

# Regulatory Impact Statement: proposed amendments to the NES-DW

## Coversheet

Purpose of document	
Decision sought:	Final Cabinet decisions to amend the Resource Management (National Environmental Standards for Sources of Human Drinking Water) Regulations 2007
Advising agencies:	Ministry for the Environment
Proposing Ministers:	Associate Minister for the Environment
Date finalised:	14 November 2022
Problem definition	
<p>The health, social and economic impacts of water contamination and waterborne illnesses are significant. The protection of source water is of paramount importance and is regulated through the National Environmental Standards for Sources of Human Drinking Water (NES-DW). The protection of source water is the first barrier in the multi-barrier approach that we take in protecting our drinking water.</p> <p><b>Significant problems</b> exist with the current NES-DW as identified in the Havelock North Drinking Water Inquiry (HNI) and in the subsequent Ministry for the Environment review. It was determined that the current NES-DW regulations had not achieved its intended purpose of protecting sources of drinking water and that the NES-DW was:</p> <ul style="list-style-type: none"> <li>• limited in its scope and application</li> <li>• complex and technically challenging to apply</li> <li>• inconsistently applied across the country.</li> </ul>	
Executive summary	
<p>The NES-DW sets national direction to protect sources of drinking water from contamination. The protection of source water is the first barrier in a multi-barrier approach to protect our drinking water. The NES-DW is an important part of a much wider and complex regulatory system for drinking water.</p> <p>Issues have been identified in the drafting, scope and implementation of the existing NES-DW meaning that the existing NES-DW is not achieving its objective of protecting sources of human drinking water as well as it should be. To address the issues with the NES-DW and to strengthen our protection of sources of human drinking water we have looked at the following three proposals:</p> <ul style="list-style-type: none"> <li>• Proposal One: mapping at-risk source water areas</li> <li>• Proposal Two: better management of activities that pose a risk to source water</li> <li>• Proposal Three: appropriate scope of the NES-DW.</li> </ul> <p>Through Proposal One, we aim to ensure more consistent source water information and risk identification across the country. Subsequently, and through Proposal Two, we seek to enable clarity for managing identified activities that pose a risk to source water, therefore addressing issues with complexity and application.</p>	

We went out for public consultation and engaged with our stakeholders on the proposed amendments to the NES-DW. Based on the feedback we received through submissions and through our broader engagement we have significantly refined the three proposals and have modified or added options under each proposal area.

The three proposals and the available options have significant interdependencies with one another and must work together to form a well-functioning NES-DW. The viable options under each of the proposals have been brought together to form three potential packages. These three packages have been assessed against our criteria.

Of the three packages, Package Two is our preferred package. The main ways in which Package Two would amend and strengthen the NES-DW is outlined in the table below:

<p>Proposal One – mapping of Source Water Risk Management Areas (SWRMA)</p>	<p>Regional councils will be required to map Source Water Risk Management Areas by three levels of risk – these will be known as SWRMA 1, SWRMA 2 and SWRMA 3. These are areas where activities have a higher likelihood of affecting source water. SWRMA 1 and 2 will be mapped by using either a standard method (fixed size) or a more bespoke method. SWRMA 3 must always be mapped as the entire catchment above the intake.</p>
<p>Proposal Two – better management of activities that pose a risk to source water</p>	<p>The intent of the existing activity controls of the NES-DW are to be retained including the requirement of regional councils to not permit or consent activities that would cause a breach of the Drinking Water Standards after existing treatment.</p> <p>In addition to this is targeted activity controls for specific high-risk activities:</p> <ul style="list-style-type: none"> <li>• In SWRMA 1, we propose to prohibit certain new contaminant discharges eg, wastewater, while providing minimum requirements for other activities eg, discharge of stormwater or bed disturbance.</li> <li>• In SWRMA 2, the intent is to ensure regional councils actively manage high-risk activities of new bore installation and earthworks that disturb aquifers, and certain direct discharges of contaminants to water, through the consent process.</li> </ul>
<p>Proposal Three – appropriate scope of the NES-DW</p>	<p>Continue to cover all registered supplies that serve no fewer than 501 people.</p>

Package Two has been identified as our preferred option as it most closely meets the primary objective to effectively support source water protection by reducing the likelihood of the occurrence of waterborne illnesses from drinking water contamination in a way that is proportionate to the scale, complexity, and risk profile of each drinking water supply.

Package Two will achieve this by improving the wider understanding and mapping of risk areas and providing better management of risky activities with some clearer activity controls. It also balances these improvements in a way that is fair and reasonable and is

proportionate to the risk. It minimises regulatory burden, onerous requirements and high costs on small supplies or rural communities.

If no amendments are progressed, we consider that changes already underway across the wider regulatory system are likely to result in improved source water protection, meaning that the counter-factual is a viable choice. However, it does not address the concerns that the NES-DW is complex to understand and challenging to apply. All three packages would likely see a significant improvement in promoting better understanding and application of the NES-DW.

While there is overall support to strengthen the NES-DW and the protection of our drinking water, there are some polarised views on how to achieve this. Some groups think the proposed amendments to the NES-DW go too far and that additional requirements and activity controls will be overly onerous and could result in unintended consequences while others think the proposed changes don't go far enough. Some of those that think it doesn't go far enough suggest that the NES-DW be amended to impose stricter regulations on land use and that it should be expanded to cover all drinking water supplies including domestic self-supplies.

The analysis of the options and packages has sought to achieve the right balance between effectiveness and feasibility. The proposed packages show viable options that are an improvement to the counter-factual and that provide appropriate protections that are proportionate to the risk.

The analysis is also based on the retention of the existing NES-DW requirement as a baseline, that regional councils cannot allow activities that may cause a water supply to breach the Drinking Water Standards after existing treatment.

## Limitations and constraints on analysis

### Assumptions

For our cost benefit analysis, we have assumed compliance with existing regulations by regional councils. We have some evidence that current implementation is variable.

### Data gaps or limitations

There is limited data available on smaller water suppliers. The proposed amendments explore the expansion of the NES-DW from registered suppliers servicing no fewer than 501 people, to all registered supplies under the Water Services Act (WSA). This was originally based on data suggesting that the number of unregistered water suppliers was roughly 5,000. Taumata Arowai now estimates there are 57,000 – 97,000 small suppliers that will need to be registered under the WSA. This estimate has been provided by BECA who identified their own limitations and could not verify with confidence or confirm the accuracy of this estimate.

These small drinking water supplies have been provided four years to register, and until they are registered there is no certainty over their number and location. This has significant implications for the evidence base used to develop the proposals in this RIS, the costs of the proposed amendments, and how changes might be implemented.

The uncertainty over the number of small supplies and the November 2025 registration deadline encourages caution when considering increased regulation through the NES-DW until more is known.

## Scope and alignment to other policy

Preferred solutions to amend the NES-DW are limited to the scope provided to national direction instruments under sections 43 and 43A of the RMA. Any overriding policy direction or merging of freshwater national direction instruments will be considered as part of Resource Management System Reform.

The proposed amendments to the NES-DW recognise the need for improved alignment with the legislation and regulations of the Water Services Act 2021, the Water Services Entities Bill, and the new water services regulator Taumata Arowai.

## Cost benefits

It is challenging to estimate financial costs and benefits of national direction accurately due to variability in the quality of current RMA plans and consent frameworks. There is also no easy way of predicting how regional councils will exercise their discretion in consent decisions, and what mitigation measures regional councils will require from resource users to manage risks to source waters.

## Consultation

Over the past 2 years, officials have sought feedback on the proposals through regular engagement with councils, water suppliers, iwi, primary sector, Government agencies and other key organisations. Early in 2022, a formal 8-week public consultation was undertaken, as well as further targeted engagements with key stakeholders. The proposals have been refined based on stakeholder engagement, submission feedback, analytical work and technical advice.

Following our formal consultation, we have also engaged further with iwi, regional councils and other Government agencies.

We also worked with a Technical Advisory Group made up of academic and industry experts who provided advice and guidance on the initial proposals.

## Responsible manager

Jo Gascoigne  
Director  
Water and Land Use Policy  
Ministry for the Environment



14/11/22

## Quality assurance

Reviewing agency: Ministry for the Environment

Panel assessment & comment: The Ministry for the Environment Regulatory Impact Analysis Panel has reviewed this Regulatory Impact Statement (RIS) and considers it meets the quality assurance criteria for Regulatory Impact Assessments.

The RIS clearly sets out the context for the issues that it analyses and shows adequate consultation with affected parties.

Furthermore, the RIS canvasses an appropriate selection of proposals and sub-options to amend the NES-DW and strengthen source water protection in Aotearoa New Zealand.

The Panel found the impact and cost-benefit analyses to be both robust and comprehensive. While the RIS is quite long and in parts highly technical, overall the Panel considers it to be convincing, and more than sufficient to support informed and effective decision-making from Ministers.

Proactively released under the Official Information Act

## Section 1: Diagnosing the policy problem

### What is the context behind the policy problem and how is the counterfactual expected to develop?

#### Overview of source water protection

1. The safety of drinking water is reliant on having multiple barriers to contamination, across the water supply system. The approach recognises that while individual barriers may not be able to completely prevent or remove contamination, and therefore protect public health, together the barriers work to provide greater assurance that the water will be safe to drink over the long term.
2. Source water protection is the first step in multi-barrier protection and plays a critical role in protecting drinking water as it's not always possible to remove contaminants through the treatment process. Source water protection is also important for giving effect to Te Mana o te Wai,<sup>1</sup> as it addresses first and foremost, the health of the water bodies from which drinking water is extracted.
3. The Resource Management (National Environmental Standards for Sources of Human Drinking Water) Regulations 2007 (**NES-DW**) is the current regulatory tool solely intended for the protection of source water in New Zealand. The NES-DW aims to reduce the likelihood of source water contamination, and therefore reduce the risk of acute illness, and associated economic and societal costs, due to contaminated drinking water.
4. The protection of source water and the NES-DW was found to have 'significant problems' in the Havelock North Inquiry (HNI). The HNI was conducted in response to the 2016 Havelock North drinking water contamination incident and initiated the wider Three Waters review and reforms that have substantially changed the drinking water regulatory framework in New Zealand.

#### The current source water protection system

5. The Ministry for the Environment (**MfE**) administers the Resource Management Act 1991 (**RMA**). The RMA is the primary legislation that manages resource use and regulates activities which could have an adverse effect on source water quality.
6. The NES-DW is secondary legislation (under the RMA), which sets further activity regulation intended to protect source water. The NES-DW was introduced in 2007 to provide first barrier protection to drinking water sources, alongside the introduction of drinking water regulations to the Health Act 1956 (Part 2A). These legislative tools were intended to expressly provide for the protection and management of drinking water.

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1 Te Mana o te Wai refers to the fundamental importance of water and recognises that by protecting the health and well-being of freshwater, it protects the health and well-being of people and environments.

7. The requirements of the current NES-DW are summarised in Box 1.

**Box 1**

**Regulations 7 and 8:** A regional council cannot grant water or discharge permits upstream of a source water abstraction point if the activity is likely to impact a water supplier's ability to meet the Drinking-Water Standards for New Zealand 2005 (Revised 2018) (**DWSNZ**),<sup>2</sup> after that water has been treated.

**Regulation 10:** A regional council cannot permit certain activities upstream of a source water abstraction point if the activity is likely to impact a water supplier's ability to meet the DWSNZ after that water has been treated. Those activities include use of land, and river and lake beds, as well as those relating to water and discharges.

*Regulations 7, 8 and 10 only apply to registered drinking water supplies servicing no fewer than 501 people.*

**Regulation 12:** Any consent authority<sup>3</sup> must, where any activity could significantly impact source water quality through an emergency event, impose a condition on the consent requiring the water supplier is notified.

*Regulation 12 applies to any registered water supply servicing no fewer than 25 people.*

*These supplier sizes aligned with categories from the now repealed Part 2A of the Health Act.*

8. The application of NES-DW regulations 7, 8 and 10 are dependent on the existing water treatment capabilities of the water supplier, and whether water suppliers can remove certain contaminants to the necessary degree to achieve compliance with the DWSNZ. When deciding if the regulations apply, regional councils need an understanding of the treatment capabilities of each individual water supply.
9. These regulations currently apply to registered drinking water supplies serving no fewer than 501 people with drinking water (for not less than 60 days each calendar year). There are notification requirements for supplies serving no fewer than 25 people.
10. Figure 1 illustrates how the NES-DW applies to registered drinking water supplies serving different population sizes.
11. As of October 2022, the Taumata Arowai water supply register indicates the full NES-DW regulations apply to 276 registered drinking water supplies<sup>4</sup> as these supplies serve drinking water to no fewer than 501 people. This register also includes data on 1,029 smaller suppliers (ie, those serving drinking water to fewer than 501 people) who are registered water suppliers, however, only regulation 12 (notification requirements) apply.
12. While the NES-DW sets the national direction for source water protection, regional plans can and do include rules that are more stringent than those required by the NES-DW.

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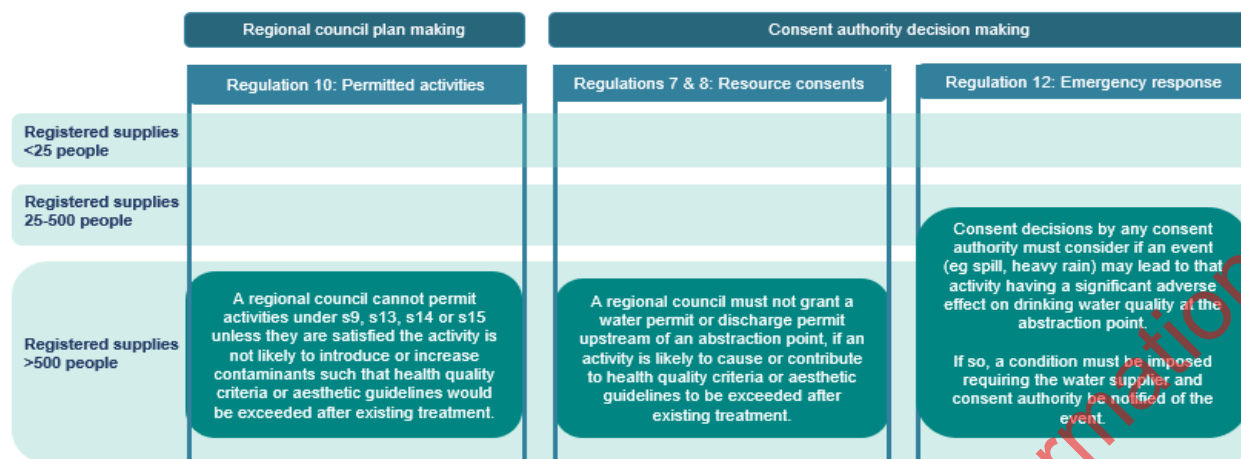
2 On 14 November 2022, the Ministry of Health Drinking-Water Standards for New Zealand 2005 (Revised 2018), will be replaced by the Water Services (Drinking Water Standards for New Zealand) Regulations 2022 developed by Taumata Arowai under the Water Services Act 2021.

3 Including city and district councils, as well as regional councils.

4 Does not include rainwater supplies.



Figure 1: NES-DW application to drinking water supplies based on population size



### The wider drinking water regulatory framework

13. The wider drinking water legislative framework involves various agencies who are responsible for different pieces of legislation. While MfE is responsible for administering the RMA and NES-DW, the Department of Internal Affairs (DIA), the Ministry of Health (MoH) and Taumata Arowai all have roles in how drinking water management is regulated.

#### *The Three Waters Review and the Havelock North Inquiry (HNI)*

14. The 2016 Havelock North drinking water contamination incident, which resulted in an estimated 6260 to 8320<sup>5</sup> cases of campylobacteriosis (a type of gastroenteritis), and four deaths, initiated a Government review of the ‘three waters’ regulatory system.<sup>6</sup> The subsequent Havelock North Inquiry (HNI) found the drinking water regime to be fragmented and identified various issues with the regulatory regime, including ‘significant problems’ with the NES-DW and the protection of source water.
15. The Three Waters Review resulted in the establishment of a new dedicated regulator, Taumata Arowai, the introduction of the Water Services Act 2021 (WSA) and the repealing of the Health (Drinking Water Amendment) Act 2007. The Government is also reforming how three waters services are delivered. The Water Services Entities Bill, which establish four water service entities to provide water services, is currently before Select Committee.

#### *The Water Services Act 2021 (WSA)*

16. The WSA is the primary legislation that sets the requirements that drinking water suppliers must meet to ensure they provide safe drinking water, replacing Part 2A of the Health Act. The WSA seeks to provide safe drinking water to consumers which includes “providing mechanisms that enable the regulation of drinking water to be proportionate to the scale, complexity, and risk profile of each drinking water supply”.<sup>7</sup>
17. Under the WSA, all drinking water suppliers, other than domestic self-suppliers<sup>8</sup>, must register with Taumata Arowai and prepare Source Water Risk Management Plans (SWRMPs) to identify, manage and monitor risks to source water. Regional councils

<sup>5</sup> <https://www.sciencedirect.com/science/article/pii/S016344532030445X>. Previous estimates from the HNI recorded the number of cases at 5,500.

<sup>6</sup> ‘Three waters’ being defined as drinking water, wastewater and stormwater systems.

<sup>7</sup> <https://www.legislation.govt.nz/act/public/2021/0036/latest/LMS374568.html>, Part 1 (3)(1)(c).

<sup>8</sup> Domestic self-supply is defined in the WSA as “means a stand-alone domestic dwelling that has its own supply of drinking water”. While registered drinking water suppliers are regulated under the WSA, the Building Act 1991 continues to regulate private water connections.



are required to contribute information to SWRMPs - including information on water quality, activities that could affect source water, and known risks and hazards. Regional councils may agree in writing to undertake actions on behalf of the water supplier, to address risks or hazards. Regional councils must annually publish information about source water quality and quantity, and report to Taumata Arowai. They must also assess the effectiveness of their interventions to manage risks or hazards at least every three years. Some WSA provisions are yet to be operationalised, and it will take time for the new requirements to be fully implemented and established.

18. The WSA set a 12-month timeframe for currently registered drinking water suppliers to re-register (due November 2022), while allowing four years for unregistered drinking water suppliers to register (due November 2025). The most recent estimate for the number of unregistered drinking water supplies is between 57,000 – 97,000 supplies,<sup>9</sup> however there is uncertainty around the accuracy of this estimate. The estimate is currently under revision and may be slightly lower.
19. In July 2022, Taumata Arowai set Drinking Water Quality Assurance Rules. These include rules that identify requirements for a groundwater bore head to be 'sanitary' (which in turn protects the aquifer from contamination), and they introduced compulsory source water monitoring. Taumata Arowai is currently developing an 'Acceptable Solution for Spring and Bore Water Supplies' as an alternative approach for small drinking water supplies, who typically do not have the capability or capacity to undertake comprehensive risk management planning. This removes the need to prepare an SWRMP subject to certain conditions being met, including minimum distances drinking water intakes must be from certain high-risk activities.
20. The WSA also amended the RMA with inclusion of new section 104G, which requires resource consent decision-makers to consider risks and effects on source water. This section will apply to all registered water supplies irrespective of how many people they serve.
21. These changes demonstrate the changing regulatory landscape for drinking water and the multiple pieces of interacting legislation involved, as well as how the NES-DW can support the broader drinking water reforms to improve multi-barrier protection.

