

New Zealand Government



# Topics for Environmental Reporting

## CONSULTATION DOCUMENT

**Citation**

Ministry for the Environment & Statistics New Zealand. 2015. *Topics for Environmental Reporting: Consultation Document*. Available from [www.mfe.govt.nz](http://www.mfe.govt.nz) and [www.stats.govt.nz](http://www.stats.govt.nz).

Published in November 2015 by the  
Ministry for the Environment and Statistics New Zealand

ISBN: 978-0-908339-09-9  
Publication number: 1212

© Crown copyright New Zealand 2015

# Contents

Shaping the future of environmental reporting in New Zealand	5
Environmental reporting in New Zealand	6
Why your input matters	6
Topics	7
What are topics, and what do they do?	7
What do we need to consider when developing topics?	8
What information was used to develop topics?	9
What we would like to know from you	9
Proposed topic list	11
How to make a submission	13
Publishing and releasing submissions	13
Appendix 1: Proposed topics by domain	15
Appendix 2: Objectives of the Environmental Reporting Regulations	21

# Tables

Table 1:	Examples of topics versus statistics	8
Table 2:	Proposed topics for all domains	12
Table 3:	Air pressure and state topics and topic descriptions	15
Table 4:	Atmosphere and climate pressure and state topics and topic descriptions	15
Table 5:	Freshwater pressure and state topics and topic descriptions	16
Table 6:	Land pressure and state topics and topic descriptions	17
Table 7:	Marine pressure and state topics and topic descriptions	18
Table 8:	Impact topics across all domains and topic descriptions	19
Table 9:	Objectives and criteria for the Environmental Reporting Regulations	21

# Figures

Figure 1:	Relationship between the domains, topics and statistics	8
Figure 2:	Step-by-step approach that may help with your submission	10

# Shaping the future of environmental reporting in New Zealand

The Government committed to establishing a nationwide system of environmental reporting as part of our Bluegreen vision for New Zealand. We did so because we believe in the maxim that you manage what you measure. New Zealand more than any other developed country depends on our natural environment for our wealth creating industries, our quality of life, and our international brand yet we were one of the only OECD countries not to have statutory environmental reporting.

We published a proposals paper on a new environmental reporting system, introduced a Bill, and have now passed the new Act. This requires the Ministry for the Environment and Statistics New Zealand to publish a report every six months on a three-yearly cycle. Within this cycle there will be a report on each of the five environmental domains (air, atmosphere and climate, fresh water, land, marine,) and one report which synthesises information from all the domains and the interactions between them.

These environmental reports will include information on a specific list of topics, to be set in regulations. As well as ensuring the key areas are reported on, the topics will also provide consistency and continuity about what will be reported over time.

This consultation is your chance to help determine the topics for each domain and shape what New Zealand's future environmental reporting will look like. We would like your feedback on the draft topics, in particular your suggestions about what topics should be changed, removed, or added, and the reasons why.

Environmental reporting is more complex than measuring demographic or financial statistics. It will take time to refine this system and get the reliable, well-structured and relevant statistics to support a cleaner environment. The Secretary for the Environment and Government Statistician have independently published the first trial report *Environment Aotearoa 2015* in October ahead of this consultation. We encourage submitters on these regulations to review this document to help shape the regulations on topics and the first statutory reports next year.

This new system of regular, independent environmental reporting will help New Zealanders better understand our environmental problems and opportunities, along with their causes and significance. This will enable New Zealanders to have an ongoing national conversation about the environmental issues we face and to help focus the Government, councils and communities on finding long-term, sustainable solutions.

We look forward to receiving your submission.



**Hon Dr Nick Smith**  
Minister for the Environment



**Hon Craig Foss**  
Minister of Statistics

# Environmental reporting in New Zealand

The Environmental Reporting Act 2015 (the Act) passed in September 2015. For the first time, there is a legislative requirement to publish regular, fair, and accurate reports on New Zealand's environment, at arm's length from government. Statistics New Zealand and the Ministry for the Environment will jointly produce these reports, ensuring they are statistically rigorous, independent, and underpinned by the best environmental research and data available.

Reporting will help New Zealanders understand environmental problems and opportunities, along with their causes and impact. This will enable New Zealanders to have an ongoing national conversation about how to address and prioritise the environmental issues we face.

For more information on the Act, see [‘The Environmental Reporting Act 2015 and environmental reporting framework’](#).

The Environmental Reporting Regulations (the regulations) will set the topics to be reported on in environmental reports. This consultation will help the Minister for the Environment and the Minister of Statistics decide which topics to include in the regulations.

## Why your input matters

This is your chance to help shape how we establish a reporting system that is useful to New Zealanders. On page 11, you will find a proposed list of topics. We would like your feedback on these topics, as well as your suggestions about which topics should be changed, removed or added, and reasons why. Your input matters because the topic list will influence:

- what will be measured and reported on over time
- the data and information that will be available to researchers and the public. Publicly funded data, including geospatial data, will be available to the public in open formats in line with the [New Zealand Declaration on Open and Transparent Government](#), and the [New Zealand Government Open Access and Licensing framework](#)
- improvements in future monitoring and data collection. The topics will help identify information gaps and signal where to focus future data improvements.

