20-34%	≤130	≤1200
D (Orange) 20-30% of the time the estimated risk is ≥50 in 1000 (>5% risk) The predicted average infection risk is >3%	20-30%	>34%	>130	>1200
E (Red) For more than 30% of the time the estimated risk is ≥50 in 1000 (>5% risk) The predicted average infection risk is >7%	>30%	>50%	>260	>1200

Attribute state should be determined by using a minimum of 60 samples over a maximum of 5 years, collected on a regular basis regardless of weather and flow conditions. However, where a sample has been missed due to adverse weather or error, attribute state may be determined using samples over a longer timeframe.

Attribute state must be determined by satisfying all numeric attribute states.

The predicted average infection risk is the overall average infection to swimmers based on a random exposure on a random day, ignoring any possibility of not swimming during high flows or when a surveillance advisory is in place (assuming that the *E. coli* concentration follows a lognormal distribution). Actual risk will generally be less if a person does not swim during high flows.

Table 12 – Cyanobacteria (Planktonic)

Value (and component)	Human contact (human health)
Freshwater Body Type	Lakes and lake fed rivers
Attribute Unit	Biovolume - mm^3/L (cubic millimetres per litre)
Attribute band and description	**Numeric Attribute State**
	80th percentile
A (Blue) Risk exposure from cyanobacteria is no different to that in natural conditions (from any contact with freshwater).	≤0.5 mm^3/L biovolume equivalent for the combined total of all cyanobacteria
B (Green) Low risk of health effects from exposure to cyanobacteria (from any contact with freshwater).	>0.5 and ≤1.0 mm^3/L biovolume equivalent for the combined total of all cyanobacteria
C (Yellow) Moderate risk of health effects from exposure to cyanobacteria (from any contact with freshwater).	>1.0 and ≤1.8 mm^3/L biovolume equivalent of potentially toxic cyanobacteria OR >1.0 and ≤10 mm^3/L total biovolume of all cyanobacteria
National Bottom Line	**1.8 mm^3/L biovolume equivalent of potentially toxic cyanobacteria** **OR** **10 mm^3/L total biovolume of all cyanobacteria**
D (Orange/Red) High health risks (eg, respiratory, irritation and allergy symptoms) exist from exposure to cyanobacteria (from any contact with freshwater).	>1.8 mm^3/L biovolume equivalent of potentially toxic cyanobacteria OR >10 mm^3/L total biovolume of all cyanobacteria
The 80th percentile must be calculated using a minimum of 12 samples collected over 3 years. 30 samples collected over 3 years is recommended.	

Appendix 2B: Attributes requiring action plans

Table 13 – Macroinvertebrates (1 of 2)

Value (and component)	Ecosystem health (aquatic life)	
Freshwater Body Type	Wadeable streams and rivers	
Attribute Unit	Macroinvertebrate Community Index (MCI) score; Quantitative Macroinvertebrate Community Index (QMCI) score	
Attribute band and description	**Numeric Attribute States**	
	QMCI	MCI
A Macroinvertebrate community, indicative of pristine conditions with almost no organic pollution or nutrient enrichment.	≥6.5	≥130
B Macroinvertebrate community indicative of mild organic pollution or nutrient enrichment. Largely composed of taxa sensitive to organic pollution/nutrient enrichment.	≥5.5 & <6.5	≥110 & <130
C Macroinvertebrate community indicative of moderate organic pollution or nutrient enrichment. There is a mix of taxa sensitive and insensitive to organic pollution/nutrient enrichment.	≥4.5 & <5.5	≥90 & <110
National Bottom Line	**4.5**	**90**
D Macroinvertebrate community indicative of severe organic pollution or nutrient enrichment. Communities are largely composed of taxa insensitive to inorganic pollution/nutrient enrichment.	<4.5	<90

MCI and QMCI scores to be determined using annual samples taken between December and March (inclusive) with either fixed counts with at least 200 individuals, or full counts, and with current state calculated as the five-year rolling average score. All sites in Deposited Sediment Classes 1, 5, and 11 per Table 18 are to use soft-sediment sensitivity scores and taxonomic resolution as defined in Table A1.1 in Clapcott et al. 2017 *Macroinvertebrate metrics for the National Policy Statement for Freshwater Management*. Cawthron: Nelson, New Zealand.