#### *Local Government Act 2002 Water Supply Bylaws*

22. Council water suppliers that have adopted Water Supply Bylaws based on NZS 9201.7:2007, are currently able to establish controlled or restricted drinking water catchments<sup>10</sup> to protect their water supply. The Bylaw allows controls over activities such as camping, bathing, hunting, taking of livestock or dogs, or the use of toxic substances.
23. The Water Services Entities Bill is currently before Select Committee. A second bill is intended that provides the entities with necessary legislative functions, responsibilities, and powers to operate, and similar catchment powers are likely to be provided for.

#### **Other regulations that contribute to source water protection**

24. In 2007, the NES-DW was the sole national direction instrument for freshwater. However, it now sits alongside four other national direction instruments aimed at improving freshwater management:
  - National Policy Statement for Freshwater Management 2020 (**NPS-FM**)
  - Resource Management (National Environmental Standards for Freshwater) Regulations 2020 (**NES-F**)
  - Resource Management (Stock Exclusion) Regulations 2020

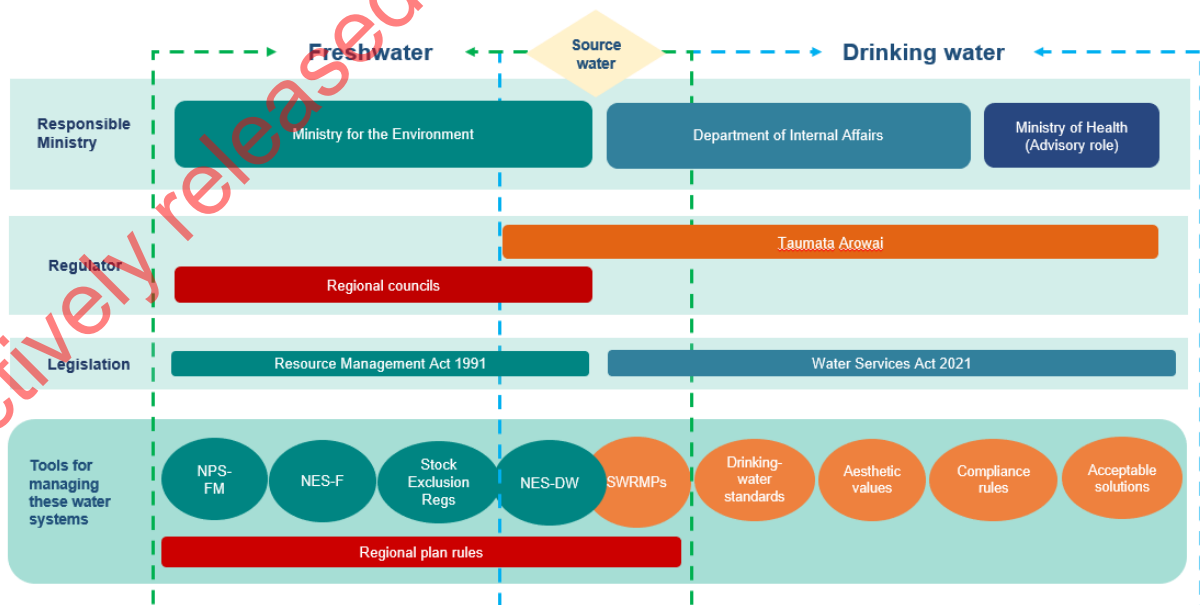
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<sup>9</sup> BECA report prepared for use by Taumata Arowai

<sup>10</sup> Over land the council owns or leases, or with the agreement of other landowners

- Resource Management (Freshwater Farm Plans) Regulations 2020
25. The NPS-FM was established in 2011 and was updated in 2020 as part of the Essential Freshwater work programme, an initiative that sought to stop further degradation of freshwater resources and reverse past damage. While the focus of the NPS-FM is on freshwater ecosystem health (rather than drinking water), the Essential Freshwater programme provides co-benefits to source water protection as it:
- establishes Te Mana o te Wai as the cornerstone of New Zealand’s freshwater management system
  - prescribes how regional councils must manage the cumulative effects of all activities that can affect freshwater through the NPS-FM. While the NPS-FM does not include drinking water as a ‘compulsory value’, it is listed as a value that must be considered, if the ‘catchment (or part of it) can meet people’s drinking water needs.
  - aims to reduce nutrient and sediment inputs from farming activities to water and improves bacterial loadings in water due to stock.
26. Regional councils are currently developing new freshwater regional plans to give effect to the NPS-FM. These must be prepared through engagement with tangata whenua and communities, by establishing freshwater management units (FMU), identifying values and setting environmental outcomes, and pathways to get there. To achieve the objective of the NPS-FM, degradation of freshwater must be addressed through regional plans by December 2024.
27. The NES-DW supports freshwater planning under the NPS-FM by highlighting the importance of protecting human drinking water sources. As any amendments progress, it will be important to ensure the NES-DW aligns with other freshwater and drinking water regulatory controls.
28. The NES-DW is just one part of the complex system of regulation that applies across the water system, with responsibilities being shared across multiple local and central government agencies. Figure 2 below demonstrates the interaction and interdependencies between the freshwater and drinking water systems.

**Figure 2: Interaction between freshwater and drinking water regulatory systems**



**What is the counterfactual if no action is taken?**

29. Given beneficial changes to the freshwater and drinking water legislative frameworks which share the aspiration of improved source water protection, if the NES-DW is

retained as it currently is, it is likely to be implemented and interpreted differently than it is now. Table 1 below provides an overview of the impacts of other requirements on the current NES-DW.

**Table 1: Expected impact of other requirements on the current NES-DW**

The Water Services Act (WSA)	Impact for the NES-DW
<ul style="list-style-type: none"> <li>Requires that all supplies (excluding domestic self-supplies) must be registered with Taumata Arowai.</li> <li>Requires that drinking water suppliers must develop Source Water Risk Management Plans (SWRMP) that identify and manage risks to source water.</li> <li>Requires regional councils to provide information to support SWRMP development.</li> <li>Requires increased monitoring, assessment, and annual publication of water quality by regional councils.</li> <li>Many small drinking water suppliers (&lt;501) that use groundwater or spring water sources may adopt an 'Acceptable Solution', which removes the need to prepare an SWRMP subject to certain conditions being met, including setting minimum distances of bores to high-risk activities.</li> <li>Drinking Water Quality Assurance Rules require bore heads to be 'sanitary' and set source water monitoring requirements for water suppliers.</li> </ul>	<ul style="list-style-type: none"> <li>Registration ensures the location of drinking water supplies are known to regional councils and resource users.</li> <li>The NES-DW will apply to any newly registered supplies that serve no fewer than 501 people.</li> <li>The awareness, implementation, and application of the NES-DW may improve as: <ul style="list-style-type: none"> <li>SWRMP are developed</li> <li>regional councils are required to contribute information on hazards and risks to source water</li> <li>regional councils are required to report on source water quality.</li> </ul> </li> </ul>
RMA Freshwater Plans	Impact for the NES-DW
<ul style="list-style-type: none"> <li>Regional councils developing new freshwater regional plans and engaging with and actively involving tangata whenua and communities, to give effect to the NPS-FM, by December 2024.</li> <li>Freshwater management units are established, values and environmental outcomes are identified, along with pathways to achieve those outcomes.</li> <li>Drinking water supply values must be considered.</li> <li>Those plans must also be consistent with other national direction, including the NES-DW.</li> </ul>	<ul style="list-style-type: none"> <li>Freshwater planning is likely to increase awareness and improve implementation of the NES-DW.</li> <li>Regional councils cannot include rules that permit activities under sections 9, 13, 14 or 15, if that activity would cause or contribute to issues with a registered large water supply meeting the DWSNZ after existing treatment.</li> <li>The NPS-FM does not provide any consistent tools to consider drinking water as a value, which could lead to different approaches by regional councils. There is likely to be regional and even local variation in how source water risk is managed.</li> </ul>
RMA Resource consent	Impact for the NES-DW
<ul style="list-style-type: none"> <li>RMA section 104G, in November 2021 by the WSA, requires consent decision-makers to have regard to effects on and risks to registered drinking water supplies.</li> </ul>	<ul style="list-style-type: none"> <li>This change is likely to have a positive impact where an activity requiring resource consent has the potential to effect source water and may improve the use and application of the NES-DW.</li> <li>However, there are limitations to section 104G as it only applies to resource consents and not permitted activities and, without clear guidance or criteria, its implementation is likely to be variable.</li> </ul>
Updated Guide for the NES-DW	Impact for the NES-DW
<ul style="list-style-type: none"> <li>The existing Draft Users' Guide for the NES-DW that was published in 2009, will be redrafted and finalised in 2023/2024. The</li> </ul>	<ul style="list-style-type: none"> <li>The newly updated guidance is likely to be of significant value to regional councils and</li> </ul>

updated guidance will address the criticisms from the Havelock North Inquiry that the existing guidance is too lengthy (90 pages) and technical.	anyone wanting to better understand the NES-DW, how it works and its intentions
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30. The NES-DW will apply to any currently unregistered large drinking water supplies as they register (by 2025), and there is likely to be an improved understanding in source water risks and hazards that should improve its implementation.
31. While we expect some improvements over time through the counterfactual, we also acknowledge that many of the issues raised in the HNI and the subsequent MfE review would remain unresolved. Namely that the NES-DW would continue to:
  - be complex and difficult to interpret;
  - be variably applied between regions and between water supplies;
  - lack clarity on the management of all activities that have an impact on source water; and
  - only afford protection to those that are served by large (>500 people) registered drinking water supplies.
32. Under the counterfactual a strong reliance on existing water treatment to remove contamination may remain.
33. Amending the current NES-DW allows for opportunities to:
  - improve baseline data and increase understanding of high-risk activities; and
  - better support regional councils to implement the NES-DW more efficiently and effectively.
34. Overall, the current NES-DW will operate in a substantially altered regulatory environment for drinking water and freshwater management. While other legislation may improve awareness around the general importance of source water protection to improve drinking water safety, the NES-DW is the key regulatory tool for regional councils to specifically consider source water protection.

### What is the policy problem or opportunity?

35. It's essential that we have safe drinking water. The health, social, cultural, and economic impacts of water contamination and waterborne illnesses are significant. The protection of source water is the first barrier of protection in the drinking water system, and this is the sole intention of the NES-DW.
36. Significant problems with the NES-DW were identified within the HNI and in the subsequent MfE review. It was determined that the current NES-DW regulations had not achieved their intended purpose of protecting sources of drinking water as the NES-DW was:
  - limited in its scope and application;
  - complex and technically challenging to apply; and
  - inconsistently applied across the country.
37. The health, social and economic impacts are most significant when large water supplies are affected but small supplies are more likely to have issues and are also of significant concern.

### Impacts – contamination events

38. The 2016 Havelock North contamination event demonstrates the severe risks associated with poor multi-barrier protection for supplies serving large populations.

Despite the NES-DW being in effect at this time, inadequate source water protection was identified as one of several failures that contributed to the contamination event.

39. During the Havelock North outbreak, between 6260 to 8320 people contracted campylobacteriosis, with 45 people hospitalised and the outbreak linked to four deaths.<sup>11</sup> Other effects due to campylobacteriosis from the outbreak included reactive arthritis and Guillain-Barré Syndrome. The HNI noted those who died had other existing medical conditions, demonstrating the heightened risk that an outbreak can have for at-risk members of society.
40. Alongside adverse health outcomes, the HNI estimated the total economic costs to society to be just above \$21 million.<sup>12</sup> The societal cost from the Havelock North outbreak included an estimated 78 per cent of outbreak victims needing to take time off work or school, with a small percentage experiencing on-going symptoms weeks after the event.<sup>13</sup> This figure is possibly an underestimate, considering more recent studies which estimate the number of cases as higher than that recorded in the HNI report.
41. In general, an estimated 18,000 - 100,000 people become ill from contaminated drinking water every year, costing between \$12.4 million - \$23.7 million per annum.<sup>14</sup> In the 10 years prior to the outbreak in Havelock North, 13 smaller outbreaks were notified. The cost of one of these incidents in Darfield in 2012 was estimated to cost between \$544,316 and \$1.26 million.<sup>15</sup>
42. These figures indicate the significant risks associated with contamination events in large supplies, emphasising the need for effective source water protection to protect population health, as well as to reduce the monetary and societal costs.
43. While in New Zealand, contamination events at large supplies remain relatively rare<sup>16</sup> and compliance rates among supplies serving more than 10,000 people remain relatively high (for 2021, bacteriological compliance was at 97.5%, and protozoal compliance at 84.4%),<sup>17</sup> the severe consequences associated with a contamination event presents a strong rationale to ensure multi-barrier protection is effective.
44. Our analysis of recorded outbreaks in New Zealand shows that outbreaks generally occur in small supplies, with large outbreaks like Havelock North in 2016 or Queenstown in 1984 (where 3,500 people fell ill) being the exception to the rule.<sup>18</sup>
45. The common factor linking most outbreaks is that contaminated source waters are often associated with heavy rainfall coupled with treatment that is not adequate for the contamination present in the source water. Although a contamination event in a supply serving a smaller population will likely be of a smaller scale in terms of costs than a contamination event in a large supply, there are still risks for these consumers and the communities in which they live.

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11 <https://www.sciencedirect.com/science/article/pii/S016344532030445X>

12 Sapere Research Group "The Economic Costs of the Havelock North August 2016 Waterborne Disease Outbreak" (August 2017): CB231

13 [https://www.dia.govt.nz/vwluResources/Report-Havelock-North-Water-Inquiry-Stage-1/\\$file/Report-Havelock-North-Water-Inquiry-Stage-1.pdf](https://www.dia.govt.nz/vwluResources/Report-Havelock-North-Water-Inquiry-Stage-1/$file/Report-Havelock-North-Water-Inquiry-Stage-1.pdf), page 11

14 [82], pg. 22, Report of the Havelock North Drinking Water Inquiry: Stage 2, [https://www.dia.govt.nz/diawebsite.nsf/Files/Report-Havelock-North-Water-Inquiry-Stage-2/\\$file/Report-Havelock-North-Water-Inquiry-Stage-2.pdf](https://www.dia.govt.nz/diawebsite.nsf/Files/Report-Havelock-North-Water-Inquiry-Stage-2/$file/Report-Havelock-North-Water-Inquiry-Stage-2.pdf)

15 I Sheerin, N Bartholomew, C Brunton "Estimated community costs of an outbreak of campylobacteriosis resulting from contamination of a public water supply in Darfield, New Zealand" (2014) 127 NZMJ 13

16 Ministry of Health: *Estimation of the burden of waterborne disease in New Zealand: preliminary report*  
17 <https://www.health.govt.nz/system/files/documents/publications/annual-report-on-drinking-water-quality-2020-2021-mar22.pdf>

18 Data from appendix 1 of: <https://www.health.govt.nz/system/files/documents/publications/water-borne-disease-burden-prelim-report-feb07-v2.pdf>



46. Further information on drinking water outbreaks in New Zealand as well as a list of the outbreaks that have been formally studied is detailed below in Box 2.

## Box 2

### Case study of past drinking water outbreaks in New Zealand

There is significant evidence in New Zealand of contracting gastro-intestinal disease from drinking water that is untreated or inadequately treated. Some of these cases are never formally reported and form the 'endemic' background rate of disease, whilst others are reported as 'outbreaks' – which are two or more cases linked to a common source.

On average there are 16.8 waterborne outbreaks of gastro-intestinal disease per year in New Zealand. Most of these outbreaks have been small (averaging nine cases per outbreak), however a few large outbreaks have notably occurred, such as in 1984 in Queenstown with 3,500 cases, and in 2016 in Havelock North with 6,260-8,320 cases.<sup>19</sup> The majority of studied outbreaks have been caused by *Campylobacter*, which is associated with sewage, agriculture and wild birds.

The Queenstown 1984 outbreak was thought to have been caused by a sewer overflow that discharged raw sewage into a creek that entered Lake Whakatipu within 200m of the drinking water intake. The outbreak stopped when the sewage overflow was noticed and remedied, and the water supply heavily chlorinated.

An outbreak in Darfield 2012, which had 29 confirmed cases and 109 probable cases, was caused by heavy rainfall washing animal effluent from upstream paddocks into the Waimakariri River and from there into an infiltration gallery.<sup>20</sup> A secondary cause could have been effluent directly contaminating the gallery by seepage through the ground. The well in use at the time of the outbreak sat in a small dip in an unsecure privately-owned sheep paddock. Investigations of this outbreak have highlighted the lack of appropriate source water protection and multi-barrier approach.<sup>21</sup>

Another outbreak of campylobacteriosis was reported in a youth camp in Hawkes Bay in 1992 affecting 97 people. The source of the drinking water at the camp was untreated bore water and was found to have high levels of faecal coliforms.

Common contributing factors to many of the drinking water outbreaks in New Zealand include<sup>22</sup>:

1. Untreated or inadequately treated drinking water supplies
2. Source water quality inferior to normal (eg, following heavy rainfall)
3. Contamination of the water source

Proposed amendments to the NES-DW seek to prevent these kinds of incidents from happening in the future. Better understanding of source water catchments, controlling risky activities in those areas, combined with improvements to drinking water treatment under the WSA will improve protection across multiple barriers and we can expect to see the average number of waterborne outbreaks of gastro-intestinal disease in New Zealand reduce over time.

19

[https://www.moh.govt.nz/notebook/nbbooks.nsf/ea5ef2c0e4ab8ac485256caa0065e3eb/edae7f0f0c3b3d98c2572cd000c65ec/\\$FILE/water-borne-disease-burden-prelim-report-feb07-v2.pdf](https://www.moh.govt.nz/notebook/nbbooks.nsf/ea5ef2c0e4ab8ac485256caa0065e3eb/edae7f0f0c3b3d98c2572cd000c65ec/$FILE/water-borne-disease-burden-prelim-report-feb07-v2.pdf)

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<https://www.cph.co.nz/wp-content/uploads/darfieldoutbreakcommunityreport.pdf>

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[https://www.waternz.org.nz/Attachment?Action=Download&Attachment\\_id=1488](https://www.waternz.org.nz/Attachment?Action=Download&Attachment_id=1488)

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[https://www.waternz.org.nz/Attachment?Action=Download&Attachment\\_id=1488](https://www.waternz.org.nz/Attachment?Action=Download&Attachment_id=1488)



The list below describes formally studied drinking water outbreaks in New Zealand (note – more outbreaks have been notified than formally studied).