After submissions close, officials from the Ministry for the Environment and Statistics New Zealand will review submissions, and advise the Minister for the Environment and the Minister of Statistics of any recommended changes to the topic list. Once finalised, the topic list will be recommended by the Minister for the Environment and the Minister of Statistics to be set in regulations. When the regulations are made, they will be published on the [New Zealand Legislation website](#).

You can find more information on how to make a submission on page 13.

**Submissions close at 5.00pm on 23 December 2015.**

# Topics

## What are topics, and what do they do?

Environmental reporting is organised into five domains: air, atmosphere and climate, fresh water, land, and marine. Biodiversity and ecosystems will be reported across domains.

Topics:

- identify the key areas of interest for each domain
- create consistency across domains
- let people know what will be reported on
- ensure continuity of information over time so trends can be assessed.

## What are state, pressures, and impacts, and how do they relate to topics?

Under the Act, topics must fit into one of the following areas:

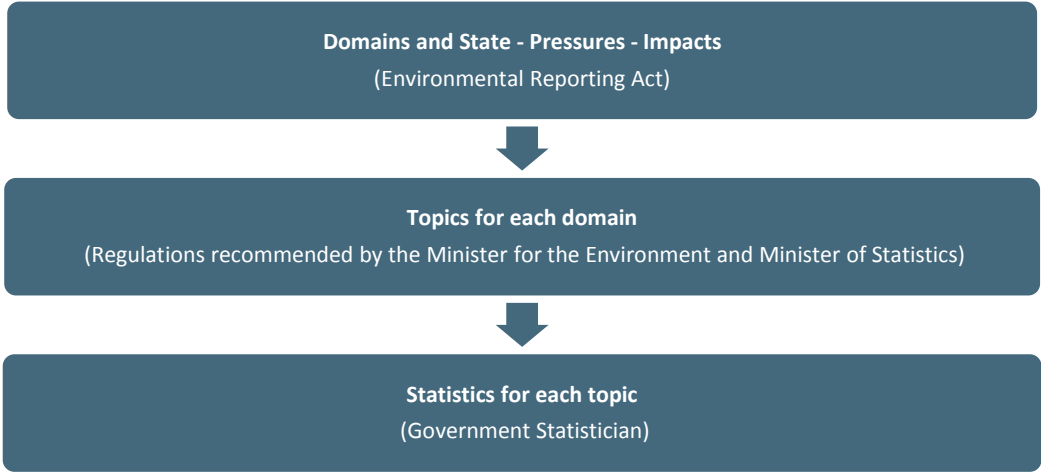
- **State** – the condition of the environment. State topics explain what the characteristics of each domain are, and how are they changing over time. An example from the atmosphere and climate domain might be the ‘state of greenhouse gases’.
- **Pressures** – human activities and natural factors that influence the environment. Pressure topics help explain why the domains are in the state that they are in. For example, ‘pressures from pests, diseases and exotic species’ in the land domain.
- **Impacts** – explain the consequences of the state and changes in the state for New Zealanders. These topics will cover the impacts on ecological integrity, public health, the economy, te ao Māori (the Māori world view), and culture and recreation. For example, ‘impacts on biodiversity and ecosystem processes’.

For further information see [‘A Framework for Environmental Reporting in New Zealand’](#).

## How do domains, topics and statistics fit together?

Topics represent what we want to report on. Each topic is reported on using statistics, which provide the information (data) on each topic. Under the Act, the Government Statistician is responsible for deciding what statistics, methods and procedures will be used to measure each topic. Topics bridge the gap between a domain and statistics.

**Figure 1: Relationship between the domains, topics and statistics**



## What do we need to consider when developing topics?

Topics need to be:

- detailed enough to provide consistency and certainty about what will be reported
- broad enough to cover the main aspects of a domain without leaving gaps.

Topics should also be adaptable, so they can reflect changes in the environment and statistics available over time.

If the topics are too detailed, this may limit the potential statistics that can be used to measure them. Broader topics mean it is more likely that a range of statistics could be reported. The Government Statistician decides the best statistics to measure a topic, which ensures reports are independent from Ministers. The topics should not be a list of the statistics themselves. Table 1 provides some examples of the differences between the two.

**Table 1: Examples of topics versus statistics**

Topic (the ‘what’) – set in regulations	Statistics to measure topics (the ‘how’) – decided by the Government Statistician
A qualitative title that describes an area or issue of interest	A measure of an aspect of a topic
<i>Examples:</i>	<i>Examples:</i>
Impacts on biodiversity and ecosystem processes	Changes in the conservation status of native and endemic animal and plant species
Marine ecosystem processes	Changes in primary productivity
Freshwater quality, quantity and flows	Changes in nitrate leaching

See [Appendix 2](#) for more detail on what was considered when developing topics.



## What are the legal requirements for topics?

The Act sets out legal requirements to make sure that environmental reports are relevant, robust and focused on what New Zealanders need to know about their environment.

Before Ministers can recommend topics to be set in Regulations, they must be sure the topics fulfil the legal requirements in the Act. These require:

- pressure or impact topics to affect significant areas, resources, or numbers of people
- topics to be measured with robust statistical methods
- pressure and impact topics to be closely related to any state topic that it is asserted to affect or to give rise to that impact.