MCI and QMCI to be assessed using the method defined in Stark JD, Maxted, JR 2007 A user guide for the Macroinvertebrate Community Index. Prepared for the Ministry for the Environment. Cawthron Report No. 1166. 58, except for sites in deposited sediment classes 1, 5 and 11 per Table 18, which require use of the soft-sediment sensitivity scores and taxonomic resolution defined in Table A1.1 in Clapcott et al. 2017.

Table 14 – Macroinvertebrates (2 of 2)

Value (and component)	Ecosystem health (aquatic life)
Freshwater Body Type	Wadeable streams and rivers
Attribute Unit	Macroinvertebrate Average Score Per Metric (ASPM)
Attribute band and description	**Numeric Attribute States ASPM score**
A Macroinvertebrate communities have high ecological integrity, similar to that expected in reference conditions.	≥0.6
B Macroinvertebrate communities have mild-to-moderate loss of ecological integrity.	<0.6 & ≥0.4
C Macroinvertebrate communities have moderate-to-severe loss of ecological integrity.	<0.4 & ≥0.3
National Bottom Line	**0.3**
D Macroinvertebrate communities have severe loss of ecological integrity.	<0.3

ASPM scores to be determined using annual samples taken between December and March (inclusive) with either fixed counts with at least 200 individuals, or full counts, and with current state calculated as the five-year rolling average score. All sites in Deposited Sediment Classes 1, 5, and 11 per Table 18 are to use soft-sediment sensitivity scores and taxonomic resolution as defined in Table A1.1 in Clapcott et al. 2017 *Macroinvertebrate metrics for the National Policy Statement for Freshwater Management*. Cawthron: Nelson, New Zealand.

When normalising scores for the ASPM, use the following minimums and maximums: %EPT-abundance (0-100), EPT-richness (0-29), MCI (0-200). Collier, K. J. (2008). Average score per metric: an alternative metric aggregation method for assessing wadeable stream health. New Zealand Journal of Marine and Freshwater Research, 42(4), 367-378.

Table 15 – Fish (rivers)

Value (and component)	Ecosystem health (aquatic life)
Freshwater Body Type	Wadeable
Attribute Unit	Fish Index of Biotic Integrity (F-IBI)
Attribute band and description	**Numeric Attribute State (Average)**
A High integrity of fish community. Habitat and migratory access have minimal degradation.	≥34
B Moderate integrity of fish community. Habitat and/or migratory access are reduced and show some signs of stress.	<34 and ≥28
C Low integrity of fish community. Habitat and/or migratory access is considerably impairing and stressing the community.	<28 and ≥18
National Bottom Line	**18**
D Severe loss of fish community integrity. There is substantial loss of habitat and/or migratory access, causing a high level of stress on the community.	<18
Sampling is to occur at least annually between December and March (inclusive) following the protocols for at least one of the backpack electrofishing method, spotlighting method, or trapping method in Joy M, David B, and Lake M. 2013. New Zealand Freshwater Fish Sampling Protocols (Part 1): Wadeable rivers and streams. Palmerston North, New Zealand: Massey University. The F-IBI score is to be calculated using the general method defined by Joy, M. K., & Death, R. G. (2004). Application of the Index of Biotic Integrity Methodology to New Zealand Freshwater Fish Communities. Environmental Management, 34(3), 415-428. but will exclude salmonids.	