Incident	Causal agent	Cases (probable)
Queenstown, 1984	Unknown	(3500)
Ashburton, 1986	<i>Campylobacter</i>	19
Canterbury, 1990	<i>Campylobacter</i>	42
Havelock North, 1991	<i>Campylobacter</i>	12
Northland, 1992	Hepatitis A	30
Lonsdale Park, 1992	<i>Campylobacter</i>	14
Waimate, 1992	<i>Campylobacter</i>	unknown
Dunedin	<i>Giardia</i>	50
Hawkes Bay, 1992	<i>Campylobacter</i>	97
Auckland, 1993	<i>Giardia</i>	34
Raurimu, 1994	<i>Campylobacter</i>	16
Fairlie, 1994	<i>Campylobacter</i>	6
Hutt Valley camp, 1995	Gastroenteritis	(100)
Ashburton, 1996	<i>Campylobacter</i>	19 (33)
Mt Hutt, 1996	Norovirus	59
Auckland, 1996	<i>Salmonella typhimurium</i>	2
Mt Arthur, 1996	Gastroenteritis	6
Denniston, 1996	<i>Giardia</i>	4
Wainui, 1997	<i>Campylobacter</i>	6 (67)
Waikato district, 1997	<i>Cryptosporidium</i>	9 (170)
Tauranga district, 1997	<i>Cryptosporidium</i>	unknown
Te Aute College, 2001	<i>Campylobacter</i>	137
Banks Peninsula, 2004	<i>Shigella</i>	5 (18)
camp near Nelson, 2004	<i>Campylobacter</i>	3 (13)
Cardrona skifield, 2006	Norovirus	218
Darfield, 2012	<i>Campylobacter</i>	29 (109)
Havelock North, 2016	<i>Campylobacter</i>	6,260 – 8,8320

## Drinking water in rural areas

47. Notification rates of potentially waterborne diseases (campylobacteriosis, giardiasis and cryptosporidiosis) are significantly higher in rural areas.<sup>23</sup> People in rural areas often have multiple risk factors, from a greater portion of residents receiving water from smaller supplies, through to increased contact with animals or manure. In particular, the cryptosporidiosis notification rate was roughly five times as high in rural areas than in main urban areas in 2020, with campylobacteriosis notification rates in rural areas four times higher than in main urban areas. The highest notification rates for campylobacteriosis, giardiasis and cryptosporidiosis occurred in children aged 0–4 years.

## Smaller supply compliance rates

48. Compliance data available for registered supplies<sup>24</sup> serving more than 100 people reveal worsening compliance rates for small suppliers (serving 101 to 500 people). In 2021, bacteriological compliance for small suppliers was at 66.6%, while for protozoal compliance, it was 33.7%. Smaller supplies have less resources to monitor, treat, and respond to contamination of drinking water. Bacteriological and protozoal compliance decreases with population size for registered suppliers,<sup>25</sup> and it is likely even worse for smaller, unregistered suppliers.
49. Poor microbiological compliance is of particular concern (compared to chemical compliance), because of the time scales over which their adverse effects are likely to be experienced (eg, pathogens can cause acute illness following a single contamination event). Those most at risk of infection are infants and young children, the immune suppressed, the sick and the elderly.
50. While compliance data is not available for very small supplies (ie, those serving under 100 people), the *draft Taumata Arowai register of supplies* provides some data on the types of supplies that serve under 100 people. This register indicates that a number of registered supplies serving under 100 are community supplies (such as schools, early childhood centres, marae, community halls, and recreation facilities). Given the trends of poorer compliance among smaller supplies, these supplies could have a high risk of a contamination event. These community supplies are not served by the current NES-DW, with no additional protection for their source water.

## Problem identification - Havelock North Inquiry and the MfE NES-DW Review

51. Evidence on drinking water quality and contamination events in New Zealand, including the HNI recommendations on three waters regulatory system, signals regulatory, information and implementation issues with the current NES-DW. The NES-DW is not providing the source water protection necessary to support multi-barrier protection for drinking water and reduce the risk of waterborne illnesses.
52. The 2016 Havelock North outbreak led to the HNI, which provided numerous recommendations across the three waters regulatory system. In relation to the NES-DW, the Stage 1 Report considered the background development of the NES-DW, and the extent to which Hawke's Bay Regional Council implemented them, while in the Stage 2 Report, the HNI considered more broadly the content of the NES-DW and its effectiveness in promoting first barrier protection.
53. Overall, the HNI identified significant problems with the current NES-DW regulations, and recommended addressing "the various risks in a straightforward and

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<sup>23</sup> Environmental Health Intelligence NZ, 2022. Notifications of potentially waterborne diseases. {Factsheet}. Wellington: Environmental Health Intelligence NZ, Massey University. <https://reports.instantatlas.com/view-report/91a2cb47825a4c8cba852eb8001a3d5a/NZ>

<sup>24</sup> Data covers 85% of the total population of New Zealand

<sup>25</sup> <https://www.health.govt.nz/publication/annual-report-drinking-water-quality-2020-2021>

comprehensive manner”<sup>26</sup> so that the NES-DW is simple and easy to interpret and apply.

54. A subsequent 2017 MfE review of the NES-DW agreed with the HNI findings regarding the NES-DW and highlighted the need to improve the current source water protection practices among many councils.
55. The key problems with the existing NES-DW that were identified are listed in Box 3 below. These problems indicate that the existing NES-DW is not fit for purpose.

### Box 3

#### Problems with the existing NES-DW as identified by the Havelock North Inquiry

- Terminology – the terms ‘upstream’ and ‘abstraction point’ are problematic to apply.
- Existing level of treatment – linkage to the existing level of treatment is difficult for users to determine whether a proposed activity will increase or introduce a determinand level, because of information and expertise required for this assessment.
- Application to land use activities – as the current regulations are partially limited to water and discharge permits, they questioned whether this scope reduces the effectiveness of the NES-DW (due to the risks posed by land use activities).
- Prospective application – the regulations only apply to future applications for water and discharge permits, and not to existing consents and activities.
- Rules in regional plans – Regulation 10 applies only to rules in regional plans (rather than rules in district plans), and the rules only apply to permitted activities.
- Size of supply – the Inquiry proposed extending the scope of the regulations to apply to activities with the potential to affect supplies serving no fewer than 25 people, noting that “all consumers should have the benefits and protections of the NES Regulations”,<sup>27</sup> and the size of a supply should not determine the level of barrier protection
- Emergency notification – questioned the effectiveness of these provisions, and whether it would be better to require the implementation of preventative measures to reduce the likelihood of an emergency event, rather than just a notification after the event has occurred.
- Notification of relevant applications – currently no requirement for the water supplier to be informed of resource consent applications with the potential to affect a drinking water source
- Users’ guide and information – MfE’s Draft Users’ Guide to the NES-DW 2009 is still in draft form, with no finalised guidance available.

#### Problems with the existing NES-DW as identified by the Ministry for the Environment review

- The NES-DW is not promoting consistency and implementation is variable. This does not necessarily mean that regional councils are not meeting their obligations, but it does suggest that the regulations do not promote consistency in RMA decision-making.
- There does not appear to be any discernible impact on the concentration of contaminants in water supplies, despite regional councils taking steps to consider contamination in some RMA decisions.
- To achieve the purpose of the NES-DW, the regulations would need to apply to a wider range of activities and RMA decisions than those currently regulated for.

### Changing the NES-DW

56. In July 2019, Cabinet agreed to reform regulation of the drinking water system in relation to its Three Waters Review.
57. This initiated the work to strengthen the NES-DW. The initial engagement on amending the NES-DW was part of much broader engagement on the Three Waters Review. In

<sup>26</sup> [672], pg. 158, [https://www.dia.govt.nz/diawebsite.nsf/Files/Report-Havelock-North-Water-Inquiry-Stage-2/\\$file/Report-Havelock-North-Water-Inquiry-Stage-2.pdf](https://www.dia.govt.nz/diawebsite.nsf/Files/Report-Havelock-North-Water-Inquiry-Stage-2/$file/Report-Havelock-North-Water-Inquiry-Stage-2.pdf)

<sup>27</sup> [660], pg. 156, [https://www.dia.govt.nz/diawebsite.nsf/Files/Report-Havelock-North-Water-Inquiry-Stage-2/\\$file/Report-Havelock-North-Water-Inquiry-Stage-2.pdf](https://www.dia.govt.nz/diawebsite.nsf/Files/Report-Havelock-North-Water-Inquiry-Stage-2/$file/Report-Havelock-North-Water-Inquiry-Stage-2.pdf)

2019, feedback was also sought as part of the broader consultation of the Essential Freshwater programme.

58. Three key areas of improvement were identified for the NES-DW. These areas were considered and refined through engagement with stakeholders and a technical advisory group.
59. In November 2021, an interim RIS was finalised, which assessed and readied the proposals for public consultation.

### Stakeholder views

60. There has been significant engagement from stakeholders. A number of stakeholders support the intent of strengthening source water protection, however, many stakeholders have raised concerns about making sure that changes are feasible and proportionate to the risk.
61. In 2022, there was an eight-week public consultation specifically focused on the proposed amendments to the NES-DW. The summary of submissions from this public consultation is available on the MfE website.<sup>28</sup>
62. In addition to the public consultation process outlined above, the proposed amendments have been refined through direct engagement with technical experts, regional councils, water suppliers, iwi/Māori, and other organisations.
63. The stakeholder views are reflected below.

#### *Feedback received from Māori*

64. Iwi, hapū and whānau Māori have rights to preserve, restore and enhance freshwater for the benefit of present and future generations. Some iwi, hapū and whānau Māori are also water suppliers (eg, at marae and papakāinga) and resource users. The *2021 Taumata Arowai Drinking Water Regulation Report* identifies 154 'Kāinga'<sup>29</sup> registered supplies. The majority of these serve less than 501 people and are not afforded any source water protection under the current NES-DW.
65. Most iwi, hapū and whānau Māori supported the intent to strengthen source water protection to prevent contamination, although some acknowledged regulatory changes to the current source water protection regime could have consequences – such as increased regulatory and cost burden on marae, papakāinga and rural communities.
66. Some iwi, hapū and whānau Māori also highlighted existing Treaty settlement provisions, and the need to ensure they prevail, are appropriately recognised and given effect to if the regulatory environment changes. Some of the submissions also raised the importance of their own existing systems and models for freshwater management which actively protect, enable and exercise mātauranga Māori.
67. During the early stages of development, officials met with Waikato and Waipā River iwi representatives from Waikato Tainui and Ngāti Maniapoto on two separate occasions to engage on the proposed amendments to the NES-DW. Those representatives supported strengthening source water protections but raised concerns around the resourcing required for Māori to participate in the system, water availability, climate

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<sup>28</sup> [nes-dw-summary-of-submissions.pdf \(environment.govt.nz\)](#)

<sup>29</sup> Kāinga supplies are defined as 'iwi entities, kura kaupapa Māori, kōhanga reo, marae, papakāinga, and Māori communities'

change, providing for existing iwi and hapū water management tools and principles and the impact of multiple reforms on iwi and hapū groups.

68. Feedback from engagement with Post-Settlement Governance Entities and iwi also noted the need for any amendments to give effect to Te Mana o te Wai and the need to engage with tangata whenua during implementation of any amendments.
69. MfE also met with the Freshwater Iwi Advisory Group to discuss the package options, and were given clear advice to not include marae and papakāinga supplies in any initial expansion of the scope of the NES-DW.

#### *Local government feedback*

70. Regional councils are responsible for implementing the NES-DW and are significantly affected by any regulatory changes to source water protection. City and district councils are also impacted by the NES-DW, as they are water suppliers, perform district planning functions under the RMA, and are resource users (eg, they carry out a range of activities, such as road maintenance or landfill operation).
71. The position of regional councils ranged from generally supportive of the proposed amendments, through to concern about the necessity of the NES-DW, and the challenges of its implementation. While there was broad support for mapping and clarity around controlling activities that are high-risk to source water in a manner that aligns with other regulatory requirements (including under the RMA and the WSA), they expressed concerns about how the NES-DW would affect their Freshwater Plans, the inclusion of an unknown number of currently unregistered small supplies, and with possible costs and resourcing constraints if there is significant regulatory change.
72. As drinking water suppliers, territorial authorities were broadly supportive of the intent to improve the protection of source water. As resource users they were concerned about potential restrictions in SWRMAs that could affect their activities. As consent authorities they sought clarity about their role and responsibilities in giving effect to the NES-DW, and consistency and alignment with other regulations.

#### *Resource user feedback*

73. Resource users are people (landowners, land occupiers and others) who undertake activities regulated by the RMA. Some activities carried out by resource users within the vicinity of a drinking water supply may have the ability to lead to a contamination event in a drinking water supply. Resource user groups represent the views of many resource users, such as the primary sector, and various other industry groups (such as fuel companies and the quarrying sector).
74. While there was general agreement that source water needs to be protected, there was not a consensus that the current NES-DW is problematic in providing this protection. Several primary sector stakeholders also queried whether existing legislation, such as the NES-F, NPS-FM, stock-exclusion regulations and freshwater farm plans, may ensure adequate source water protection for drinking water sources without any changes necessary to the current NES-DW regulations. Other resource users were concerned how amendments to the NES-DW would affect activities undertaken by their industry.
75. Primary sector groups also raised concerns about land use controls impacting farming activities and the associated financial implications and costs of imposing these controls. They also emphasised the need to consider regional variations.

#### *Environmental non-governmental organisation (ENGO) feedback*

76. ENGOs strongly supported measures to improve source water protection, noting that everyone should have access to safe drinking water, and highlighted the existing contamination risks in New Zealand (particularly related to contaminants such as nitrates) and the importance of giving effect to Te Mana o te Wai. They noted that current NES-DW regulations are not strong enough to manage activities that pose a



high risk to source water contamination, such as intensive grazing and synthetic fertiliser application.

77. ENGO's also noted the need for all sectors, regions, and communities to play their part in protecting and restoring the health of water.

#### *Other stakeholders*

78. Water suppliers have a key role in source water protection, as they have a duty to provide safe drinking water under the WSA.
79. Water suppliers generally supported improved source water protection and noted the important role of the NES-DW in encouraging communication between consent applicants and water service providers. They also highlighted the role of the NES-DW in the regional spatial strategies under the new resource management system.

#### **What objectives are sought in relation to the policy problem?**

80. The primary objective is to effectively support source water protection by reducing the likelihood of the occurrence of waterborne illnesses from drinking water contamination in a way that is proportionate to the scale, complexity, and risk profile of each drinking water supply.
81. It is imperative that the proposed solution can be efficiently implemented (ie, can be implemented within a reasonable timeframe, one which allows regional councils to include any rules and regulations in their updated freshwater plans, and is cost-effective with required resourcing available), as without this, it will not be able to achieve the primary objective.
82. However, there will be tension between achieving effectiveness (ie, reducing the likelihood of the occurrence of waterborne illness from drinking water contamination) and achieving proportionality and efficient implementation.
83. Trade-offs will need to be made between how effective the outcome can be (ie, how well the solution reduces the likelihood of contamination) and how proportionate it is. A proportionate response will need to account for a variety of factors beyond how well it reduces the contamination risk (and the related benefits of this), such as the scale of impact, cost, complexity and the risk of a contamination event occurring.
84. If a highly effective option is proposed but it has high associated costs with increased complexity, then this outcome would not be considered proportionate. Risk is also a key consideration. Situations with a higher risk of waterborne illness will generally entail more willingness for effective and costly interventions.
85. Similarly, achieving a highly effective outcome also presents trade-offs with efficient and effective implementation. The better the solution is at reducing the likelihood of waterborne illness in drinking water, the more likely it is to be more expensive, complex, and time-consuming to implement. There will usually be a limited number of resources available, including regional council implementation capacity and capability and available land for resource use.



## Section 2: Deciding upon an option to address the policy problem

### What criteria will be used to compare options to the counterfactual?

86. To ensure alignment with the overall objective the following criteria was used in the assessment of options.

Criteria	Approach for the analysis
<b>Implementation</b>	<ul style="list-style-type: none"> <li>The option is clear and leaves little room for interpretation.</li> <li>The ease of implementation.</li> <li>Sufficient resources are available for implementation of the option in a timely way.</li> </ul>
<b>Effectiveness</b>	<ul style="list-style-type: none"> <li>The option contributes to the understanding of hazards and risks to source waters (by councils, water supplier, resource user, public).</li> <li>The likelihood the option will reduce contamination of the source water that is high-risk to human health.</li> <li>Option improves the likelihood of compliance with the DWSNZ by reducing the reliance of treatment.</li> </ul>
<b>Consistency</b>	<ul style="list-style-type: none"> <li>The degree the option aligns with relevant sections under the RMA and other legislation and regulations (eg, HSNO, WSA).</li> <li>Te Mana o te Wai: the degree the option protects the health and well-being of our freshwater. The second priority is the health needs of people (such as drinking water).</li> </ul>
<b>Proportionality</b>	<ul style="list-style-type: none"> <li>The degree the option reduces the likelihood of contamination events from occurring or minimises the likely scale of impact and thereby reduces the financial and social burden of waterborne illness.</li> <li>The costs and complexity of implementation and monitoring for regulators of the option.</li> <li>The compliance burden for resource users (including consenting costs, capital and operating costs) of the option.</li> <li>Regulatory burden is avoided for low-risk activities (with or without controls in regulation).</li> </ul>
<b>Fairness</b>	<ul style="list-style-type: none"> <li>Source water risk management is protective for all populations.</li> </ul>
<b>Te Tiriti o Waitangi</b>	<ul style="list-style-type: none"> <li>Iwi, hapū, whānau Māori can exercise rangatiratanga and make decisions over their respective resources and taonga which they wish to retain.</li> <li>The degree the options provide protection for drinking water managed by and for iwi, hapū and whanau Māori under the principles of kawanatanga, active protection and equity.</li> </ul>

87. The above criteria have been used in our analysis of the three different proposals and the packages. We have carefully considered each criterion as it applies to each proposal.

### What scope will options be considered within?

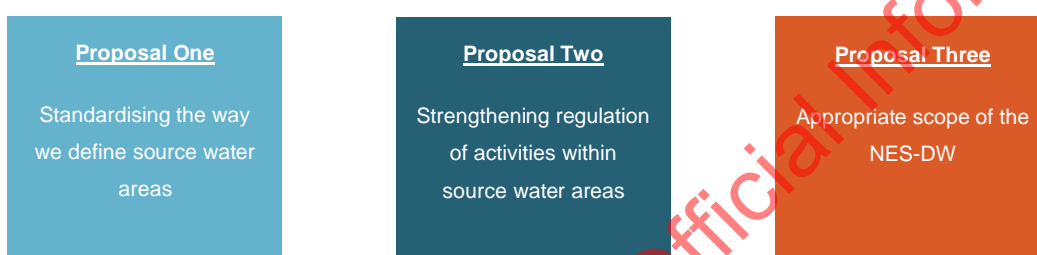
88. The wider drinking water regulatory framework under the WSA aims to reduce the risk of waterborne illness due to the contamination of drinking water supplies. Ensuring

source water protection is appropriately provided for under the RMA is constrained to amending the NES-DW.