We have considered these requirements when developing the proposed list of topics. When we incorporate feedback received through the submissions process, we will review the list to ensure the topics meet the legal requirements.

## What information was used to develop topics?

We took advice from technical advisory groups (a range of experts from central government agencies, local government, Crown research institutes, and universities), as well as input from experts within Statistics New Zealand and the Ministry for the Environment, to develop the proposed topic list. For more information about the technical advisory groups members, see the [acknowledgments](#) in *Environment Aotearoa 2015*.

We have also drawn on the lessons we learnt while developing *Environment Aotearoa 2015*, released in October 2015, and considered future sources of data to enhance the proposed topic list we are consulting on now. For that reason, the proposed list we are consulting on differs from the topics in *Environment Aotearoa 2015*.

See [New Zealand's Environmental Reporting Series: 2015 topics and provisional statistics](#) for more information about the topics in *Environment Aotearoa 2015*.

## What we would like to know from you

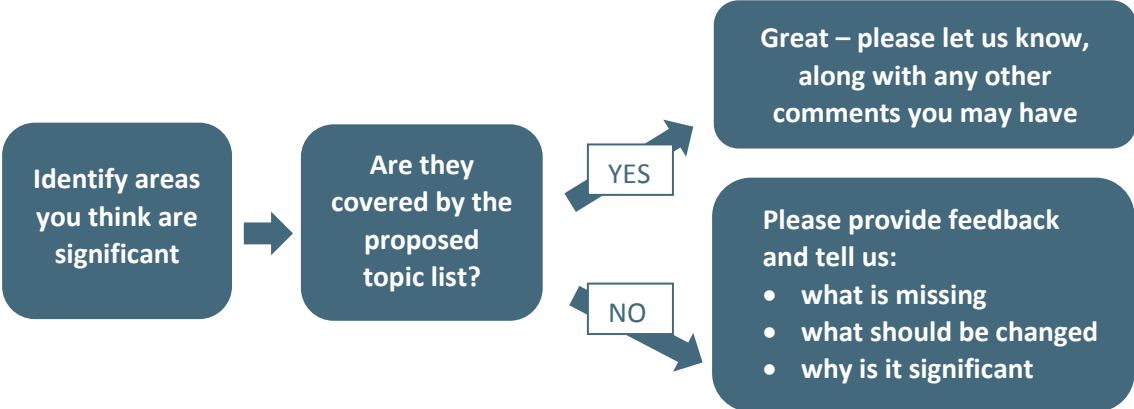
We would like to hear your views on the topic list below. You can find more information on how to make a submission on page 13. We would like to know if the list covers the most significant aspects of each domain. We would also like to know if there is anything included that you think should not be there, and why.

You may find issues of interest to you are encompassed within a broader topic, as in the following examples:

- The distribution of kiwi: there is a land domain topic 'Land species and genetic diversity'. This is broad enough that a statistic for the distribution of kiwi could be reported on based on the proposed topic list.
- The cost to coastal properties as a result of sea level rise: there is an impact topic 'economic impacts to industry and households'. This is broad enough that a statistic to measure cost to coastal properties could be reported on based on the proposed topic list.

We still want to check that we've covered everything that's important, so if you are concerned that something may be missing, please let us know by sending us a submission.

**Figure 2: Step-by-step approach that may help with your submission**



# Proposed topic list

We invite your feedback on the proposed topic list. Table 2 shows the full list of proposed topics.

The questions below are a guide only, and all comments on topics are welcome. To ensure your point of view is clearly understood please explain your rationale.

Please note submissions on how topics should be measured are not being consulted on as this is decided by the Government Statistician.

## Questions

1. Does the proposed topic list in table two cover the significant areas that we should be reporting on for the following areas? Are there any other significant areas we should be reporting on? Why?
  - a. Our environment overall
  - b. The air domain
  - c. The atmosphere and climate domain
  - d. The freshwater domain
  - e. The land domain
  - f. The marine domain
2. Do you think there are any topics that shouldn't be included or should be changed? Which topics? Why?
3. Do you have any further information or comments about the proposed topics you wish the Government to consider?

See Appendix 1 for a full explanation of proposed topics by domain. These explanations are illustrative, to help you understand what could be covered by a topic.