Table 16 – Submerged plants (natives)

Value (and component)	Ecosystem health (Aquatic life)
Freshwater Body Type	Lakes
Attribute Unit	Lake Submerged Plant Indicators: Native Condition Index
Attribute band and description	**Numeric Attribute State** **(% of maximum potential score)**
A Excellent ecological condition. Native submerged plant communities are almost completely intact	>75%
B High ecological condition. Native submerged plant communities are largely intact	>50 & ≤75%
C Moderate ecological condition. Native submerged plant communities are moderately impacted	≥20 & ≤50%
National Bottom Line	**20%**
D Poor ecological condition. Native submerged plant communities are largely degraded or absent	<20%
Monitoring to be conducted at least once every three years, following the method described in Clayton J, and Edwards T. 2006. LakeSPI: A method for monitoring ecological condition in New Zealand lakes. User Manual Version 2. Hamilton, New Zealand: National Institute of Water & Atmospheric Research Ltd p57 Scores are reported as a percentage of maximum potential score (%) of the Native Condition Index, and lakes in a devegetated state receive scores of 0.	

Table 17 – Submerged plants (invasive species)

Value (and component)	Ecosystem health (aquatic life)
Freshwater Body Type	Lakes
Attribute Unit	Lake Submerged Plant (Invasive Impact Index)
Attribute band and description	**Numeric Attribute State (% of maximum potential score)**
A No invasive plants present in the lake. Native plant communities remain intact.	0%
B Invasive plants having only a minor impact on native vegetation. Invasive plants will be patchy in nature co-existing with native vegetation. Often major weed species not present or in early stages of invasion.	>1 & ≤25%
C Invasive plants having a moderate to high impact on native vegetation. Native plant communities likely displaced by invasive weed beds particularly in the 2 – 8 m depth range.	≥26 & ≤90%
National Bottom Line	**90%**
D Tall dense weed beds exclude native vegetation and dominate entire depth range of plant growth. Species concerned likely hornwort and Egeria.	>90%
Numeric attribute state to be calculated annually following the method described in Clayton J, and Edwards T. 2006. LakeSPI: A method for monitoring ecological condition in New Zealand lakes. User Manual Version 2. Hamilton, New Zealand: National Institute of Water & Atmospheric Research Ltd.	

Table 18 – Deposited fine sediment

Value (and component)	Ecosystem Health (Physical Habitat)											
Freshwater Body Type	Wadeable Rivers and Streams											
Attribute Unit	% fine sediment cover											
Attribute band and description	**Numeric attribute state by Deposited Sediment Class**											
	1	2	3	4	5	6	7	8	9	10	11	12
A Minimal impact of deposited fine sediment on instream biota. Ecological communities are similar to those observed in natural reference conditions.	<84	<9	<42	<12	<80	<30	<41	<22	<48	<15	<76	<27
B Low to moderate impact of deposited fine sediment on instream biota. Abundance of sensitive macroinvertebrate species may be reduced.	<90	<15	<50	<17	<86	<38	<48	<33	<54	<22	<82	<36
C Moderate to high impact of deposited fine sediment on instream biota. Sensitive macroinvertebrate species may be lost.	≤97	≤21	≤60	≤23	≤92	≤46	≤56	≤45	≤61	≤29	≤89	≤45
National Bottom Line	**97**	**21**	**60**	**23**	**92**	**46**	**56**	**45**	**61**	**29**	**89**	**45**
D High impact of deposited fine sediment on instream biota. Ecological communities are significantly altered and sensitive fish and macroinvertebrate species are lost or at high risk of being lost.	>97	>21	>60	>23	>92	>46	>56	>45	>61	>29	>89	>45

The indicator score is percentage cover of the streambed in a run habitat determined by the instream visual method, SAM2, and the monitoring method is defined in p. 17-20 of Clapcott, J.E., Young, R.G., Harding, J.S., Matthaei, C.D., Quinn, J.M. and Death, R.G. (2011) Sediment Assessment Methods: Protocols and guidelines for assessing the effects of deposited fine sediment on in-stream values. Cawthron Institute, Nelson, New Zealand.

The minimum record length for grading a site is 24 samples taken over 2 years of monthly monitoring, or longer for sites where flow conditions only permit monthly monitoring seasonally.

See Appendix 2C Tables 2 and 3 for the definition of each class' River Environment Classification composition.