89. This analysis focusses on options possible within the NES-DW. It does not consider other legislative tools available for source water protection, such as through amending the RMA, creating new national direction (such as a policy statement for source water), amending other freshwater national direction (such as the NPS-FM), or through the forthcoming RM reform.
90. We developed three proposals to amend the NES-DW and then consulted and engaged with stakeholders, including iwi/Māori, technical experts, and key sector groups. The feedback from stakeholders has been carefully considered and has helped us to further refine the proposals and the options that sit underneath these proposals.

### Impact analysis of the three policy proposals

91. The following three proposals were designed to address the issues identified with the current NES-DW, and to strengthen source water protection.



92. The three proposals have significant interdependencies with one another and must work together to form a well-functioning NES-DW. The viable options under each of the proposals and how they work together have been brought together to form three potential packages. The packages are outlined and analysed below (see page 31).
93. Detailed analysis of each individual policy proposal and the potential options is provided below.

### Proposal One: Standardising the way we define source water areas

94. Proposal one seeks to provide a consistent national approach to identifying areas where activities have a higher likelihood of affecting source water. To achieve this, we proposed establishing a default methodology to map Source Water Risk Management Areas (SWRMA) at three different risk levels - SWRMA1, SWRMA 2, and SWRMA 3. Box 1 below provides the full description of the default SWRMA zones.
95. Activities in each SWRMA will be subject to different management based on their level of risk to source water (see proposal two on activity controls). This method was based on the 2018 PDP Technical Guidelines for Drinking Water Source Protection Zones.<sup>30</sup>
96. Mapping would be required for all supplies covered by the NES-DW provisions. It is envisioned the majority of SWRMA will be mapped using the default method, which would require regional council publication on their relevant websites. However, regional councils may opt for a bespoke approach in establishing SWRMA to allow for alternative (existing or new) mapping methods (if they deliver on outcomes at least as protective as the default), and it is intended that regional councils will utilise the RMA schedule 1 process to formalise these SWRMA.

#### Box 4

Default SWRMA zones

<sup>30</sup> <https://environment.govt.nz/publications/technical-guidelines-for-drinking-water-source-protection-zones/>

**SWRMA 1** is the immediate area around the source water take where there is an immediate risk of contamination because there is very little time to respond to any contamination before it enters the water supply.

- For rivers, it encompasses the river and its bed 1,000 metres upstream and 100 metres downstream of the intake, extending 5 metres into land from the river edge.
- For lakes, it encompasses the lake and its bed within a 500-metre radius of the intake, extending 5 metres into land from the lake edge.
- For aquifers, it encompasses land within a 5-metre radius around the intake (bore head).

**SWRMA 2** is a larger area where activities need to be managed, to mitigate more medium-term risks of contamination. The size will vary because it is based on the time it takes for water to flow to the source.

- For rivers, it is the river and bed from where water travels to the intake within an 8-hour period, extending 100m landward from the river edge.
- For lakes, it is the entire lake area, extending landward 100 metres, and includes tributaries (being the area from where water travels to the lake within an 8-hour period).
- For aquifers, it is the land area above where groundwater travels to the intake (bore) within a 1-year period, to a maximum of 2.5 kilometres.

**SWRMA 3** is the entire catchment area or capture zone for the source water. Persistent contaminants and cumulative effects of all activities within the catchment are the management focus in this area, and they are considered to be appropriately managed under the RMA. The proposed amendments to the NES-DW aim to clarify that consenting decisions must address source water risks.

## Stakeholder views

97. Several key themes emerged through public consultation:

- Overall, there was broad support for the mapping. Most submitters recognised the importance of improving consistency, employing a spatially risk-based approach, and providing a robust default method applicable to most situations.
- Submitters also highlighted that a bespoke method would be necessary for complex situations, large or high-risk supplies, and to enable existing source water protection zones to be transferred over to the new system. To formalise bespoke SWMRAs submitters both supported and opposed the Schedule 1 RMA process. Some preferred the process of publication in the New Zealand Gazette as it is less resource intensive and would improve efficiency.
- Another significant area of feedback was the level of resourcing and information required by regional councils to map the areas. Submitters were concerned about access to necessary environmental data, cost, timeframes, and interactions with regional/district plans.

98. Overall, we received positive feedback on the proposal to require mapping for source water areas, however further refinement was required on parts of this proposal.

## Description and analysis of options

99. We have now finalised five policy options in this area. The five options specify minimum requirements and, in all options, regional councils can opt to map SWMRAs using more complex, or bespoke methods.

100. Table 22 below provides a summary of each option and considerations for comparison to the counterfactual.

**Table 22: Summary of Proposal 1 options**

Description	Analysis
<p><b>Option 1</b> – All supplies' SWRMAs (1-3) can be delineated using fixed sizes for both surface and groundwater.</p>	<p>This option offers the least change from the counterfactual but is easy to map as it requires little location specific information, thus reducing resourcing burden. This option provides little specificity to the areas which may contaminate drinking water supplies. It is likely to result in activity controls over too large of an area (or too small), and not be targeted to the highest risk areas.</p>
<p><b>Option 2</b> – Smaller supplies' SWRMAs (1-3) can be delineated using fixed sizes, larger supplies' SWRMAs (1-3) must be delineated based on certain waterbody characteristics.</p>	<p>This option offers the same issues as option 1 for small supplies, however it prioritises larger supplies to have more robust mapping. This could be justified, in part, because protecting larger supplies offers more protection to more people, thus employing a population-scaled risk-based approach.</p> <p>The default methods offer a range of modelling options, requiring differing levels of resourcing and local information. However, they are more targeted, thus activity controls are more likely to only apply to the areas which matter the most.</p>
<p><b>Option 3</b> – All supplies' SWRMAs 1 &amp; 2 can be delineated using any default method (fixed size or based on certain waterbody characteristics). SWMRA 3 must be either the total catchment or capture zone.</p>	<p>This option was the one consulted on. The key difference between this and option 1 is that SWRMA 3 cannot be a fixed size, it must be either the entire upstream catchment or the total up-gradient capture zone delineated to appropriate boundaries.</p> <p>This option offers a lot of flexibility, in that, even large suppliers can use the fixed sizes. However, it could result in not scaling risk proportionate to population size.</p>
<p><b>Option 4</b> All supplies' SWRMAs (1-3) must be delineated based on certain waterbody characteristics. SWMRA 3 must be either the total catchment or capture zone.</p>	<p>This option offers a high degree of specificity in mapping SWMRAs for all sizes of supplies. However, it does not allow for simpler methods to be used so a high level of resourcing would be required. It does not scale the level of resourcing required by population size.</p> <p>This option would offer a high degree of protection to drinking water supplies of all sizes.</p>
<p><b>Option 5</b> All supplies' SWRMAs (1-3) must be delineated using bespoke approach only.</p> <p>The bespoke method allows for methodology not prescribed in the default guidance.</p>	<p>This option maximises the specificity of mapping and the level of resourcing required. Even for large supplies it would be onerous to conduct full bespoke mapping, unless the local situation justified it.</p> <p>This option has such intensive resourcing requirements that the system of regional councils and consultants would be overwhelmed, and significant lead times would be required to complete mapping for everyone. A lengthy transition would be required. National consistency would be low.</p>

**Table 3: Proposal 1 - How do the options compare to the counterfactual?**

**Key for qualitative judgements:**  
 ++ much better than the counterfactual  
 + better than the counterfactual  
 0 about the same as the counterfactual  
 - worse than the counterfactual  
 -- much worse than the counterfactual

Criteria / Option	Counterfactual	Option 1:	Option 2:	Option 3:	Option 4:	Option 5:
	Location for activity control is determined as "upstream of an abstraction point"	All supplies' SWRMAs can be delineated using fixed sizes.	Small supplies' SWRMAs can be delineated using fixed sizes, larger supplies' SWRMAs must be delineated using more complex default methods.	All supplies' SWRMAs can be delineated using either fixed sizes, or more complex default methods.	All supplies' SWRMAs must be delineated using more complex default methods.	All supplies' SWRMAs must be delineated using bespoke approach only.
Implementation	0	++ <i>Easy to implement, due to fixed size radius not requiring local information.</i>	++ <i>Easy to implement for small supplies, but larger supplies are more difficult – albeit with default methods provided.</i>	++ <i>Easy to implement if fixed sizes are chosen.</i>	- <i>More difficult to implement, for all sizes of supplies. Local information required.</i>	-- <i>Very difficult to implement, significant strain on the system.</i>
Effectiveness	0	+ <i>Improvement over the counterfactual, but is likely to be overly or under protective, depending on the situation.</i>	++ <i>Small supplies are improved versus the counterfactual, and large supplies are improved more – with better targeting of at-risk areas.</i>	++ <i>All supplies are improved and reasonable targeting of at-risk areas if fixed sizes aren't used.</i>	++ <i>Good targeting of at-risk areas, for all sizes of supplies.</i>	+++ <i>The best targeted and highest chance of reduction of contamination.</i>
Proportionality	0	0 <i>Makes minor improvements to drinking water safety in line with associated compliance and regulatory burden.</i>	++ <i>Larger supplies have higher compliance and regulatory burden, whereas this is reduced for smaller supplies.</i>	++ <i>Compliance and regulatory burden can be low if fixed size methods are chosen, but if this happened for large supplies then more people would be at-risk.</i>	+ <i>Compliance and regulatory burden doesn't change according to supplier size.</i>	0 <i>Compliance and regulatory burden very high for all sizes of supplies.</i>
Fairness	0	0 <i>All populations have a similar level of protection, but this level is low.</i>	- <i>Larger populations are better protected than smaller populations.</i>	++ <i>All populations have a similar level of protection, and councils have the flexibility to choose which is most appropriate.</i>	++ <i>All populations have a higher level of protection.</i>	++ <i>All populations have the highest level of protection.</i>
Te Tiriti o Waitangi	0	0 <i>Māori involvement is as provided for through wider RMA processes.</i>	0 <i>Māori involvement is as provided for through wider RMA processes.</i>	0 <i>Māori involvement is as provided for through wider RMA processes.</i>	0 <i>Māori involvement is as provided for through wider RMA processes.</i>	0 <i>Māori involvement in mapping could be enhanced.</i>
Overall Assessment	0	+ <i>This option provides some benefit over the counterfactual, but does not go far enough in protecting supplies.</i>	+ <i>Improvement in requiring larger supplies to use better methods of mapping.</i>	++ <i>This option provides both flexibility in choosing the most appropriate method, and not being overly burdensome on councils.</i>	+ <i>This option provides good protection, but will require a lot of resources to implement.</i>	+ <i>This option is impractical due to the very high level of cost and resourcing. The length of implementation would leave populations at risk.</i>

Proactively released under the Official Information Act



## What option is likely to best address the problem, meet the policy objectives, and deliver the highest net benefits?

101. Option 3 is the recommended option as it provides the best balance between the trade-offs of protection versus difficulty to resource and implement.
102. Compared with the counterfactual, significant improvements will be made in the protection of supplies with Option 3 because areas will be delineated using a robust set of risk-based criteria, applicable to both surface and ground waters. It will require more resources to implement, but these are justified by the proportionate improvement in safety.
103. Only Option 5 enables the Crown's obligations under the Tiriti o Waitangi because bespoke approaches are very flexible in the type of knowledge and values that they can consider. The other approaches (including the counter-factual) are based primarily on western-science geophysical considerations.
104. It would be reasonable to scale the complexity of mapping methodologies according to the size of the population served by a given supply, however, if the threshold for inclusion in the NES-DW is set reasonably high, it may not be necessary to allow for easier methods for small supplies.
105. If the minimum mapping requirements are too burdensome, this risks their implementation being delayed or onerous amounts of new data being required to be collected by regional councils.

## Proposal Two: Strengthening regulation of high-risk activities

106. The aim of proposal two is to ensure activities with a high-risk of adversely affecting source water are appropriately managed through more stringent controls or direction where necessary, or through consistent consideration of source water effects.
107. The consultation document proposed to do this by considering:
  - the restriction of many activities in the immediate vicinity of source water intakes (SWMRA 1), while enabling water suppliers to undertake work necessary;
  - the removal of any permitted activity status for high-risk activities within SWRMA 2, thereby ensuring adverse effects can be appropriately assessed and managed through the consent process;
  - how to improve bore management, and disturbance of the land over vulnerable aquifers;
  - risks to source water for all activities within SWRMA, with appropriate conditions imposed; and
  - incentivising engagement with water suppliers.

## Stakeholder views

108. Feedback was sought and provided on the details of the approach to allow it to be refined and appropriately targeted. Overall, we found:
  - There is broad support for national direction on activity controls in SWRMA to improve clarity and consistency in protecting source water, including from regional council regulators, territorial authorities (water suppliers), environmental groups, other agencies, and some resource users. There is support for clearly identifying which activities are permitted and prohibited, and which require a resource consent. However, support is conditional on control being proportionate to risk, with careful alignment with other legislative controls. Many examples of additional high-risk activities that should be subject to control in SWRMA were provided, including synthetic nitrogen fertiliser application and intensive grazing.
  - There is also opposition to national direction on activity controls in SWRMA in favour of applying local approaches to local situations, including from some



resource user groups. There are concerns about disproportionate impacts and costs, and negative effects on specific types of industry. Some submitters are particularly concerned that the use of prohibitions will unnecessarily restrict necessary or reasonable activities from occurring.

- Many submitters noted the importance of the drafting detail of the amendments. They were concerned that the consultation document did not provide sufficient detail regarding activity controls for them to provide robust feedback.

## Description and analysis of options

109. We have refined our policy options in this area based on our engagement with stakeholders including the submissions received through our consultation. Further detail on the different activities across the options can be found in Appendix 1.
110. Table below provides a summary of each option and considerations for comparison to the counterfactual.
111. For all options, regional councils can choose to adopt more stringent activity controls through their Freshwater Planning process.

**Table 4: Summary of Proposal 2 options**

Description	Analysis
<p><b>Option 1 – Local solutions</b></p> <p>Repeal activity controls in the NES-DW, and</p> <p>Encourage regional councils to identify and control high risk activities</p>	<p>This option differs to the counterfactual as it would repeal current activity controls in the NES-DW (regulations 7, 8, 10 and 12), to provide flexibility to regional councils in the controls they use to address high-risk activities to source water. Regional councils would be encouraged to do this through their Freshwater Planning Process.</p> <p>This approach provides flexibility for local solutions, but it will also result in an inconsistent approach to source water protection. The issue of variability found by the HNI will remain unresolved.</p> <p>Requiring source water risk to be considered on a regional basis may not be efficient and may be challenging to implement given Freshwater Plans require notification by December 2024. It also may be challenging for regional councils to establish an appropriate degree of focus on source water given competing considerations in the NPS-FM.</p> <p>While there is often support for 'local solutions to local problems', there was strong submitter support, especially from regional councils and water suppliers, in establishing clear national direction on activities that pose a risk to source water.</p>
<p><b>Option 2 - Blanket controls</b></p> <p>Repeal activity controls in the NES-DW, and</p> <p>Impose location-based blanket controls in SWRMA 1 across all s13, s14 and s15, and certain s9 activities and specifies controls in SWRMA 2, as identified in the consultation document</p>	<p>This option was intended only as a baseline for consultation with feedback invited on high-risk activities and appropriate levels of control. It provides a useful baseline for comparison of options. In SWRMA 1, minor and essential activities (by parties other than the water supplier) would either require consent or be prohibited. Controls in SWRMA 2 are extremely limited.</p> <p>Option 2 unnecessarily captures low-risk activities and would be challenging for regional councils to implement. As the controls are targeted and location-based, in certain situations the controls may be less stringent than in the current NES-DW (ie, in relation to s9 land uses in SWRMA 1, and various types of activities in SWRMA 2).</p>
<p><b>Option 3 – Refined controls</b></p> <p>Retain 2007 requirement that regional councils cannot permit or consent activities that would result in a breach of the DWSNZ, after water treatment, and</p>	<p>This option builds on option 2, with improvements to refine the high-risk activities controlled in SWRMA 1, entirely within the range of controls identified in the Consultation Document (adding no new controls). Low-risk activities under s13, s14 and s15 would be removed, and there would be no further controls on land use under s9. There would be refinement to ensure low-risk discharges to water are not captured by the NES-DW in SWRMA 2.</p>

Description	Analysis
<p>Impose location-based controls targeting only high-risk activities within the range of restrictions identified in the consultation document.</p>	<p>This option does not include any further activities identified as high-risk by submitters, or that have subsequently been confirmed as high-risk through assessment.</p> <p>This option also retains the current requirements that regional councils cannot permit or consent activities that would result in a breach of the DWSNZ, after water treatment, regardless of location (SWRMA).</p> <p>As water suppliers are capable of managing the risks they create to source water when maintaining their intakes, an exception to some NES-DW controls is provided.</p>
<p><b>Option 4 – Improved controls</b></p> <p>Retain 2007 requirement that regional councils cannot permit or consent activities that would result in a breach of the DWSNZ, after water treatment, and</p> <p>Impose location-based controls for certain high-risk activities. Risk assessment indicates some high-risk activities may warrant further controls. Two sub options are provided:</p>	<p>This option builds on option 3 by adding further controls than identified in option 2, to address additional activities that are a potential high-risk to source water, as identified by submitters and confirmed through risk assessment.</p> <p>As proposed controls in SWRMA 1 were already very broad across s13, s14 and s15, the only activities where risk may not be appropriately addressed are s9 land uses.</p> <p>As proposed controls in SWRMA 2 were very limited, there is scope to include various additional controls.</p> <p>This option also retains the current requirements that regional councils cannot permit or consent activities that would result in a breach of the DWSNZ, after water treatment, regardless of location (SWRMA).</p> <p>In adding further controls there is a need to ensure water suppliers are not unnecessarily restricted in maintaining their source water intakes.</p>
<p><b>Option 4A</b> - imposes location-based controls for some additional high-risk activities, that might be reasonably included at this time.</p> <p>This option omits further or changed controls on these activities, to allow recent controls through Essential Freshwater to be established, and future assessment of their efficacy to be considered in a context wider than just source water.</p>	<p>In SWRMA 1, certain high-risk land uses (in the 5 m riparian margin or 5 m radius around the bore) would also be controlled.</p> <p>In SWRMA 2 over aquifers, high-risk discharges to land would be included (ie, regional councils would not be able to permit them): wastewater, ofal pits, landfills and contaminated sites. SWRMA 2 controls would establish minimum information, monitoring or quality requirements.</p> <p>This option better protects source water by ensuring a greater range of high-risk activities are appropriately managed.</p>
<p><b>Option 4B</b> - imposes location-based controls for all high-risk activities, beyond the range of restrictions identified in the consultation document.</p>	<p>This option builds on option 4A and would include controls for all activities identified as potentially high-risk to source water through risk assessment.</p> <p>Certain intensive farming and stock management may present a high risk to source water, despite mitigations under the NES-F and the Stock Exclusion Regulations. Commercial instream aquaculture has also been identified as potentially high risk. Option 4B would include additional controls to mitigate those risks.</p> <p>This option also better protects source water by ensuring high-risk activities are appropriately managed, however, including controls in the NES-DW may not be the most suitable means to address primary sector challenges. It doesn't allow time for the NES-F and the Stock Exclusion Regulations to be implemented and take effect, and the effects would be such that further consultation with affected parties would be needed.</p>