**Table 2: Proposed topics for all domains**

Air topics			
<i>Pressures from</i>	<i>State of</i>	<i>Impacts (all domains)</i>	
<ul style="list-style-type: none"> <li>human activities</li> <li>climate and natural processes</li> <li>physical form of the land environment.</li> </ul>	<ul style="list-style-type: none"> <li>air quality and concentrations of air pollutants.</li> </ul>	<p><b>Ecological integrity</b></p> <ul style="list-style-type: none"> <li>Impacts on biodiversity and ecosystem processes.</li> </ul> <p><b>Public health</b></p> <ul style="list-style-type: none"> <li>Impacts on public health.</li> </ul> <p><b>The economy</b></p> <ul style="list-style-type: none"> <li>Economic impacts:                             <ul style="list-style-type: none"> <li>on industry and households<sup>1</sup></li> <li>on natural resource value, availability and use.</li> </ul> </li> </ul> <p><b>Te ao Māori</b></p> <ul style="list-style-type: none"> <li>Mauri</li> <li>Matauranga</li> <li>Tikanga practice</li> <li>Customary use and kaitiakitanga</li> <li>Taonga species and mahinga kai</li> <li>Wāhi taonga and wāhi tapu</li> <li>Māori land use and cover (land domain only).</li> </ul> <p><b>Culture and recreation</b></p> <ul style="list-style-type: none"> <li>Impacts on culture and recreation and heritage.</li> </ul>	
Atmosphere and climate topics			
<i>Pressures from</i>	<i>State of</i>		
<ul style="list-style-type: none"> <li>natural pressures on climate and atmosphere</li> <li>greenhouse gas emissions</li> <li>land cover and use</li> <li>ozone depleting substances emissions</li> <li>particulate matter emissions.</li> </ul>	<ul style="list-style-type: none"> <li>greenhouse gases</li> <li>climate variables, and how the climate is changing</li> <li>atmospheric ozone</li> <li>particulate matter</li> <li>atmospheric clarity</li> <li>UV intensity.</li> </ul>		
Freshwater topics			
<i>Pressures from</i>	<i>State of</i>		
<ul style="list-style-type: none"> <li>management and resource use</li> <li>waste, litter and other human activities</li> <li>climate and natural processes</li> <li>pests, diseases and exotic species</li> <li>physical form of the land and freshwater environment.</li> </ul>	<ul style="list-style-type: none"> <li>freshwater species and genetic diversity</li> <li>freshwater habitats and sites of significance</li> <li>freshwater ecosystem processes</li> <li>freshwater quality, quantity and flows</li> <li>minerals and energy resources.</li> </ul>		
Land topics			
<i>Pressures from</i>	<i>State of</i>		
<ul style="list-style-type: none"> <li>management and resource use</li> <li>waste, litter and other human activities</li> <li>climate and natural processes</li> <li>pests, diseases and exotic species</li> <li>physical form of the land environment.</li> </ul>	<ul style="list-style-type: none"> <li>land species and genetic diversity</li> <li>land cover, habitats and sites of significance</li> <li>land ecosystem processes</li> <li>land and soil condition and suitability for use</li> <li>minerals and energy resources.</li> </ul>		
Marine topics			
<i>Pressures from</i>	<i>State of</i>		
<ul style="list-style-type: none"> <li>management and resource use</li> <li>waste, litter and other human activities</li> <li>climate and natural processes</li> <li>pests, diseases and exotic species</li> <li>physical form of the marine environment.</li> </ul>	<ul style="list-style-type: none"> <li>marine species and genetic diversity</li> <li>marine habitats and sites of significance</li> <li>marine ecosystem processes</li> <li>marine water quality and ocean acidity</li> <li>sea level, temperature and circulation</li> <li>minerals and energy resources.</li> </ul>		

<sup>1</sup> Industry includes primary industry, goods-producing industry and service-providing industry.

- **Primary industry** is defined as agriculture, forestry and fishing (and services to agriculture, forestry, and fishing) and mining.
- The **goods-producing industry** grouping consists of the manufacturing; electricity, gas, water, and waste services; and construction industries.
- The **service-providing industry** grouping consists of wholesale trade; accommodation and food services; retail trade; transport, postal, and warehousing; information, media, and telecommunications; finance and insurance services; rental, hiring, and real estate services; professional, scientific, technical, and administrative support services; government administration (central and local) and defence; health; education; and other service industries.

# How to make a submission

We welcome your feedback on the proposed list of topics in this consultation document. The questions above are a guide only, and all comments on topics are welcome.

To ensure your point of view is clearly understood, please explain your rationale and provide supporting evidence where appropriate.

There are three ways you can make a submission:

1. Online at [www.mfe.govt.nz/more/consultations](http://www.mfe.govt.nz/more/consultations).
2. Download a copy of the submission form to complete and return to us. This is available at [www.mfe.govt.nz/environment-topics-consultation](http://www.mfe.govt.nz/environment-topics-consultation). If you do not have access to a computer we can post a copy of the submission form to you. Contact us by phoning 04 439 7620 or 04 439 7436.
3. Write your own submission.

If you are writing your own submission please include:

- the title of the consultation (Environmental Reporting Regulations Consultation)
- your name or organisation's name
- postal address
- telephone number
- email address.

**Submissions close at 5.00pm on 23 December 2015.**

## Send submissions to and direct queries to:

Email: [EnvironmentalReportingRegulations@mfe.govt.nz](mailto:EnvironmentalReportingRegulations@mfe.govt.nz)

Postal: Environmental Reporting Regulations Consultation, Ministry for the Environment,  
PO Box 10362, Wellington 6143

Phone: 04 439 7620 or 04 439 7436

## Publishing and releasing submissions

All or part of any written submission (including names of submitters), may be published on the Ministry for the Environment's website, [www.mfe.govt.nz](http://www.mfe.govt.nz). Unless you clearly specify otherwise in your submission, the Ministry will consider that you have consented to website posting of both your submission and your name.