Table 19 – Dissolved oxygen

Value (and component)	Ecosystem health (Water Quality)	
Freshwater Body Type	Rivers	
Attribute Unit	mg/L (milligrams per litre)	
Attribute band and description	**Numeric Attribute State**	
	7-day mean minimum	1-day mean minimum
A No stress caused by low dissolved oxygen on any aquatic organisms that are present at matched reference (near-pristine) sites.	≥8.0	≥7.5
B Occasional minor stress on sensitive organisms caused by short periods (a few hours each day) of lower dissolved oxygen. Risk of reduced abundance of sensitive fish and macroinvertebrate species.	≥7.0 and <8.0	≥5.0 and <7.5
C Moderate stress on a number of aquatic organisms caused by dissolved oxygen levels exceeding preference levels for periods of several hours each day. Risk of sensitive fish and macroinvertebrate species being lost.	≥5.0 and <7.0	≥4.0 and <5.0
National Bottom Line	**5.0**	**4.0**
D Significant, persistent stress on a range of aquatic organisms caused by dissolved oxygen exceeding tolerance levels. Likelihood of local extinctions of keystone species and loss of ecological integrity.	<5.0	<4.0
Seven-day continuous dissolved oxygen monitoring to be collected at least once during summer (December to March inclusive). Objectives apply year-round.		

Table 20 – Lake-bottom dissolved oxygen

Value (and component)	Ecosystem Health (water quality)
Freshwater Body type	Lakes
Attribute Unit	mg/L (milligrams/litre)
Attribute band and description	**Numeric attribute state**
	Measured or estimated annual minimum
A No risk from bottom DO of biogeochemical conditions causing nutrient release from sediments.	≥7.5
B Minimal risk from bottom DO of biogeochemical conditions causing nutrient release from sediments.	≥2.0 and < 7.5
C Risk from bottom DO of biogeochemical conditions causing nutrient release from sediments.	≥0.5 and < 2.0
National Bottom line	**0.5**
D Likelihood from bottom DO of biogeochemical conditions resulting in nutrient release from sediments.	<0.5
To be measured less than 1m above sediment surface at the deepest part of the lake using either continuous monitoring sensors or discrete DO profiles.	

Table 21 – Mid-hypolimnetic dissolved oxygen

Value (and component)	Ecosystem Health (water quality)
Freshwater Body type	Seasonally stratifying lakes
Attribute Unit	mg/L (milligrams/litre)
Attribute band and description	**Numeric attribute state**
	Measured or estimated annual minimum
A No stress caused to any fish species by low dissolved oxygen.	≥7.5
B Minor stress on sensitive fish seeking thermal refuge in the hypolimnion. Minor risk of reduced abundance of sensitive fish and macro-invertebrate species.	≥ 5.0 & <7.5
C Moderate stress on sensitive fish seeking thermal refuge in the hypolimnion. Risk of sensitive fish species being lost.	≥ 4.0 & <5 .0
National Bottom line	**4.0**
D Significant stress on a range of fish species seeking thermal refuge in the hypolimnion. Likelihood of local extinctions of fish species and loss of ecological integrity.	< 4.0
Numeric attribute state to be measured using either continuous monitoring sensors or discrete DO profiles.	

Table 22 – Ecosystem metabolism

Value (and component)	Ecosystem health (ecosystem processes)
Freshwater Body Type	Rivers
Attribute	Ecosystem metabolism (Both Gross Primary Production and Ecosystem Respiration)
Attribute Unit	g O_2 m^{-2} d^{-1} (grams of dissolved oxygen per square metre per day)

Derived from at least seven days of continuous dissolved oxygen monitoring to be collected at least once during summer (December to March inclusive), using the method of Young RG, Clapcott JE, Simon K 2016. Ecosystem functions and stream health. Advances in New Zealand Freshwater Science. NZ Freshwater Sciences Society, NZ Hydrological Society.

Councils are to monitor, and develop an action plan to respond to deteriorating trends.