**Key for qualitative judgements:**  
 ++ much better than the counterfactual  
 + better than the counterfactual  
 0 about the same as the counterfactual  
 - worse than the counterfactual  
 -- much worse than the counterfactual

**Table 4: Proposal 2 - How do the options compare to the counterfactual?**

Criteria/Option	Counterfactual: • Retain the NES-DW 2007 • Update guidance	Option 1: Local solutions • Repeal activity controls in NES-DW, and • Encourage councils to identify and control high risk activities	Option 2: Blanket controls (consultation approach) • Repeal activity controls in NES-DW, and • Impose location-based, blanket controls in SWRMA 1 across all s13, s14 and s15, and certain s9 activities, and specified controls in SWRMA 2	Option 3: Refined controls • Retain 2007 requirement that regional councils cannot permit or consent activities that would result in a breach of the DWSNZ, after water treatment, and • Impose location-based, controls targeting only high-risk activities within the scope of the consultation option	Option 4: Improved controls • Retain 2007 requirement that regional councils cannot permit or consent activities that would result in a breach of the DWSNZ, after water treatment, and • Impose location-based controls based on risk and consider further s9 activities and additional controls in SWRMA 2	
					A: Include some high-risk activities	B: Include all high-risk activities
Effectiveness	0	0 <i>No improvement in understanding hazards / risks, or substantive reduction in source water contamination.</i>	- <i>Improved SWRMA1 controls but fewer s9 controls and limited controls on high-risk activities in SWRMA 2 may increase source water contamination.</i>	+ <i>Improved understanding of hazards / risks, and an overall reduction in source water contamination.</i>	++ <i>Improved understanding of hazards / risks, and an overall reduction in source water contamination.</i>	++ <i>Improved understanding of hazards / risks, and an overall reduction in source water contamination.</i>
Consistency	0	+ <i>Regional approaches must align with other legislative requirements and give effect to TMOTW.</i>	+ <i>NES-DW must align with other legislative requirements and give effect to TMOTW, although some concerns of overlap and complexity.</i>	+ <i>NES-DW must align with other legislative requirements and give effect to TMOTW. However, could be mismatch between regulations and guidance.</i>	++ <i>NES-DW must align with other legislative requirements and give effect to TMOTW. However, could be some mismatch between regulations and guidance.</i>	++ <i>NES-DW must align with other legislative requirements and give effect to TMOTW.</i>
Implementation	0	0 <i>Flexibility and use of Freshwater Plan process may affect consistent, timely and efficient implementation.</i>	0 <i>Implementation is not improved through clarity, consistency, efficiency.</i>	++ <i>Clarity, consistency and efficiency should improve implementation. Targeted controls via national direction enables prompt implementation.</i>	++ <i>Clarity, consistency and efficiency should improve implementation. Targeted controls via national direction enables prompt implementation.</i>	+ <i>Additional requirements may increase complexity and therefore complicate implementation.</i>
Proportionality	0	0 <i>The burden on regulators and resource users depends on regional council decision-making.</i>	- <i>Increased regulatory and compliance burden as low-risk activities captured</i>	0 <i>No substantial change to the burden on regulators and resource users compared to the counterfactual</i>	0 <i>No substantial change to the burden on regulators and resource users compared to the counterfactual</i>	- <i>May increase burden on regulators and resource users.</i>
Fairness	0	0 <i>Population protected would depend on regional council decision-making.</i>	NA <i>Criteria relates to proposal 3</i>	NA <i>Criteria relates to proposal 3</i>	NA <i>Criteria relates to proposal 3</i>	NA <i>Criteria relates to proposal 3</i>
Te Tiriti o Waitangi	0	+ <i>Removal of national direction in favour of Freshwater Planning enables Māori involvement.</i>	0 <i>Māori involvement is as provided for through wider RMA processes.</i>	0 <i>Māori involvement is as provided for through wider RMA processes.</i>	0 <i>Māori involvement is as provided for through wider RMA processes.</i>	0 <i>Māori involvement is as provided for through wider RMA processes.</i>
Total	0	0 <i>Overall option does not offer an improvement to the counterfactual. Any amendment to NES-DW provides opportunity to improve consistency in freshwater / drinking water framework.</i>	- <i>Inclusion of low-risk activities and exclusion of some high-risk activity from control may be worse than the counterfactual.</i>	+ <i>Some improvement in effectiveness, consistency and implementation.</i>	++ <i>Greater improvement in effectiveness, consistency and implementation.</i>	+ <i>Greater improvement in effectiveness, and consistency, although more complexity for implementation and greater regulatory burden.</i>

## What option is likely to best address the problem, meet the policy objectives, and deliver the highest net benefits?

112. Both Options 3 and 4A are an improvement on the counterfactual.
113. Option 3 improves consistency with other legislation and Te Mana o te Wai, and it will improve how the NES-DW is implemented. However, while most high-risk activities are identified and controlled in SWRMA 1, some high-risk land uses are not, nor all high-risk activities in SWRMA 2.
114. Option 4A improves the effectiveness of the NES-DW, by:
- Addressing all high-risk land uses in SWRMA 1 (ie, around the bore head and within the 5 m riparian margin), and
  - Ensuring regional councils do not permit other high-risk activities in SWRMA 2.
115. The key trade-offs between Options 3 and 4A for proposal two are effectiveness and proportionality. While increasing activity controls within SWRMA generally correlates with improved risk management and a greater reduction in source water contamination doing so may increase regulatory complexity and the compliance burden on resource users. There may be concerns those affected by the additional controls in Option 4A have not been adequately engaged.
116. Further, the degree of impact of the NES-DW and any associated amendments will depend on current regional plan rules.

## Proposal Three: Appropriate scope of the NES-DW

117. Proposal three suggested extending the NES-DW regulations to all registered water suppliers, to align with the approach of the WSA. The WSA requires currently registered suppliers to re-register by November 2022, and all unregistered suppliers (excluding domestic self-suppliers) must register by 2025.

## Stakeholder views

118. The proposal to extend the NES-DW to all registered water suppliers received significant interest among submitters, with two key themes emerging:
- **Cost of implementation/ feasibility/ proportionality of option:** Many submitters raised concerns about the extensive resources and funding required by regional councils, iwi/hapū/whānau Māori, and water suppliers to apply the NES-DW to all registered drinking water supplies, due to the large number of estimated unregistered drinking water supplies. Numerous submitters commented on the need for a risk-based approach for small drinking water supplies, requesting an alternative pathway or exemption for small drinking water supplies.
  - **Support for inclusion of small supplies:** A number of submitters supported the inclusion of all drinking water supplies, due to the concept that all New Zealanders have a right to safe drinking water, regardless of where they live. Some feedback received from iwi, hapū and whānau Māori noted health disparities in some Māori communities, due to their drinking water supplies serving fewer than 501 people, they are not afforded protection under the current NES-DW. A joint submission by several environmental groups suggested extending proposal 3 to all drinking water supplies, including domestic self-supplies.

## Description of options



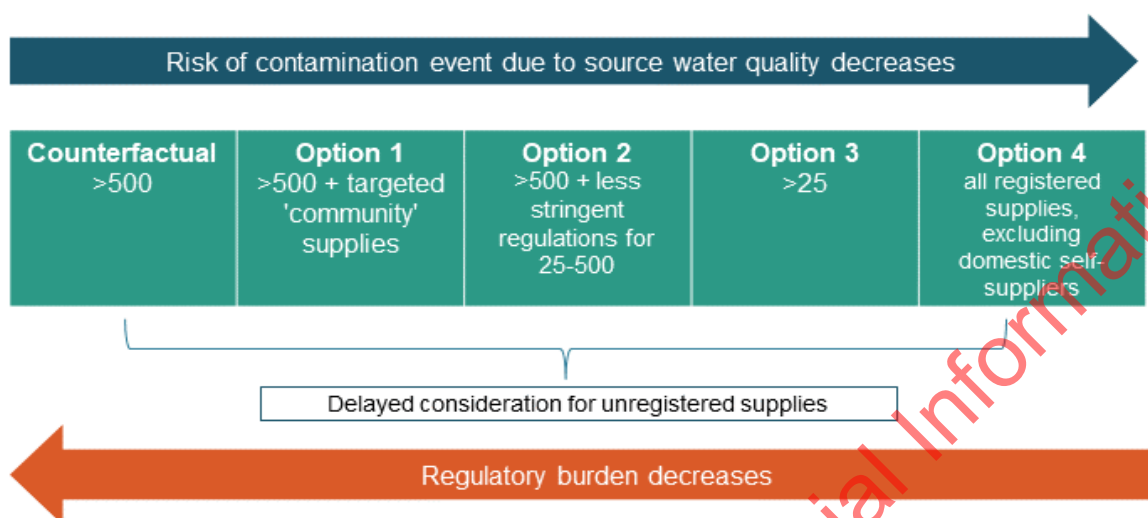
119. Table 65 below provides a brief description of options that were originally considered to address the inclusion of small supplies (serving fewer than 501 people) for comparison to the counterfactual.
120. Stakeholders raised significant concerns about the implementation challenges for this proposal. Therefore, the development of the following options has carefully considered the feasibility of implementation.

**Table 65: Summary of Proposal 3 options**

Description	Analysis
<p><b>Option 1</b></p> <p>Full NES-DW applies to registered supplies serving 25-500 that are 'community supplies'.</p> <p>Delayed consideration for unregistered suppliers.</p>	<p>This option places significant emphasis on protecting small community suppliers and captures most community drinking water supplies (such as schools, memorial and community halls, marae, and sports facilities), detailed on pg. 32. Therefore, this is likely to increase protections for some vulnerable populations (eg, children, people receiving medical attention, and elderly). This option will not provide protection for small communities comprised of private households.</p> <p>These are areas where the wider public are likely to use the drinking water and have little or no information about the water quality and have no means of improving the water quality. There will be impacts on resource users (particularly rural), ie if a school borders farmland and requires new restriction on activities.</p>
<p><b>Option 2</b></p> <p>Limited NES-DW applies to registered supplies serving 25-500:</p> <ul style="list-style-type: none"> <li>• map SWRMA 1 and 2</li> <li>• less stringent activity controls.</li> </ul> <p>Delayed consideration for unregistered supplies.</p>	<p>This option provides a proportionate response (in line with WSA), by allowing for less stringent regulations for smaller suppliers. This will provide more protection for smaller suppliers than the counterfactual (and likely provide more coverage in rural areas), while not imposing the full restrictions on the resource users around these smaller supplies.</p> <p>There will be a one-off impact on regional councils as they implement the additional mapping, although the less stringent regulation will be faster and less costly to apply than the full regulations. Resource users will be impacted, but not to the same extent as those affected by mapping for larger supplies. This will provide some form of protection to all registered supplies, including community ones (such as marae and schools).</p>
<p><b>Option 3</b></p> <p>Full NES-DW applies to all registered supplies serving no fewer than 25, upon registration.</p>	<p>This option was recommended by the HNI.</p> <p>Applying the NES-DW to all supplies serving no fewer than 25 upon registration will expand full protections to a far greater number of supplies than the counterfactual – this will likely include the majority of community supplies as identified in option 1.</p> <p>It will be costly for regional councils to implement – as there is potentially a significant number of unregistered supplies, and they would require mapping upon registration. This will have a flow-on effect to resource users, who may have their activities restricted (particularly in rural areas which may have a large number of currently unregistered supplies).</p>
<p><b>Option 4</b></p> <p>Full NES-DW applies to registered supplies (excluding domestic self-suppliers), upon registration</p>	<p>Under this option, protection is afforded to far more people, but will have a large regulatory cost on regional councils and resource users and will likely be very slow to implement. This option aligns with the WSA requirements (where all water suppliers must register), but doesn't follow the principle of proportionality, which should tailor regulations to scale and benefit. While this option had significant support among ENGOs, it was strongly criticised by regional councils and rural stakeholders as being unfeasible.</p>

121. Figure 3 below, shows the trade-off to be considered between effectiveness and feasibility across the potential options.

**Figure 3: Coverage options and trade-offs between effectiveness and feasibility**



**What option is likely to best address the problem, meet the policy objectives, and deliver the highest net benefits?**

122. We found that all four options to expand the scope of the NES-DW are not feasible to implement, at this stage. They have been discounted for this reason. For options 1 and 2, complexity and inequity would arise from applying different activity controls for some groups over others. Options 3 and 4 are not feasible to implement due to the unknown, and likely large, number of currently unregistered suppliers. Requiring the mapping of SWRMAs as they register would create a very large cost and resource burden for regional councils and at this stage, we cannot know the benefits or the costs of providing the additional source water protection and activity restrictions from these options.

123. Therefore, our recommendation is to retain the existing scope of the NES-DW as per the counterfactual. We also recommend that the expansion of the NES-DW to include small supplies be considered after all drinking water suppliers (except domestic self-suppliers) have registered with Taumata Arowai in November 2025.

124. This aligns with the feedback provided by Taumata Arowai who did not support any of the options to expand the scope of the NES-DW at this time. Taumata Arowai are in favour of the issue of scope being reconsidered after 2025 once the new registration process is complete and we better understand the number, location and risk profiles of small supplies.

**The potential packages: combining options for proposals one, two and three**

125. The three proposals and the available options have significant interdependencies with one another and must work together to form a well-functioning NES-DW within the broader freshwater and drinking water regulatory systems. The viable options under each of the proposals have been brought together to form three potential packages. These three packages have been assessed against our criteria.



126. The three potential packages all either in part, or wholly meet the objectives of amending the NES-DW. They are compared against the counterfactual which is described in more detail at page 10. A summary of the three packages is shown in
127. **Figure 4** below. This shows what each package is comprised of at a high-level across the three proposals for mapping, management of activities and scope.

**Figure 4: Summary of packages considered in analysis**

Key:		
Mapping (Proposal One)	Activity controls (Proposal Two)	Scope (Proposal Three)
Package One: retain NES-DW + mapping	Package Two: + refined activity controls	Package Three: + additional activity controls
Registered supply >500		
Map SWRMA <ul style="list-style-type: none"> <li>• SWRMA1 is fixed</li> <li>• SWRMA2 is fixed / calculated</li> <li>• SWRMA3 catchment / capture zone</li> </ul>		
Existing NES-DW provisions: That regional councils cannot allow activities where that activity would result in the water supply breaching the DWSNZ, after existing treatment		
	Add targeted controls to high-risk activities within SWRMA to reduce risk to source water: SWRMA 1: <ul style="list-style-type: none"> <li>• Applies to various specified activities, and ranges from avoiding certain new high-risk activities (eg wastewater discharges), to establishing minimum requirements for existing activities or essential new activities (eg discharge from landfill, or use of aquatic herbicides)</li> </ul> SWRMA 2: ensure regional councils do not permit - <ul style="list-style-type: none"> <li>• Discharges of specified contaminants directly into water</li> <li>• New bores and certain types of aquifer disturbance</li> </ul>	Include additional high risk activity restrictions : SWRMA 1: <ul style="list-style-type: none"> <li>• Certain land uses in the 5 m riparian margin and within the 5 m radius of the bore head e.g. storing chemicals</li> </ul> SWRMA 2: <ul style="list-style-type: none"> <li>• Ensure regional councils do not permit certain discharges to land eg wastewater, contaminated sites</li> </ul>
Any water supply other than a domestic self-supply <500		
Delay consideration until registered (Nov 2025)		

**Description of the three potential packages**

The summary table in

128. **Figure 4** shows that all package options would retain the scope of the current NES-DW, map Source Water Risk Management Areas (SWRMA) and each package would retain the existing requirements under the NES-DW that large supplies do not allow activities

to occur that would breach the Drinking Water Standards (DWSNZ) after existing treatment.

- 129. The table also shows the options available to add additional activity controls to activities that pose a risk to source water by SWRMA.
- 130. All three packages provide a strengthened NES-DW.

### Package One – Retain NES-DW + addition of mapping

- 131. This package provides the least amount of change compared to the counterfactual. It retains the activity controls and scope of the current NES-DW, with the addition of mapping SWRMA by three levels of risk.
- 132. The mapping requirements would be the responsibility of regional councils. SWRMA 1 and 2 can be mapped using either fixed size, or more complex default methods. SWRMA 3 must be either the total catchment or capture zone.
- 133. The mapping of SWRMAs will provide better information to regional councils and territorial authorities about areas where activities can pose a risk to source water. Using these SWRMAs, regional councils will be required to implement the activity control provisions in the current NES-DW.
- 134. The coverage of this package would be the same as the counterfactual – the NES-DW would apply to all supplies that serve no fewer than 501 people. Currently the coverage extends to the 276 drinking water supplies<sup>31</sup> that serve no fewer than 501 people – covering 82% of the population.
- 135. The newly mapped SWRMA and the percentage of land coverage in New Zealand<sup>32</sup> is outlined in table 7 below:

**Table 7: Package One mapped SWRMA and land coverage**

SWRMA risk areas	Overall land coverage in NZ <small>excluding legally protected areas</small>	Productive land coverage in NZ <small>*high producing grassland, low producing grassland, orchard, vineyard / perennial crop, short rotation crop</small>
SWRMA 1	0.008%	0.004%
SWRMA 2	6.8%	5.5%
SWRMA 3 (No activity controls)	70%	48.4%

- 136. Under Package One, and the counterfactual, the regional council could choose to establish targeted activity controls in the SWRMAs, either through their freshwater planning processes as they give effect to the NPS-FM, or via a stand-alone plan change process.

### Package Two - Refined activity controls

<sup>31</sup> This could increase over time as the Water Services Act requires all unregistered supplies other than domestic self-suppliers to register by November 2025, however it is likely that most supplies of this size are already registered.

<sup>32</sup> The land area calculations are based on a version of the Taumata Arowai Drinking Water Supply register from May 2022, which are slightly different to final number of supplies and people covered by this scope.