Contents of submissions may be released to the public under the Official Information Act 1982 following requests to the Ministry for the Environment (including via email). Please advise if you have any objection to the release of any information contained in a submission and, in particular, which part(s) you consider should be withheld, together with the reason(s) for withholding the information. We will take into account all such objections when responding to

requests for copies of, and information on, submissions to this document under the Official Information Act.

The Privacy Act 1993 applies certain principles about the collection, use and disclosure of information about individuals by various agencies, including the Ministry for the Environment. It governs access by individuals to information about themselves held by agencies. Any personal information you supply to the Ministry in the course of making a submission will be used by the Ministry only in relation to the matters covered by this document. Please clearly indicate in your submission if you do not wish your name to be included in any summary of submissions that the Ministry may publish.

# Appendix 1: Proposed topics by domain

Below is the full list of proposed pressure and state topics by domain, followed by the impact topics across all domains, with examples. These explanations are illustrative, to help you to understand what could be covered by a topic.

**Table 3: Air pressure and state topics and topic descriptions**

Pressure topics		
Topic		Examples of what could be covered by this topics
Pressures from:	<b>Human activities</b>	Emissions of air pollutants from key human activities, including residential emissions (for example, burning wood or coal for home heating), transport, industrial activities – including activities in the primary production industry.
	<b>Climate and natural processes</b>	Contribution of natural substances and meteorological conditions to New Zealand’s air quality.
	<b>Physical form of the land environment</b>	Contribution of the shape of the land to the concentrations of air pollutants.
State topics		
Topic		Examples of what could be covered by the topic
State of:	<b>Air quality, and concentrations of air pollutants</b>	Concentrations of air pollutants in New Zealand that affect air quality, many of which can impact human health. This includes particulate matter in New Zealand’s air; gases of concern in New Zealand’s air such as carbon monoxide, sulphur dioxide, nitrogen dioxide and ground-level ozone; metals of concern in New Zealand’s air, such as arsenic and lead; organic compounds of concern in New Zealand’s air, such as benzo(a)pyrene and benzene.

**Table 4: Atmosphere and climate pressure and state topics and topic descriptions**

Pressure topics		
Topic		Examples of what could be covered by the topic
Pressures from:	<b>Particulate matter emissions</b>	Emissions of particulate matter that can absorb light or heat and therefore affect climate.
	<b>Land cover and use</b>	Land cover and use, for example through land-use change and forestry activities, affect the exchange of the greenhouse gas carbon dioxide in the carbon cycle between the land environment and the atmosphere.
	<b>Greenhouse gas emissions</b>	Emissions of gases that absorb infrared radiation and contribute to the warming of the planet. This includes carbon dioxide, which has high concentrations and emissions internationally; methane, which is an important part of New Zealand’s greenhouse gas emissions; and other gases, such as nitrous oxide.
	<b>Natural pressures on climate and atmosphere</b>	The effect that natural pressures have on the state of New Zealand’s atmosphere and climate. For example this may include: <ul style="list-style-type: none"> <li>Substances that absorb or scatter UV light, and therefore change the amount of UV light that reaches New Zealand.</li> <li>Variations in atmospheric circulations, which drive the climate New Zealand experiences. For example variations in the El Niño Southern Oscillation, as indicated through the presence of El Niño or La Niña conditions.</li> </ul>

Pressure topics		
		<ul style="list-style-type: none"> <li>The intensity of the radiation from the sun that enters the stratosphere. This is dependent on the distance, location and orientation of the Earth relative to the sun.</li> <li>Sea temperature, which plays an important role in determining the climate as the ocean exchanges heat directly with the atmosphere. This can determine how much moisture is taken up by the air, as well as atmospheric circulations.</li> </ul>
	<b>Ozone depleting substances emissions</b>	Emissions of substances, such as CFCs, that can destroy ozone in the ozone layer, and the pressure they apply to ozone levels over New Zealand. The ozone layer in the stratosphere protects the Earth from damaging UV rays.
State topics		
	<i>Topic</i>	<i>Examples of what could be covered by the topic</i>
State of:	<b>Greenhouse gases</b>	Concentrations of greenhouse gases in the atmosphere, such as carbon dioxide, which has high concentrations internationally; methane, which is an important part of New Zealand's greenhouse gas emissions; nitrous oxide and carbon monoxide. Greenhouse gases absorb infrared radiation and hence contribute to the warming of the planet.
	<b>Atmospheric ozone</b>	Concentration of atmospheric ozone over New Zealand. Ozone levels determine the amount of UV light that falls onto the Earth's surface.
	<b>Particulate matter</b>	Concentrations of particulate matter that absorb or scatter light and heat and so affect our climate.
	<b>Climate variables, and how climate is changing</b>	Measurement of climate variables such as New Zealand's national average temperature, and other temperature measurements for example annual number of frosts days and warm days; precipitation (rainfall, snowfall, sleet and hail); sunshine hours; wind gusts; occurrence of extreme weather (for example, extreme wind, rainfall, snow, and thunderstorms). This topic also includes measures of how these climate variables are changing, such as trends and measurement of changes to aspects of the environment that are dependent on climate, such as glaciers.
	<b>UV intensity</b>	Intensity of the solar radiation emitted from the sun (in the form of UV light) that reaches New Zealand. UV light is important for life, but when levels are too high this can cause material deterioration, sun burn, cancer and death.
	<b>Atmospheric clarity</b>	Measurement of how clear New Zealand's atmosphere is.