Table 23 – *Escherichia coli (E. coli)* (primary contact sites)

Value (and component)	Human contact (recreation)
Freshwater Body Type	Primary contact sites in lakes and rivers (during the bathing season)
Attribute Unit	95th percentile of *E. coli*/100 ml (number of *E. coli* per hundred millilitres)
Attribute Band and description	**Numeric Attribute State**
Excellent Estimated risk of Campylobacter infection has a < 0.1% occurrence, 95% of the time	≤ 130
Good Estimated risk of Campylobacter infection has a 0.1 – 1.0% occurrence, 95% of the time	131 - 260
Fair Estimated risk of Campylobacter infection has a 1 – 5% occurrence, 95% of the time	261 – 540
National bottom line	**540**
Poor Estimated risk of Campylobacter infection has a > 5% occurrence, at least 5% of the time	> 540
The narrative attribute state description assumes "% of time" equals "% of samples"	

Appendix 2C: Sediment Classification Tables

Table 1 - Suspended sediment attribute class REC composition

Suspended Sediment Class	Suspended Sediment REC Groups
1	WW_Low_VA; CW_Low_VA
2	WD_Low_Al
3	CD_Low_HS
4	CW_Low_SS
5	WW_Low_SS; WD_Low_SS
6	WW_Low_HS
7	CD_Low_Al; CW_Hill_VA
8	CD_Low_SS
9	CW_Hill_HS; CD_Hill_HS; CW_Low_Al
10	CW_Lake_Any
11	CW_Low_HS
12	CW_Mount_HS; CW_Hill_SS

Table 2 – Deposited sediment attribute class REC composition

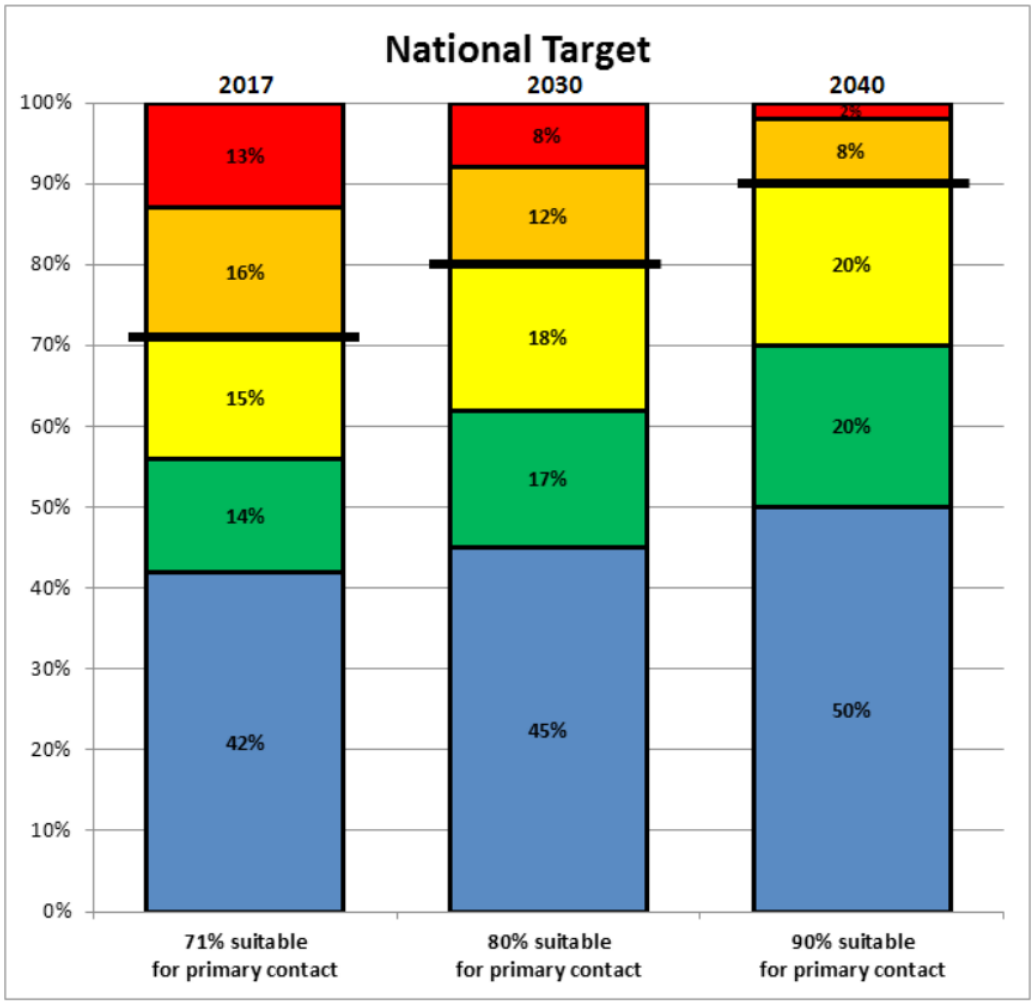
Deposited Sediment Class	Deposited Sediment REC Groups
1	WD_Low_VA; WD_Low_Al
2	WW_Hill_HS; CW_Mount_VA
3	CW_Lake_Any; CW_Low_Al; CD_Hill_SS
4	CW_Mount_SS
5	WD_Low_SS
6	WW_Low_VA; WW_Low_HS; CD_Low_VA; CD_Hill_Al; CD_Low_HS
7	WW_Low_SS; CD_Low_SS; CD_Low_Al
8	WW_Lake_Any
9	WD_Low_HS
10	WW_Hill_VA; CW_Hill_HS; CW_Low_HS; CW_Mount_HS; CW_Hill_SS; CW_Hill_Al; CD_Mount_HS; CW_Mount_Al
11	WW_Low_Al
12	CW_Hill_VA; CW_Low_VA; CW_Low_SS; CD_Hill_HS