137. This package introduces a refined list of high-risk activities (see Appendix 1) for which controls will be set within SWRMA 1 and 2. The activities controlled within do not go beyond those identified within the consultation document, for each SWRMA. These controls are additional to the 'baseline' activity control provisions in the current NES-DW.
138. Regional councils could still choose to establish targeted activity controls in the SWRMAs that are more stringent than the NES-DW, either through their freshwater planning processes as they give effect to the NPS-FM, or via a stand-alone plan change process.
139. The mapping requirements and the coverage of this package would be the same as Package One.

### Package Three – Additional activity controls

140. This package is the same as Package Two regarding scope and mapping requirements, however, the package includes additional high-risk activities for which controls will be set within SWRMA 1 and 2. These additional controls go beyond what was expressly identified in the consultation document in early 2022. Submissions and MfE risk analysis identified additional activities that pose a high-risk to source water. Package Three would control some of those high-risk activities.
141. In SWRMA 1, storing hazardous substances and keeping farmed animals around the bore head would be prohibited.
142. In SWRMA 2 groundwater, regional councils would not be able to permit high-risk discharges to land of wastewater, or from contaminated sites, landfills, and offtal pits. These SWRMA 2 controls would ensure regional councils collect the necessary information to protect aquifers used for source water, and manage effects, including cumulative effects, appropriately.
143. As with Package Two, regional councils could still choose to establish targeted activity controls in the SWRMAs that are more stringent than the NES-DW in their regional plans

### Analysis of packages

144. The key trade-offs between the three packages is the degree of reliance on regional councils to establish targeted rules within SWRMA, timeliness of the response, and effectiveness at reducing the likelihood of contamination of source water

#### The coverage and specificity of activity controls

145. Under all packages, regional councils are required to implement the current requirements of the NES-DW as a baseline – ie to restrict any activity that may cause drinking water to breach the DWSNZ after existing treatment.
146. Under Package Two, the controls are refined to target specific high-risk activities already identified within the consultation document. These refined controls consider risk to source water based on the likelihood and consequence of hazardous events occurring. Likelihood and consequence differ based on the proximity of the activity to the source water intake, the type of contamination associated with it (eg, pathogens or toxic chemicals), and how contamination occurs (eg, through increasing the presence of contaminants, or altering their path to source water).
147. The consultation document identified limited high-risk land uses, and few activities that were high-risk to source water in SWRMA 2. Further analysis indicates controls on additional high-risk activities may be justified to ensure effects on source water are

known and appropriately managed, and these are included in Package Three. The likely impacts of these additional controls are:

- SWRMA 1 impacts are limited to the 5 m radius around the bore head and are intended to align with requirements of the Drinking Water Quality Assurance Rules. In practice, it is likely that most land where the bore head is located is owned by the water supplier, and that such high-risk activities should not be occurring.
- SWRMA 2 groundwater impacts potentially cover a larger land area, and the approach ensures regional councils do not permit activities that are high-risk to source water. Those activities are certain types of discharge where the associated contaminants are likely to migrate to the source water intake within one year. If an activity is permitted the regional council is unlikely to have good data, and effects (including cumulative effects) may not be appropriately managed. The degree of impact will depend on the quality of current regional council rules. Some (eg, landfill discharges) may already require consent, while some (eg, offal pits) may be permitted.

148. As these 'additional' high-risk activities were not expressly identified in the consultation document in early 2022, there may be a perception that consultation in relation to these activities has been inadequate. Furthermore, detailed consideration of the costs and benefits of including additional controls in the NES-DW has not been completed. Guidance on these activities will be included in an update to the Draft Users' Guide to the NES-DW 2009, which will improve broader implementation of the NES-DW and use of SWRMA 2 maps. These controls could be considered as part of any future review of the NES-DW to include smaller water supplies, after November 2025.

#### Mapping requirements and scope

149. All the packages will have some additional cost compared to the counterfactual, as they will require the mapping of the SWRMAs for the same supplies. Once mapped, these will enable regulators to easily identify activities that could pose a risk to source water. This will reduce future time spent assessing activity risk.
150. All the packages allow for regional councils to choose the level of complexity of the mapping, by offering a bespoke option. This will ensure that the complex and costly mapping is used in appropriate situations, and for simple or small supplies, the default option is available.

**Table 8: Assessment of the three packages against the counterfactual**

**Key for qualitative judgements:**  
 ++ much better than the counterfactual  
 + better than the counterfactual  
 0 about the same as the counterfactual  
 - worse than the counterfactual  
 -- much worse than the counterfactual

Criteria/Option	Counterfactual	Package One	Package Two	Package Three
	<ul style="list-style-type: none"> <li>• Scope &gt;500</li> <li>• No mapping</li> <li>• NES-DW 2007 activity controls retained</li> </ul>	<ul style="list-style-type: none"> <li>• Scope &gt;500</li> <li>• SWRMA mapping</li> <li>• NES-DW 2007 activity controls retained</li> </ul>	<ul style="list-style-type: none"> <li>• Scope &gt;500</li> <li>• SWRMA mapping</li> <li>• + Refined activity controls</li> </ul>	<ul style="list-style-type: none"> <li>• Scope &gt;500</li> <li>• SWRMA mapping</li> <li>• + Additional activity controls</li> </ul>
<b>Implementation</b>	0	0 <i>Mapping requires resource. Lack of explicit activity controls requires additional regional council work, same as counterfactual</i>	++ <i>Clear national direction ensures consistent and straightforward implementation</i>	++ <i>Clear national direction ensures consistent and straightforward implementation</i>
<b>Effectiveness</b>	0	+ <i>Mapping improves understanding of risk zones. Lack of specific high-risk activities and a requirement to act reduce the effectiveness of this option</i>	+ <i>Mapping, plus requirement to restrict specific high-risk activities makes this option more effective than counterfactual.</i>	+ <i>Mapping, plus requirement to restrict additional specific high risk activities makes this option more effective than counterfactual. No requirements to restrict activities for smaller suppliers</i>
<b>Consistency</b>	0	0 <i>Activity controls are same as counterfactual – mapping may aide councils to implement TMOTW, but not explicitly required in this option</i>	+ <i>Advocates for multi-barrier approach and will give effect to <u>TMoTW</u>.</i>	++ <i>Advocates for multi-barrier approach and will give effect to <u>TMoTW</u>. More waterbodies considered/ covered.</i>
<b>Proportionality</b>	0	0 <i>Activity controls are the same as counterfactual. Low risk activities are not controlled, as in the counterfactual.</i>	- <i>High risk activities will be controlled in 5.5% of NZ productive land. Low risk activities are not controlled, as in the counterfactual. This would result in some increased regulation.</i>	-- <i>High risk activities will be controlled in 5.5% of NZ productive land. Low risk activities are not controlled, as in the counterfactual. This would result in further increased regulation.</i>
<b>Fairness</b>	0	0 <i>Scope is the same as counterfactual</i>	0 <i>Scope is the same as counterfactual.</i>	0 <i>Scope is the same as counterfactual.</i>
<b>Te Tiriti o Waitangi</b>	0	0 <i>Māori involvement is as provided for through wider RMA processes</i>	0 <i>Māori involvement is as provided for through wider RMA processes</i>	0 <i>Māori involvement is as provided for through wider RMA processes</i>
<b>Overall Assessment</b>	0	+	++	++

Proactively released under the Official Information Act



## What package is likely to best address the problem, meet the policy objectives, and deliver the highest net benefits?

151. Based on our multi-criteria analysis, Package Two is our preferred option and best meets the policy objective. This package provides additional protection under the NES-DW compared to the counterfactual. Table 9 shows the impact of Package Two:

**Table 9: Impact of Package Two**

	Supplies supplying >500 people <sup>33</sup>			
No. of supplies	276			
No. of people	4,225,323		82%	
Area <sup>34</sup>	Total land		Productive land	
SWRMA 1	1,430 ha	0.01% <sup>35</sup>	423 ha	0.004% <sup>36</sup>
SWRMA 2	1,227,247 ha	6.8%	606,249 ha	5.5%
SWRMA 3 (no activity controls)	12,602,043 ha	70.0%	5,898,767 ha	48.4%

152. Package Two provides a well-balanced response to strengthen the NES-DW with additional protections that limit increased regulatory burden. It increases the effectiveness of the NES-DW protections for larger water supplies who supply the majority of the New Zealand population.
153. This option provides the most flexibility to regional councils for mapping SWRMAs, establishing both a default and bespoke approach to mapping, and allows them to choose the appropriate level of complexity and therefore associated cost. It also uses a robust set of risk-based criteria, applicable to both surface and ground waters and balances the trade-offs of protection versus difficulty to resource and implement.
154. This option establishes nationally consistent minimum requirements to address the highest risk activities in SWRMA 1 and 2. It allows regional councils to develop more stringent local controls as appropriate, including through freshwater planning, but it is not reliant on them doing so (noting focus on establishing SWRMA controls may not be achievable for all regional councils by the December 2024 deadline for public notification of freshwater plans).
155. The impact of the specified activity controls is minimal, with less than 0.01% or productive land in New Zealand impacted by the majority of the proposed controls (SWRMA 1 controls). This land is riparian land (5 m border of surface water body) or

<sup>33</sup> Based on the Taumata Arowai register as of 18 October 2022.

<sup>34</sup> The area calculations are based on a version of the Taumata Arowai Drinking Water Supply register from May 2022, which are slightly different to final number of supplies and people covered by this scope.

<sup>35</sup> Total land excluding formally protected land is 17,998,483 ha.

<sup>36</sup> Total productive land (high producing grassland, low producing grassland, orchard, vineyard / perennial crop, short rotation crop) is 10,935,336 ha.

5m around the drinking water bore head, therefore the impact on the individual agricultural producer, relative to the size of their farm, is likely to be minimal.

156. The activity controls specifically listed in this package are a subset of the controls that were consulted on in early 2022. Combined with the reduction in the scope, the focus on high-risk activities was supported by many submitters. MPI have highlighted that a clear and coordinated implementation of these changes will be important for the rural sector.
157. Retaining the scope of the current NES-DW, to water supplies to no fewer than 501 people, ensures these amendments are implementable. We recommend that after November 2025, when all water suppliers except for domestic self-suppliers will have registered with Taumata Arowai, the potential extension of the scope of the NES-DW be reconsidered. The regional council expert group were supportive of extending the scope of the NES-DW. Under the proposed amendments, they can include more water supplies in these protections if they would like.

## Te Tiriti o Waitangi impact analysis

### Engagement with iwi, hapū and Māori

158. During the policy process to amend the NES-DW we undertook a range of engagements with Māori, initially through the Essential Freshwater Water package reforms and through the Three Waters reform engagements partnering with DIA and Taumata Arowai. There were also targeted engagements with representatives from iwi in rohe that are disproportionately impacted by drinking water issues. Officials continued to seek iwi/hapū/Māori feedback on the amendments during the 8-week public consultation period through consultation with 47 Post Settlement Governance Entity (PSGE) representatives and engagement with 24 hapū and iwi with which MfE has a relationship agreement.
  - Issues of costs and the regulatory burden on marae and papakāinga water supplies were raised through much of this engagement. In wider engagement with Māori on resource management topics, the issue was raised of mana whenua being under-resourced to participate in these processes.
  - Many submitters referenced existing Treaty settlement provisions, wanting to ensure they are recognised and given effect to when implementing the NES-DW.
159. The preferred package will not interfere with existing te Tiriti o Waitangi settlements and arrangements. Officials identified specific settlements that would prevail over an NES they include:
  - Te Ture Whaimana o Te Awa o Waikato – Vision and Strategy for the Waikato River
  - Te Awa Tupua status and the four Tupua te Kawa intrinsic values for the Whanganui River
  - Te Mana Tupua and the four Ngā Toka Tupua intrinsic values of Te Waiū-o-Te-Ika (Whangaehu River).
160. Further analysis identified te Tiriti o Waitangi settlements that contain specific commitments that MfE must meet. These commitments are related to relationship building that we recognised during the public consultation period. Officials invited representatives from these iwi and hapū groups to an online webinar specifically for

representatives to ensure they had an opportunity to share their views and raise any concerns they may have.

161. Through engagement, we heard multiple perspectives in relation to source water protection. Generally, we heard strong support for improving the safety and health of the water. We also heard that careful consideration must be given to the mapping of whenua Māori and to the imposition of regulation, monitoring and enforcement on whenua Māori, given the historical and ongoing impacts of government mapping in these spaces and the protection of tino rangatiratanga in te Tiriti o Waitangi. This is particularly important when the affected mana whenua have not been directly involved in the development of the regulations.<sup>37</sup>
162. Alongside the overarching concern about impacting tino rangatiratanga, the impacts of the preferred amendments to the NES-DW affect iwi/hapū/Māori in two main opposing ways. If they are the water supplier or water users, it provides additional protection to their water source and reduces the likelihood of contamination and the costs of treatment. However, if whenua Māori is included in the mapped SWRMAs, they will have some restrictions on activities imposed on them.

#### *Māori as water suppliers and/or water users*

163. Many Māori communities, marae and papakāinga supply their own drinking water. In many cases this is because no one else has prioritised providing these communities with safe drinking water. Therefore, it is not their primary function, and they may not be set up to cover any additional costs that arise because of the changing drinking water regulatory environment.
164. On the current Taumata Arowai water supplier register, there are 95 water suppliers that are identified as kāinga<sup>38</sup> that are not solely rainwater supplied. Of these, only one supply would be covered by the NES-DW.<sup>39</sup>
165. Many Māori communities also use the water for Rongoa (healing) purposes. Contamination of source water means it cannot be used for consumption nor are they able to use water from their awa for Rongoa purposes, disrupting their ability to practise and teach cultural traditions previously done in that waterway.
166. If these water supplies were included in the protections of the NES-DW, there would be a reduced likelihood of drinking water contamination events, and therefore likely health benefits, for these communities. However, there is a tension with the protection of tino rangatiratanga, as the priorities of the impacted mana whenua are unique and mana whenua views on the negative impact of these policies, and thus the relative cost/benefit of these regulations, will vary across the motu.

#### *Māori as resource users*

167. Māori would also be impacted by the regulations on the other side of the coin, as resource users. If whenua Māori is covered by the SWRMAs, they would be covered by the activity controls in the NES-DW. Analysis found that 12.5 ha (0.0009% of total

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<sup>37</sup> Directly affected mana whenua who are water suppliers or would be impacted by the mapping could not practically be engaged with through the process of developing national direction. They will be engaged by their regional council during implementation.

<sup>38</sup> This group includes iwi entities, kura kaupapa Māori, kōhanga reo, marae, papakāinga, and Māori communities. It is likely that there are also many unregistered Māori-owned water supplies, that are not covered in this analysis. They would also not be automatically covered by the NES-DW upon registration under the preferred package.

<sup>39</sup> 83 of these serve populations between 25 and 500 people.

whenua Māori)<sup>40</sup> of whenua Māori is covered by SWRMA 1 and 85,094 ha (6.3% of total whenua Māori) is covered by SWRMA 2.

168. Current land-use and future land-use / land development opportunities may be limited by the presence of the SWRMA. In other consultation, some iwi/hapū/Māori noted that any action which constrains Māori-collectives (eg, iwi, hapū, Māori land trusts, Post-Settlement Governance Entities, etc) from exercising rangatiratanga and mana motuhake over their whenua will have flow on effects that will compound historical grievances and increase disadvantage for Māori-collectives.
169. In summary, many marae and papakāinga are self-suppliers due to historically being underserved by municipal supplies. Many of these supplies will not yet be registered on the Taumata Arowai register. Each different supply will also have unique views on whether, as mana whenua, they would like to have the additional protections (and land use restrictions) applied to their whenua. Any additional source water protections for these water supplies should be dealt with on a local scale, with leadership from the mana whenua groups, working with the regional council.

### What are the marginal costs of the option?

Stakeholders / resource	Explanations	Cost <sup>41</sup>
Resource user – primary sector		
Restrictions on activities in SWRMA 1	<p>Activities impacted will be limited to productive activities in SWRMA 1. SWRMA 1 covers a total of 423 ha (0.004%) of productive land and 1,430 (0.01%) of total New Zealand land.</p> <p>Under the counterfactual, regional councils are already required to restrict activities that will cause a breach of the DWSNZ. However, this NES-DW does not seem to be having an impact on source water quality.</p> <p>The preferred option is designed to improve clarity and implementation. In doing so there may be additional costs to resource users as they avoid or mitigate source water effects in proximity to intakes. It is likely these activities should already have been controlled under the counterfactual.</p> <p>The cost faced by these stakeholders is the opportunity cost of not being able to do the restricted activities in SWRMA 1. However, this area is relatively small, located in the riparian strip/around the bore, and while there are explicit activity restrictions, many of these activities should have been restricted under the counterfactual already.</p> <p>As a maximum impact, if all 423 ha were intensive dairying, and the introduction of these controls restricted</p>	Low

<sup>40</sup> Whenua Māori as defined by Te Ture Whenua Act and included in the Māori Land Court Spatial Dataset, and does not include whenua Māori that is not Māori Freehold Land or Māori customary land (ie, does not include land that is owned by iwi or land that is privately owned by Māori). Total whenua Māori is 1,404,710ha

<sup>41</sup> The evidential certainty of this CBA is low/medium. The intent of this preferred option does not differ substantially from the current policy. Rather it attempts to clarify and simplify the implementation of this policy intent. For these reasons, the marginal costs and benefits are of low evidential certainty.