**Table 5: Freshwater pressure and state topics and topic descriptions**

Pressure topics		
	<i>Topic</i>	<i>Examples of what could be covered by the topic</i>
Pressures from:	<b>Pests, diseases and exotic species</b>	Information about the occurrence, distribution and diversity of introduced and exotic species, pests, and disease in the freshwater environment.
	<b>Management and resource use</b>	<p>How management and resources use cause pressure on the state of the freshwater environment. This may include:</p> <ul style="list-style-type: none"> <li>how catchment land use and management influences the condition of the freshwater environment that it drains to, for example the extent of riparian protection</li> <li>abstractions and diversions of fresh water, which cause changes in the state of hydrology, and the amount of water available to support economic, recreational and environmental values</li> <li>taking of freshwater species for recreational, commercial and customary uses.</li> </ul>



Pressure topics		
		This topic will only address management and resource use that may exert pressure on the freshwater environment.
	<b>Waste, litter and other human activities</b>	How waste, litter and other human activities cause pressure on the state of the freshwater environment. For example diffuse and point sources and pathways of discharges to fresh water, including nutrient leaching such as nitrogen and phosphorus leaching.
	<b>Physical form of the land and freshwater environment</b>	The landscape and form of freshwater catchments. This includes the shape of the land (topography) and geology.
	<b>Climate and natural processes</b>	Pressures on the freshwater environment from climatic and natural events such as rainfall, air temperature and the frequency and scale of extreme events.
State topics		
<i>Topic</i>	<i>Examples of what could be covered by the topic</i>	
<b>State of:</b>	<b>Freshwater ecosystems, habitats, sites of significance</b>	Freshwater ecosystems and habitats (for example, river beds and wetlands) and sites of significance.
	<b>Freshwater species and genetic diversity</b>	Occurrence, abundance and genetic diversity of freshwater species.
	<b>Freshwater ecosystem processes</b>	Key measures of the biological productivity of lakes or rivers, which help measure how well the ecosystems are functioning.
	<b>Freshwater quality, quantity and flows</b>	Measures of freshwater quality, quantity (the volume of water), and flows (how quickly the water is flowing). Key freshwater quality measures include the chemical condition of the water, for example concentrations of nutrients, such as nitrogen and phosphorus; the physical condition of the water, for example the amount of sediment it carries and how clear it is; and the concentration of harmful organisms that contaminate water and can affect human and ecosystem health (for example, <i>Escherichia coli (E.coli)</i> ).
	<b>Minerals and energy resources</b>	The state of energy and mineral stocks in the freshwater environment.

**Table 6: Land pressure and state topics and topic descriptions**

Pressure topics		
<i>Topic</i>	<i>Examples of what could be covered by the topic</i>	
<b>Pressures from:</b>	<b>Management and resource use</b>	How management and resource use causes pressure on the state of New Zealand’s land environment, and how this is changing. This could include pressure that results from how energy and minerals are extracted. This topic will only address management and resource use that may exert pressure on the land environment.
	<b>Waste, litter and other human activities</b>	How waste, litter and other human activities are causing pressure on New Zealand’s land, for example the amount of waste and litter in the land environment.
	<b>Climate and natural processes</b>	The climate conditions and natural events that affect the condition and physical terrain of the land on which various ecosystems and species depend. For example, the effect that the water cycle has on the land, including the effect of rainfall, surface and groundwater stocks and flows.
	<b>Physical form of the land environment</b>	The landform that underlies and shapes the land domain.

	<b>Pests, diseases and exotic species</b>	Covers the occurrence, distribution and incursions of introduced and exotic species, pests and disease in the land environment.
State topics		
	<i>Topic</i>	<i>Examples of what could be covered by the topic</i>
State of:	<b>Land species and genetic diversity</b>	Information about the occurrence, distribution and diversity of indigenous and exotic land species and their genes.
	<b>Land ecosystem processes</b>	How well land ecosystems are functioning, and the ecosystem processes involved. For example the amount of carbon stored in land ecosystems.
	<b>Land cover, habitats and sites of significance</b>	The different forms of vegetation and other land cover in New Zealand, including indigenous forests, wetlands, production forest, pasture, urban and infrastructure, and how this has changed over time. The state of sites of significance, such as cultural heritage sites.
	<b>Land and soil condition and suitability for use</b>	This includes measures of soil erosion (both the erosion status of land as well as erosion susceptibility), soil health (the physical, biological and chemical condition of soils), and what our land is suitable to be used for.
	<b>Minerals and energy resources</b>	The size and distribution of mineral deposits around New Zealand.