Table 3 – REC groups for both classification

REC Variable	REC Values	SSC abbreviation
Climate	Warm-Wet	Warm-Wet (WW)
	Warm-Extremely Wet	
	Warm-Dry	Warm-Dry (WD)
	Cold-Wet	Cold-Wet (CW)
	Cold-Extremely Wet	
	Cold-Dry	Cold-Dry (CD)
Topography (Source of flow)	Lowland	Lowland (Low)
	Lakefed	Lakefed (Lake)
	Hill	Hill (Hill)
	Mountain	Mountain (Mount)
	Glacial Mountain	
Geology	Soft Sedimentary	Soft Sedimentary (SS)
	Plutonic Volcanic	
	Miscellaneous	
	Hard Sedimentary	Hard Sedimentary (HS)
	Alluvium	Alluvium (Al)
	Volcanic Basic	Volcanic (VA)
	Volcanic Acidic	

Appendix 3: National target

The national target is to increase proportions of specified rivers and lakes that are suitable for primary contact (those that are in the blue, green and yellow categories) to at least 80% by 2030, and 90% no later than 2040, but also to improve water quality across all categories.



The categories above represent combined improvements in all regions. For each region, this means reducing the length of specified rivers and lakes in the **red** and **orange** categories, and increasing the length of specified rivers and lakes in the **yellow**, **green** and **blue** categories.

The categories are based on water quality in terms of the two human health attributes, E. coli and cyanobacteria – planktonic in Appendix 2 of this National Policy Statement.

For rivers and lakes, the target categories are same as the *E. coli* table attribute states. However, the categories do not include the 95th percentile of *E. coli*/100 mL numeric attribute state if there is insufficient monitoring data to establish the 95th percentile.

For lakes, the categories are also based on the cyanobacteria – planktonic attribute states, however, to provide additional granularity for tracking improvements over time, the D band has been split into two categories (**orange** and **red**) as follows:

a) **orange** means the lake has between 1.8 and 3.0 mm3/L biovolume of cyanobacteria – planktonic, using an 80th percentile; and

b) **red** means the lake has more than 3.0 mm3/L biovolume of cyanobacteria – planktonic, using an 80th percentile.

For lakes, the lowest category for either *E. coli* or cyanobacteria – planktonic applies.

Appendix 4: Temporary exception for specified freshwater management units

Freshwater management unit	Time until, or period, when exception in clause 3.23 applies