Stakeholders / resource	Explanations	Cost <sup>41</sup>
	<p>all dairying on this land (this will be a large overestimation), the maximum cost will be:</p> <p>423 ha x 2,856 (\$/ha)<sup>42</sup> = \$1,208,088</p>	
Restrictions on activities in SWRMA 2	<p>SWRMA 2 is a larger area, but with less activity controls than in SWRMA 1. Impacts an estimated additional 606,249, (5.5%) ha of productive land and 1.2m (6.8%) ha of NZ land. Therefore, the impact of new activity regulations here could be significant for landowner.</p> <p>However, while the area is relatively large, the activities controls proposed relate to are very limited. Only direct high-risk discharges of contaminants to water and disturbance of certain aquifers will no longer be permitted. The drilling of new bores will be required to meet an updated quality standard.</p> <p>Under the counterfactual, in much of SWRMA 2, regional councils are already required to restrict activities that will cause a breach of the DWSNZ. Marginal costs arising from the proposal are also dependent on how regional councils currently manage those activities. If a regional council currently permits the high-risk activities listed in the proposal, then the proposal will have an impact as resource users will be required to make an application for consent.</p>	Low / Medium
New consent costs	<p>Resource users will incur costs where a consent is now required, where previously the activity was permitted, or if the NES-DW establishes additional information or monitoring requirements for activities already requiring consent. This will differ between regions.</p> <p>However, the proposal intends to only capture activities that are 'high-risk' to source water, ie they have increased likelihood and consequences of concern. Under the counterfactual, these kinds of activities are unlikely to be permitted.</p> <p>The consent process ensures regional councils are considering the effects of each activity, including cumulative effects, and imposing appropriate conditions to manage risk to source water.</p> <p>There may be a small number of new low or medium complexity consent applications that will now be required. The estimated cost of these applications depends on many factors, but is estimated to cost anywhere between \$10,000 - \$30,000 for lower complexity applications, and up to \$50,000 for applications with increased complexity.</p>	Low

<sup>42</sup> Average operating profit 2020/21 from DairyNZ DairyBase - <https://www.dairynz.co.nz/business/dairybase/benchmarking/latest-dairybase-benchmarks/>



Stakeholders / resource	Explanations	Cost <sup>41</sup>
	The total number of s9, s14, and s15 consents granted by regional councils in 2019 was 5,265. The need for any additional consents as a result of this proposal will be only a fraction of this number (<5%).	
Land use change	<p>As a result of the proposed amendments to the NES-DW, and the additional restrictions placed on activities within SWRMAs 1 and 2, landowners may choose or be required to change the way that land within these areas is used.</p> <p>The proposed amendments target the highest risk activities, in high-risk locations. Due to the limited land included in SWRMA 1, and the limited activities restricted in SWRMA 2, and the limited scale when considering a whole farming operation, we do not think there will be significant or widespread requirements to change how land is used because of the proposed amendments.</p>	Low
Resource user – others		
Restrictions on activities for other resource users, including fuel, electricity, minerals and waste management	<p>The SWRMAs will cover land that has uses other than agricultural production, and some of the activity restrictions will limit activities undertaken by other industries, there is a potential cost to these industries of either consent applications or restrictions. The SWRMAs also cover surface water bodies, which are used for purposes such as hydroelectric power generation.</p> <p>SWRMA 1 land that is not productive land or low-risk<sup>43</sup> land is 171 ha. SWRMA 2 is 152,302 ha.</p> <p>Hydroelectric generation often occurs near source water intakes, with reservoirs behind dams creating opportunities to create intakes. Most hydroelectric generation activities will already require consent, and existing activities in SWRMA 1 will be provided for.</p> <p>Commercial aquaculture may occur within natural lakes and rivers, and it is proposed establishing minimum monitoring requirements for such operation. There are up to 15 existing operations that could be affected by the proposed changes, if they were located within SWRMA1, and if any their downstream monitoring requirements conflicted with those proposed in the NES-DW.</p> <p>For activities on land, such as fuel storage, quarrying and mineral extraction, and waste management, impacts in SWMRA 1 will be limited due to its size – the 5m riparian margin, 5m radius around the bore head.</p> <p>In SWRMA 2, the effects on other industries will be more limited. The minerals and waste management industry</p>	Low

<sup>43</sup> LCDB land use types considered by Aqualinc to be low risk to source water quality (ie, native forest).

Stakeholders / resource	Explanations	Cost <sup>41</sup>
	<p>may be affected by controls over vulnerable aquifers. However, the degree of change resulting from this proposal will depend on how well regional councils currently manage risk to these aquifers.</p> <p>Overall, the burden on other resource users resulting from this proposal is expected to be low.</p>	
Consenting authorities – regional councils and unitary authorities		
Review plans	<p>Consent authorities will be required to review their current plans to ensure their activity statuses align with the NES-DW requirements. Any amendments to their plans to address duplications or conflicts with the NES-DW must be undertaken as soon as practicable, and without using the RMA Schedule 1 process.</p> <p>The estimated cost per consent authority is estimated between \$100,000 - \$200,000.<sup>44</sup> For the sixteen regional councils and unitary authorities affected, this comes to a national cost of \$1,600,000 - \$3,200,000.</p>	Medium
Delineation and establishment of SWRMAs	<p>Under the default method SWRMA 1 is a fixed size, and SWRMA 2 must be delineated using more complex default methods. SWMRA 3 must be either the total catchment or capture zone.</p> <p>An estimated 276 supplies would require SWRMA mapping, and of those supplies approximately half are groundwater and half are surface water.</p> <p>SWRMA 1 and 3 are reasonably straightforward to map. Many regional councils will already have information about SWRMA 3. costs per water supply are estimated at \$1000-\$5000.<sup>45</sup></p> <p>SWRMA 2 can be more complex to calculate and therefore may be more costly. For surface water, costs could range from \$1000-\$100,000, while for groundwater those costs could extend up to \$400,000.<sup>46</sup></p>	Medium Average cost per regional council: \$51,750 - \$258,750

<sup>44</sup> BECA, *Cost Benefit Analysis for the Proposed Amendments to the National Environmental Standard for Sources of Human Drinking Water*, 2021

<sup>45</sup> BECA, *Cost Benefit Analysis for the Proposed Amendments to the National Environmental Standard for Sources of Human Drinking Water*, 2021

<sup>46</sup> These ranges are very large, as the costs of mapping depends on what information is already available to regional councils. For instance, if there is no information available about an aquifer system, it will be very costly to acquire this information. However, after that is completed, any other source water points on that aquifer will be much cheaper to map.

Stakeholders / resource	Explanations	Cost <sup>41</sup>
	<p>The average cost<sup>47</sup> per regional council to map SWRMA using the default method is estimated between \$51,750 - \$258,750.</p> <p>To establish default SWRMA, the mapped SWRMA for each supply will require publication on the relevant regional council website.</p>	
Delineation and establishment of bespoke SWRMA	<p>Regional councils may choose to undertake a new bespoke approach to mapping SWRMA, which would entail use of the full consultative Schedule 1 plan change process. This could be achieved through current Freshwater Planning Processes underway, or through a standalone process.</p> <p>Some councils who have already delineated another form of source water protection zones may elect to use these zones over SWRMA, and this approach will also require formal establishment.</p> <p>Costs are likely to be variable, with upper ranges similar to those for complex default methods for SWRMA 2 (up to \$400,000).</p>	Medium / High
Additional consenting costs, including compliance, monitoring and enforcement	<p>Many activities are already regulated by the current NES-DW or regional rules. The listed activities should have already been covered by the current NES-DW, so the expected change would be low.</p>	Low
Central government		
Implementation of the amended the NES-DW	<p>It is anticipated that preparation of guidance, consultation and provision of technical assistance to support the implementation of the amended NES-DW could cost the Ministry of the Environment \$400,000 (one-off cost).<sup>48</sup></p>	Medium
Central Government Agencies as resource users and water suppliers	<p>There will likely be additional costs for other government agencies that have responsibilities as water suppliers and/or resource users (eg, Department of Conservation, Ministry of Education, Department of Corrections).</p>	Low
Drinking water suppliers (if activities are restricted near source water, impacts considered under resource user)		

<sup>47</sup> This calculation assumes that the mapping requirements are spread evenly over the 16 regional councils and unitary authorities, and uses the estimated costs of the fixed velocity or distance method, given that there would be economies of scale within the authorities' boundaries. Waikato (99 supplies), and Canterbury (82 supplies) have the largest share of these supplies currently registered, with the rest mapping under 60.

<sup>48</sup> BECA, *Cost Benefit Analysis for the Proposed Amendments to the National Environmental Standard for Sources of Human Drinking Water*, 2021

Stakeholders / resource	Explanations	Cost <sup>41</sup>
Engagement with resource users on consent applications	Water suppliers will be interacting with regional councils as their SWRMPs are developed.	Low
Iwi / hapū / Māori (Māori are also both resource users and water suppliers – their views are included in those costs)		
Compliance costs	Māori landowners and resource users may be affected by the compliance requirements as set out above.  Engagement costs may be incurred by Māori landowners and resource users as most are operated by volunteer whānau member trusts.	Low
Total costs	Over 30 years	Low / Medium

### What are the marginal benefits of the option?

Stakeholders / resource	Explanation	Benefit
Environment		
Freshwater quality	By protecting source water, the health of the environment will gain precedence over its multitude of uses, in line with Te Mana o te Wai.  This includes benefits to freshwater ecosystems.	Low
Reduced contamination events due to drinking water	Compared to the counterfactual, this option does not increase the scope of the protections to additional population, but does provide more clarity about the current controls and therefore should reduce the likelihood of contamination events.  This additional clarity of the NES-DW will provide these drinking water supplies, and these consumers, with multi-barrier protection of their drinking water, which reduces the likelihood of contamination events occurring. Two separate studies estimated the endemic gastrointestinal disease attributable to drinking water sources in New Zealand in 2000 as between 18,000 <sup>49</sup> and 34,000 <sup>50</sup> cases per annum, though these were thought to be underestimates at the time, and the HNI Stage 2 Report states that evidence was heard to	Medium

<sup>49</sup> Ball A. (2006). Estimating the burden of drinking-water-borne disease: interim report. ESR Report FW05120, Christchurch.

<sup>50</sup> Close M; Dann R; Ball A; Pirie R; Savill M; Smith Z. (submitted to J. Water Health) (2006) Microbial groundwater quality and its health implications from a border-strip irrigated dairy farm catchment, South Island, New Zealand.

Stakeholders / resource	Explanation	Benefit
	<p>suggest a figure in excess of 100,000 cases per year was likely to be more accurate. The HNI Stage 1 Report found that there had been 13 waterborne illness outbreaks in the ten years preceding the Havelock North outbreak, with a total of 377 confirmed cases and an additional 806 probable cases reported.</p> <p>Avoidance of cost associated with outbreaks:</p> <p>For large suppliers, previous outbreaks have cost \$21m (Havelock North)</p> <p>For smaller supply's, previous outbreaks have cost around \$400,000 (small outbreak in 2012)</p> <p>Of the \$21 million cost associated with the Havelock North outbreak, Sapere<sup>51</sup> found that the majority of the cost was borne by households (\$12.4 million), followed by costs to local government (\$4.1 million) and the health sector (\$2.5 million).</p> <p>The costs faced by households relate to household inconvenience due to having to boil water, buy bottled water, and taking time off from normal activities during the outbreak, with a cost per household of \$2,440.</p>	
Additional human health benefits	<p><u>Swimming</u></p> <p>Healthier waterways can reduce the level of contamination and sickness that occur when swimming. The NPS-FM introduced a E. coli bottom line for swimming spots. The NES-DW will indirectly improve the water quality of many other waterways, including some swimming spots.</p> <p><u>Mahinga Kai and other food gathering</u></p> <p>The NES-DW will improve the water quality in some water bodies. This will improve mahinga kai and other food gathering opportunities by reducing the contaminants in the waterways where these food sources live.</p> <p><u>Wellbeing</u></p> <p>Access to healthy and flourishing waterways have benefits for general wellbeing. The NES-DW will improve the quality of some waterways and increase access for communities around these areas to healthy waterways.</p>	Low
Resource users		

51 <https://www.health.govt.nz/publication/economic-costs-havelock-north-august-2016-waterborne-disease-outbreak>



Stakeholders / resource	Explanation	Benefit
Certainty	Resource users will have more certainty over where source water may be at-risk from their activities, and improved clarity over requirements for protecting source water in their local area.	Low
Relationship with water suppliers	Relationships with water suppliers will be established and grow.	Low
Consenting authorities – regional councils and unitary authorities		
Clear direction for consenting authorities	Consenting authorities will have improved and clearer direction to exercise their role as environmental regulators. The NES-DW will be easier to understand and apply.	Medium
Avoided costs due to outbreak	A reduced number of contamination events will avoid the additional costs faced by local government in the event of an outbreak. Of the \$21 million cost associated with the Havelock North outbreak, \$4.1m <sup>52</sup> was incurred by local government (the regional council regulator and the council water supplier).	Medium
Central government		
Health system	A reduced number of contamination events will reduce the burden on the health system, both in direct costs and the opportunity costs of resources being used for the outbreak instead of other uses.  Of the \$21 million cost associated with the Havelock North outbreak, \$2.5m <sup>53</sup> was borne by the health sector.	Low
Other costs created by outbreaks	A number of central government agencies get involved in and respond to large outbreaks. Avoidance of outbreaks will reduce these costs.  Of the \$21 million cost associated with the Havelock North outbreak, \$0.5m <sup>54</sup> was faced by central government.	Low
Drinking water suppliers		
Supported in their obligations under the WSA to provide safe drinking water, and	NES-DW will require consenting authorities to restrict risky activities in the mapped SWRMAs. These enforced restrictions will reduce the risk of contamination of source water and therefore will enable	Medium

52 <https://www.health.govt.nz/publication/economic-costs-havelock-north-august-2016-waterborne-disease-outbreak>

53 <https://www.health.govt.nz/publication/economic-costs-havelock-north-august-2016-waterborne-disease-outbreak>

54 <https://www.health.govt.nz/publication/economic-costs-havelock-north-august-2016-waterborne-disease-outbreak>

Stakeholders / resource	Explanation	Benefit
prepare SWRMP based on supply scale, complexity and risk.	<p>water suppliers to fulfil their obligation to provide safe drinking water.</p> <p>Support water suppliers to own the risks of drinking water, as per drinking water principle 2.</p> <p>Improved information and RMA processes will be available to inform their SWRMP and support their own management of risk to source water.</p>	
Reduced costs due to less treatment required	<p>Potential reduction in, or avoidance of additional, water treatment costs, through reduced turbidity and lower levels of contaminants.</p> <p>Potential avoidance of the need to seek new water sources should existing ones become unsuitable as source water.</p>	Low
Reduced or avoided costs due to reduced likelihood of contamination event	<p>Reduced potential for contamination may reduce or avoid costs related to investigating cause of DWSNZ breach or outbreak.</p> <p>In the event of non-compliance, water suppliers incur costs related to additional testing, investigation, public communications, shut down of supply and provision of an alternative supply.</p> <p>Of the \$21 million cost associated with the Havelock North outbreak, \$4.1m<sup>55</sup> was incurred by local government (the regional council regulator and the council water supplier).</p>	Low
Tangata whenua		
Improved mahinga kai safety	Improved water quality in some water bodies will have positive flow on effects for mahinga kai	Low
Total costs	Over 30 years (PV 8%)	Medium

### Section 3: Delivering an option

#### How will the new arrangements be implemented?

##### Implementing an amended NES-DW

170. If the proposed amendments to the NES-DW are agreed to, gazettal would be expected in mid-2023.

171. The proposed regulatory changes will likely come into effect 28 days after gazettal. However, different stakeholders will be affected or required to comply at different

55 <https://www.health.govt.nz/publication/economic-costs-havelock-north-august-2016-waterborne-disease-outbreak>

stages. A staggered approach will be taken so that councils have sufficient preparation time. Implementation will occur as follows:

- Regional councils map SWRMA 1 to 3 for registered supplies. To undertake this mapping they will use the drinking water abstraction point information that will be provided by Taumata Arowai under the WSA – they may also engage directly with water suppliers for further information.
  - Formalisation of the newly mapped SWRMAs will occur either via publishing of SWRMA information via council website or RMA schedule 1 process depending on the regional council's chosen mapping method (fixed/complex default or bespoke respectively).
  - Regional councils update their regional plans to remove any rules that duplicate or conflict with the provisions of the NES-DW.
  - For activity controls, regional councils can only apply these during the consenting process after SWRMAs have been mapped and formalised.
172. There will be delayed consideration of all currently unregistered supplies. This means the application of the NES-DW to these supplies would be assessed and considered after November 2025, once they have registered with Taumata Arowai, and we have a greater understanding of their location, their risk profile, the impact of mapping SWRMAs, and the impact of restricting activities.

## Roles and responsibilities under the amended NES-DW

### Regional councils

173. Under RMA section 30, local authorities are responsible for the implementation of regulations made under the RMA, including the NES-DW.
174. Regional councils will be required to undertake mapping and publishing of SWRMAs for all registered supplies in their region, this includes engaging with water suppliers, mana whenua and other parties to validate the delineation of the SWRMAs.
175. Regional councils will need to update their operational procedures to ensure the NES-DW is being applied to consenting decisions and as part of all relevant compliance, monitoring, and enforcement activities.
176. Regional councils will also be required to inform and educate relevant parties such as resource users, landowners and water suppliers, of the amended NES-DW and its requirements.

### Water suppliers<sup>56</sup>

177. Water suppliers can continue with any activities that support the provision of safe drinking water.
178. Water suppliers will be engaged by resource users and regional council for greater involvement in consent applications where a risk to source water is identified.

### Resource users

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<sup>56</sup> From 1 July 2024, council water supply functions will be taken over by proposed Water Service Entities. Their focus and level of expertise in managing drinking water may improve how the NES-DW is implemented in some situations.

179. The activities of resource users continue to be controlled under the RMA and regional plans, and any national direction given including the NES-DW.
180. Under the amended NES-DW resource users will need to comply with the additional activity controls that apply for SWRMA 1 and 2.
181. Resource users can gain consent for new and existing activities within SWRMAs however they must consider the effects of their activities on local registered drinking water supplies, including considerations for avoiding, remedying, or mitigating effects.

### Central government

182. Taumata Arowai will provide information on drinking water supplies as contained in the national drinking water supply register, including abstraction points and information on risks to source water as identified in SWRMPs.
183. MfE will provide support and guidance through the prescribed mapping methods and identified high-risk activities in the NES-DW, enabling regional councils to undertake SWRMA mapping and risk identification. Further guidance will be provided through an updated user guide, which will include appropriate considerations for engagement and mapping of whenua Māori.
184. Taumata Arowai will identify and notify currently unregistered drinking water supplies of their upcoming requirements for registration per WSA.
185. Following complete registration of currently unregistered supplies (November 2025), MfE will complete a reassessment of the scope and application of the NES-DW to those newly registered smaller supplies.

### Links to existing regulations

186. The WSA requires water supplies manage and monitor risks to source water through Source Water Risk Management Plans (SWRMPs). The proposed amendments to the NES-DW will require consenting authorities to map SWRMAs, providing consistent information and enabling accurate risk identification. Further, regional councils will be required to restrict high-risk activities within SWRMAs, subsequently reducing the risk of contamination. These links between the WSA and proposed amendments to the NES-DW will enable water suppliers to fulfil their obligations under the WSA.
187. The WSA links to the RMA and NES-DW by requiring regional councils to undertake appropriate actions to address identified risks and therefore protecting source water and benefiting freshwater ecosystems. The WSA requires regional councils report to Taumata Arowai on their source water quality, quantity, and the effectiveness of their interventions.
188. It is envisioned that the amended NES-DW will support the existing arrangements and regulations in the NPS-FM, NES-F, Freshwater Farm Plans, and Stock Exclusion Regulations. As such, it is expected that the existing regulatory framework and amended NES-DW will experience co-benefits as they work towards shared goals of protecting water and the environment.
189. Potential and perceived interactions have been detailed in Appendix 2: Interactions with other legislation. Possible minimal interactions may exist where a drinking water supply is established within or immediately adjacent to farming activities controlled by the NES-F or within or near a plantation forest. Where possible interactions have been identified, it has been determined that the more stringent provisions prevail, that being the NES-DW in most cases. Considerations have been given to proposed amendments to the NES-DW interacting with the WSA, NES-F, Stock Exclusion

Regulations, NES-PF (National Environmental Standards – Plantation Forestry 2017), and the HSNO (Hazardous Substances and New Organisms Act 1996).