**Table 7: Marine pressure and state topics and topic descriptions**

Pressure topics		
	<i>Topic</i>	<i>Examples of what could be covered by the topic</i>
Pressures from:	<b>Climate and natural processes</b>	How climate and natural processes affect the marine environment, for example temperature and climate oscillations such as the El Niño Southern Oscillation.
	<b>Management and resource use</b>	The pressures on the marine environment resulting from management and resource use, for example extraction of physical and biological marine resources (for example through fishing, or oil, gas and mineral extraction), as well as non-extractive use (such as shipping and recreation). This topic will only address management and resource use that may exert pressure on the marine environment.
	<b>Waste, litter and other human activities</b>	The pressures resulting from waste, litter and other human activities, for example discharges to the marine environment, marine debris and modification of oceanic and coastal benthic habitats (for example by bottom trawling or coastal engineering).
	<b>Physical form of the marine environment</b>	Changes in oceanography such as temperature, currents and waves.
	<b>Pests, diseases and exotic species</b>	The occurrence and incursions of introduced and exotic species, pests and disease in the marine domain.
State topics		
	<i>Topic</i>	<i>Examples of what could be covered by the topic</i>
State of:	<b>Marine species and genetic diversity</b>	The numbers, distribution, range and conservation status and genetic diversity of marine species such as seabirds, sharks and marine mammals.
	<b>Marine ecosystems, habitats, sites of significance</b>	The condition, distribution and range of marine ecosystems, habitats and sites of significance.
	<b>Marine ecosystem processes</b>	Marine ecosystem processes such as such as biogenic habitats (habitats created by living organisms for example mangroves, sea grass beds, or mussel beds), primary productivity and food chains.

<b>Marine water quality and ocean acidity</b>	The physical and chemical water health and quality in oceanic, coastal and estuarine areas, for example concentrations of contaminants such as heavy metals, and ocean acidity.
<b>Sea level, temperature, and circulation</b>	The physical and chemical properties of oceanic waters related to sea temperature, sea level and circulation.
<b>Minerals and energy resources</b>	The stocks of seabed oil and mineral resources; in the future this could also include renewable energy resources such as wave or tidal power.

**Table 8: Impact topics across all domains and topic descriptions**

<b>Impact topics</b>	
<i>Topic</i>	<i>Examples of what could be covered by the topic</i>
<b>Impacts on biodiversity and ecosystem processes</b>	<p>The impact the state of the environment has on New Zealand’s biodiversity and ecosystem processes. For example:</p> <ul style="list-style-type: none"> <li>air pollutants can settle and accumulate in habitats, such as heavy metals in waterways and alter ecosystem processes (air domain)</li> <li>rainfall can impact how ecosystems are able to function because rainfall affects the ability of plants to grow and support the wider ecosystem (atmosphere and climate domain)</li> <li>the conservation status of plant and animal species, or number known to be threatened or at risk of extinction (freshwater, land and marine domains).</li> </ul>
<b>Impacts on public health</b>	<p>The occurrence of health effects that are related to the state of the environment. For example:</p> <ul style="list-style-type: none"> <li>the health effects of New Zealand’s air quality (air domain)</li> <li>the occurrence of skin cancers (which is related to UV exposure), the occurrence of salmonella and cryptosporidium (related to temperature, as food- and water-borne diseases are expected to increase with increasing temperature), and influenza (related to temperature) (atmosphere and climate domain)</li> <li>water-borne diseases such as <i>Campylobacter</i> and <i>Giardia</i> can have significant human health effects (freshwater domain)</li> <li>how the condition and management of land impacts food safety (land domain)</li> <li>illness from faecal contamination of bathing waters or toxic algae in shellfish (marine domain).</li> </ul>
<b>Economic impacts on industry and households</b>	<p>The economic impact the state of the environment has on industry and households. For example:</p> <ul style="list-style-type: none"> <li>lost work days due to the health impacts of air quality (air domain)</li> <li>measurement of the economic production of New Zealand, focusing on the aspects of New Zealand’s primary industry that are strongly dependent on the atmosphere and climate, including agricultural production (atmosphere and climate domain)</li> <li>impacts on agricultural production and forestry in the primary industry sector, which are dependent on fresh water (freshwater domain)</li> <li>for New Zealand’s food production in the primary industry sector, the monetary value of food produced on the land and the added value to the economy (land domain)</li> <li>the economic impacts caused by coastal erosion and storms that affect housing and infrastructure around the coastline (marine domain).</li> </ul>
<b>Economic impact on natural resource value, availability and use</b>	<p>The economic impact the state of the environment has on natural resource value, availability and use. For example:</p> <ul style="list-style-type: none"> <li>low precipitation can result in reduced availability of water as a resource, which has economic impacts, for example for the agriculture sector). Rain, wind and</li> </ul>

Impact topics	
	<p>sun as resources are all important for the economy, for example for energy generation (atmosphere and climate domain)</p> <ul style="list-style-type: none"> <li>• the effect of the freshwater environment on urban water use, including drinking water and industrial use (freshwater domain)</li> <li>• the extent of highly productive soils available for food production (land domain).</li> </ul>
<b>Mauri</b>	Mauri is the life principle, vital essence, and the essential quality and vitality of a being or entity, for example an ecosystem. It can be seen as a measure of impacts on the te ao Māori (Māori world view), due to changes in the state of the environment.
<b>Matauranga</b>	Traditional Māori knowledge (Matauranga Māori) exists about the environment. An impact of the state of the environment is the ability to retain and transmit Matauranga Māori.
<b>Tikanga practice</b>	Tikanga practice is the operation of kaitiakitanga 'stewardship' through traditional protocols and practices. For example the size of customary take of mahinga kai (traditional food) or the use of rahui (closures). Tikanga practice is based on and developed from Matauranga Māori. The retention and development of tikanga practice is important to Māori identity and well-being.
<b>Customary use and kaitiakitanga</b>	Kaitiakitanga/stewardship governs customary use of resources and access to sites ensuring, among other things, the sustainability and integrity of the resources and sites. Customary use reinforces tikanga practice.
<b>Taonga species and mahinga kai</b>	This refers to treasured indigenous species and traditional food sources. Of concern is the impact of the state the environment on taonga species and mahinga kai (Including abundance, health, mauri, access). This includes native birds, plants and animals of special significance to Māori, and traditional resources and the places where those resources are gathered.
<b>Wāhi taonga and wāhi tapu</b>	This refers to important geographic areas and sacred sites. Of concern is the impact of the state of the environment on the integrity and access to wahi taonga and wāhi tapu.
<b>Māori land use and cover (land domain only)</b>	The type and condition of Māori land, and vegetation on Māori land, and the land's current use.
<b>Impacts on culture and recreation</b>	<p>The impact the state of the environment has on the cultural and recreational use of our environment, for example:</p> <ul style="list-style-type: none"> <li>• through air clarity and visibility (air domain)</li> <li>• damage caused to heritage sites from extreme weather events (atmosphere and climate domain)</li> <li>• health risks for recreation, for example swimming, freshwater swimming closures or alerts, and popularity of freshwater activities such as freshwater fishing (freshwater domain)</li> <li>• fishing and boating (marine domain).</li> </ul>

# Appendix 2: Objectives of the Environmental Reporting Regulations

## Objectives and criteria

Topics will guide what environmental reporting will cover. Topics are intended to bridge the gap between a domain (set in legislation) and a statistic (set by the Government Statistician). Topics also define the scope of reporting within each domain, as well as the environment overall.

Table 9 sets out the high-level objectives that have been used to guide the development, selection and consultation on topics. The table is set out in a hierarchy, with the most important and critical objectives first.

**Table 9: Objectives and criteria for the Environmental Reporting Regulations**

Objective	Description/criteria for assessment
The topics set the scope of reporting, and fulfil the legislative criteria (section 19 (2)).	<p>This will be achieved by following the legislative requirements set out in the Act.</p> <p><i>Section 19(2)(a): pressure topic or impact topic affects significant areas, resources, or numbers of people</i> – Environmental reporting does not aim to catalogue all measures of state, pressures and impacts for each domain; rather, just those that are most significant to each domain on a national scale. A topic may be deemed to be significant due to its magnitude (measured or perceived), spatial extent, rate of change, impact upon society, or significance to Māori. Any topic that is included must meet at least one of these criteria.</p> <p><i>Section 19(2)(b): topic can be measured with robust statistical methods</i> – The topics to be reported should be able to be quantified using a statistically robust measure, and this would need to be demonstrated. Topics for which a suitable measure is unlikely to be developed in the next 5 to 10 years will not be included in reporting.</p> <p><i>Section 19(2)(c): pressure topic is closely related to any state topic that it is asserted to affect and section 19(2)(d): impact topic is closely related to any state topic that is asserted to give rise to that impact</i> – Any pressures and impacts reported on must have a demonstrable relationship to the change in state of that domain. This ensures consistency and coherency across the framework. Environmental reporting will not be used to statistically determine or prove relationships between pressures, impacts and state, but will instead rely on external research to establish those relationships.</p>
The topic list reflects expert opinion, and forms the basis of a scientifically credible report.	The topics are scientifically informed and technically sound. This is achieved by there being a clear link between technical expert input/advice and the final list, and will therefore help form the scope for a credible report.
The topic list is broad enough to provide guidance to the Government Statistician, without restricting the autonomy of the Government Statistician.	The topic list will provide guidance to the Government Statistician to fulfil their role, without restricting their autonomy. This is achieved by the topics being not so specific that they detail/require the measure for the topic, so that the Government Statistician is able to fulfil their role in determining how to measure topics, on advice from Statistics New Zealand and informed by the Ministry for the Environment.

Objective	Description/criteria for assessment
<p>The collective topic list, within and across domains, comprehensively covers the environment. The list is adaptable and durable as values and measures for topics change over time.</p>	<p>The topic list covers the significant areas of the environment without any gaps, within and across all domains. This will mean that topics are adaptable and durable.</p> <p>This will be achieved by ensuring that the list is appropriate for current and future reporting, and including:</p> <ul style="list-style-type: none"> <li>• balance of topics across the state-pressures-impacts framework and across the impact categories</li> <li>• similar or linked comparable topics across domains.</li> </ul>
<p>The topics signal the future direction for the scope of environmental reporting long term, and drive data improvements.</p>	<p>The topic list is comprehensive, and signals the strategic direction for future environmental reporting.</p> <p>This will be achieved by including all topics required for robust environmental reporting, regardless of whether there is currently data available to populate them or not. This will identify gaps in the data currently available and areas for data improvement for future reporting.</p>