### Implementation risks

190. Effective implementation will be reliant on regional councils delineating SWRMAs in their region promptly and making this information publicly available. Regional councils will be able to either undertake this work in-house or with support from consultants.
191. There is a risk that some regional councils may not have adequate resourcing for implementation alongside fulfilling existing and new functions if this has not been forecast in their long-term plans.
192. To mitigate against this risk provisions for prescribed fixed/complex default mapping methods will be included which are likely to help reduce the resource burden compared to a bespoke mapping approach.
193. Effective implementation also relies on water suppliers providing Taumata Arowai with accurate information on the locations of abstraction points via their SWRMPs. Taumata Arowai has developed guidance on the information required in SWRMPs
194. Delayed consideration of currently unregistered supplies will reduce and spread the resource burden over time.

### How will the new arrangements be monitored, evaluated, and reviewed?

195. MfE is responsible for the regulatory stewardship of New Zealand's environment.
196. MfE routinely gathers information on the implementation of the RMA through its National Monitoring System (NMS). This includes an annual survey from each regional council and territorial authority to gather data on a range of planning and consenting matters, including implementation of national environmental standards.
197. Through the NMS and the new data collected, key performance indicators on the implementation of the amended NES-DW can be assessed, with indicators including:
  - The number of regional councils that have delineated SWRMAs for registered drinking water supplies in their region and have made this information publicly available.
  - The number of regional councils that have updated their regional plans to remove or update any plan rules that duplicate or conflict with the amended NES-DW.
  - The number of consenting decisions made that include a risk assessment in accordance with NES-DW.
  - The number of consent applications that include written support/approval from water suppliers.
198. Regional councils will be encouraged to complete their own monitoring, evaluation, and review of their implementation of the amended NES-DW and to raise any concerns with MfE.
199. Alongside the data MfE collects, Taumata Arowai, through the WSA, is responsible for providing oversight of the drinking water regulatory framework which includes the NES-DW. Taumata Arowai's focus is on monitoring water supplies, gathering



information on the performance of councils, and providing advice to the Minister for the Environment regarding any issues associated with the NES-DW.

200. Key performance indicators on the effectiveness of the amended NES-DW can be assessed, with indicators including:

- The quality of source water at abstraction point is either maintained or improved.
- Water suppliers are provided with early warning of contamination events occurring within delineated SWRMAs.
- The number of contamination events occurring is maintained or decreased.

201. Data that has been collated through the NMS and by Taumata Arowai will be able to inform the review of the scope of the NES-DW after November 2025

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## Appendix 1: High-risk activities to be controlled in SWRMA

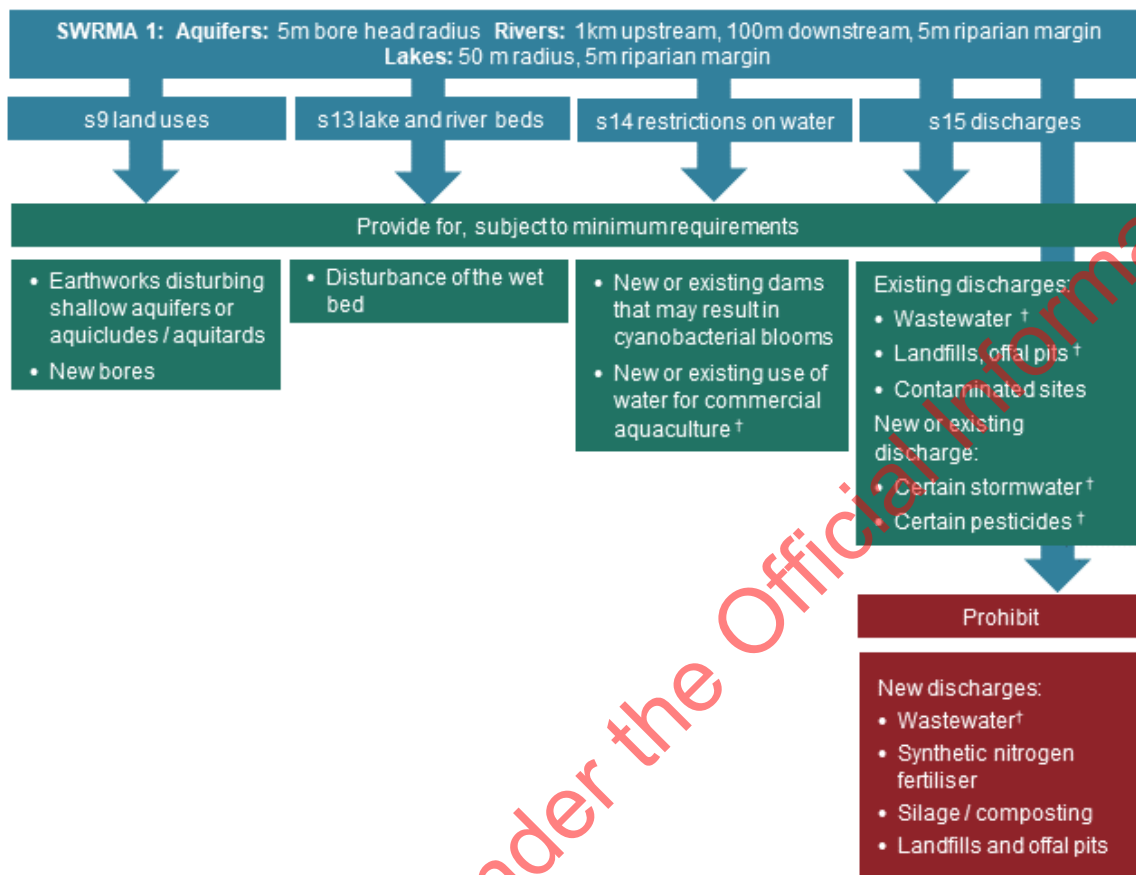
### Details of Proposal 2 Options 3, 4A and 4B – refining and improving activity controls in SWRMA 1 and 2



## Refined activity controls under Option 3

### SWRMA 1 controls

202. Refined activity controls in SWRMA 1, under option 3, are summarised in the figure below.



203. In SWRMA 1, there are various high-risk activities that are necessary, or use existing infrastructure that would be challenging to relocate, particularly in surface water SWRMA. These activities will be provided for, subject to certain minimum requirements designed to mitigate risk being met.

204. Examples of necessary work are maintenance of instream structures or removal of aquatic pest plants. The NES-DW would ensure water suppliers are notified of the work, and that certain best-practice measures are in place to reduce adverse effects.

205. Examples of existing infrastructure, and activities that are challenging to relocate, are drainage outfalls (both stormwater and wastewater), and contaminated sites or landfills. Ideally, registered water supply intakes would not be established where these risks exist. However, if both activities (the discharge of contaminants and the registered supply intakes) are already established, then minimum monitoring requirements would be applied to the discharge to determine its effect on source water and ensure it doesn't breach the existing NES-DW requirements ie, that the regional council cannot grant a consent that would cause a registered water supply to breach the DWSNZ, after existing treatment.

206. However, there are certain high-risk activities that should not occur in SWRMA 1, where alternatives may be available. For example, new wastewater discharges should be sited away from SWRMA 1, as should any application (discharge) of

synthetic nitrogen fertiliser. For land-based activities, this means relocating the activity beyond the 5 m riparian strip, or from around the bore head.

207. The following activities would be provided for and subject to minimum conditions:

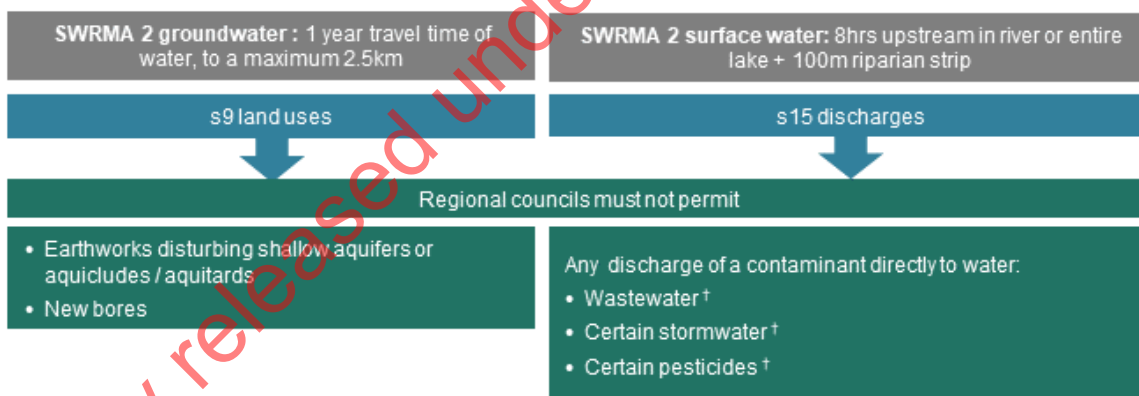
- Disturbance of the wet bed of a lake or river
- New or existing dams that may result in cyanobacterial blooms
- New or existing use of water for commercial aquaculture†
- Existing discharges of
  - Wastewater†
  - Buried waste - landfills and ofal pits†
  - Contaminated sites
- Discharge from certain stormwater systems†
- Discharge of certain pesticides†

208. The following discharges would be prohibited:

- From new wastewater management†
- From new landfills, ofal pits, silage, and composting
- Of synthetic nitrogen fertiliser

### SWRMA 2 controls

209. Refined activity controls in SWRMA 2, under option 3, are summarised in the figure below.



210. In SWRMA 2 groundwater, quality standards will apply to new bores, and regional councils will not be able to permit earthworks that could damage shallow aquifers, or the protective layers of aquifers (aquicludes or aquitards).

211. In SWRMA 2 surface water, regional councils will not be able to permit direct discharges of contaminants to water, of wastewater, certain stormwater discharges, and discharge of certain pesticides.

#### † Notes on activities for Option 3 and Option 4A

**Aquaculture:** Controls on aquaculture operations are intended to capture commercial operations, and not small hatcheries that support conservation or game management purposes.

**Hazardous substances:** 'Hazardous substances' would include those defined by the Hazardous Substances and New Organisms Act 1996, along with wastewater and other potentially harmful substances such as tailings, which are often stored before discharge eg, in ponds.

**Offal pits:** Consideration is being given as to whether a scale threshold should apply to offal pit controls (in terms of SWRMA 2, Option 4A).

**Pesticides:** For discharges to land in a manner that may enter water, controls would capture the discharge of certain 'toxic' chemicals intended to control living organisms. For discharges to water, controls would capture use of such products specifically designed to be used in water.

**Toxic** means capable of causing ill health in, or injury to, human beings (from the Hazardous Substances and New Organisms Act 1996)

**Stormwater:** Generally, refers to rainfall runoff that is captured in a reticulated system for management. It is not intended to capture general land runoff. Controls on stormwater discharges are intended to be limited to larger reticulated systems eg urban areas.

**Wastewater:** Generally, refers to any human sewage, greywater, animal effluent or biosolids that are collected for subsequent management and discharge, and industrial or trade wastes (excluding water eg cooling water). It is not intended to capture any liquid or solid emission directly from an animal.

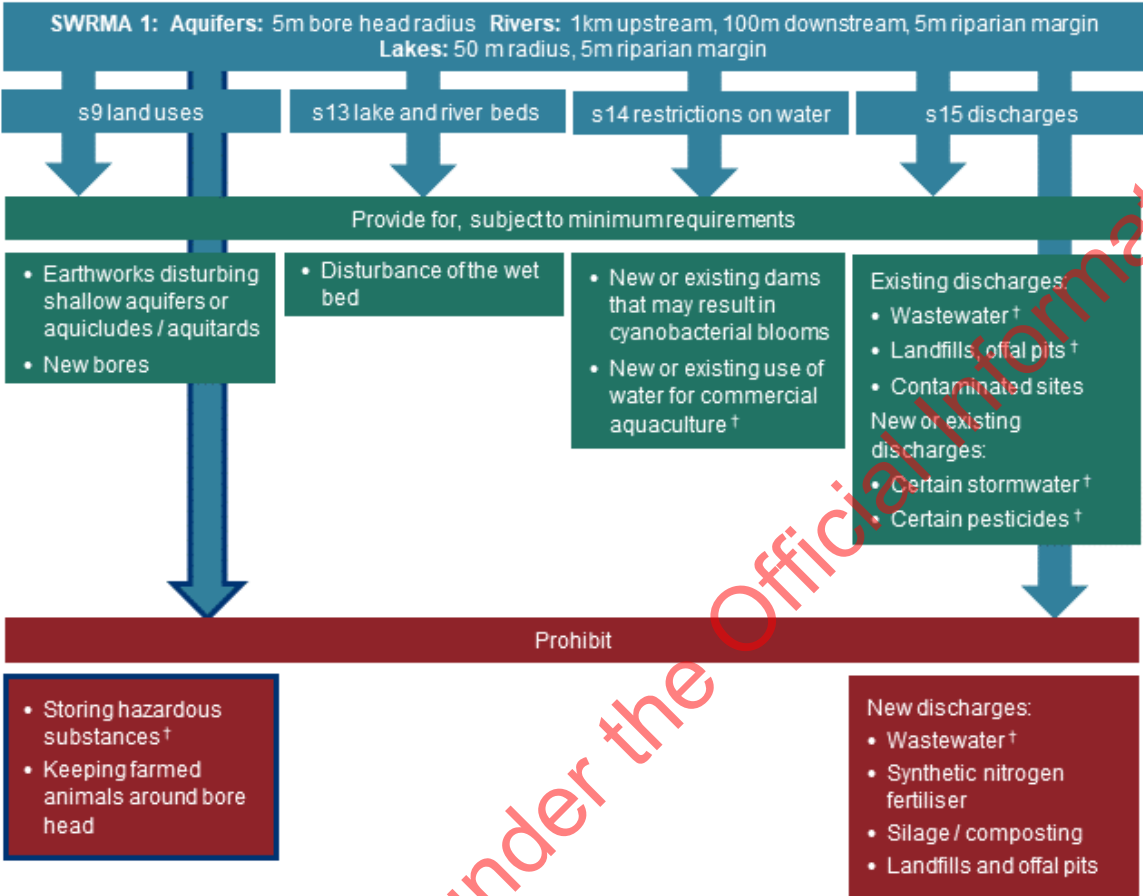
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**Additional activity controls under Option 4A**

**SWRMA 1 controls**

212. Additional activity controls in SWRMA 1, under Option 4A, are indicated with a heavy blue outline on the figure below:



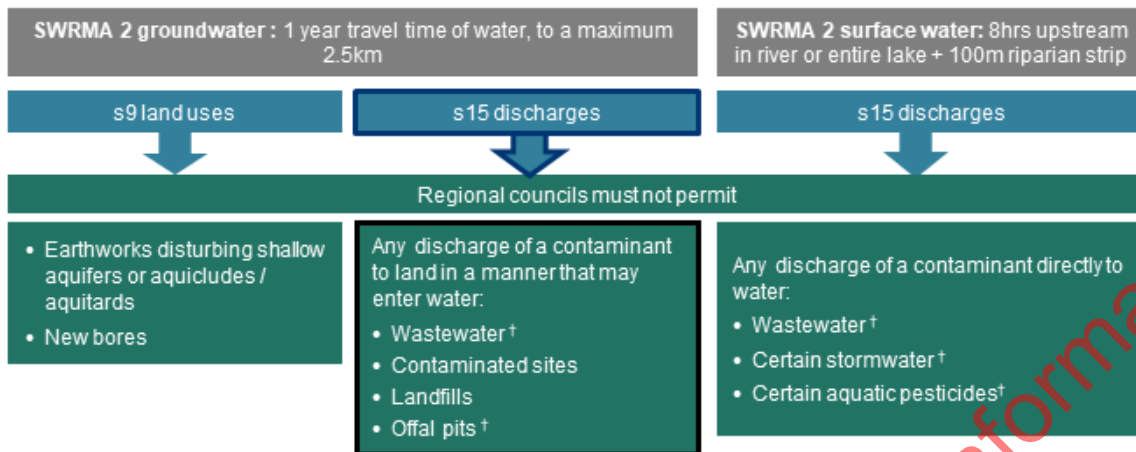
213. Option 4A would prohibit (or make non-complying) two additional land uses that could occur on land within SWRMA 1 – ie, the 5 m riparian strip, or the 5 m radius around the bore head:

- Storage of hazardous substances†
- Keeping of farm animals around the bore head (to align with Taumata Arowai’s *Drinking Water Quality Assurance Rules 2022*)<sup>57</sup>

57 S4.9.2 S3 Sanitary Bore Head Requirements

## SWRMA 2 controls

214. Additional activity controls in SWRMA 2, under Option 4A, are indicated with a heavy blue outline on the figure below:



215. Under Option 4A, in SWRMA 2 groundwater, regional councils would not be able to permit high-risk discharges to land in a manner that may enter water, of wastewater<sup>†</sup>; contaminated sites; landfills or offal pits<sup>†</sup>.

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## Appendix 2: Interactions with other legislation

	What the legislation says:	What the preferred NES-DW amendments do <sup>58</sup> :	Potential/perceived interactions and overlap:
<b>Water Services Act 2021</b>	<p><b>Source water (subpart 5):</b></p> <ul style="list-style-type: none"> <li><b>SWRMPs:</b> drinking water suppliers must prepare and implement a SWRMP. Local authorities must contribute by provision of applicable information and undertaking agreed action on identified risks/hazards.</li> <li><b>Monitoring:</b> drinking water suppliers must monitor the quality of source water.</li> <li><b>Information:</b> regional councils must annually report on source water quality and quantity, and every 3 years assess the effectiveness of their interventions.</li> </ul>	<ul style="list-style-type: none"> <li><b>SWRMA:</b> regional councils are required to map SWMRAs at three risk levels (SWRMA 1, 2, and 3).</li> <li><b>Activity controls:</b> depending on SWRMA location some high-risk activities are provided for, subject to minimum requirements, and others are prevented.</li> <li><b>Bespoke approaches:</b> regional councils can apply a bespoke mapping approach or more stringent activity controls than those provided.</li> </ul>	The NES-DW is designed to work with the WSA. The NES-DW provides a foundation for regional councils in identification and management of risks and hazards to source water, and support in their provision of information to water suppliers developing their SWRMPs. The foundation of the NES-DW may be further refined through regional plans, as the SWRMP development-evaluation cycle establishes.
<b>Water Services Act 2021</b>	<p><b>Drinking Water Quality Assurance Rules 2022 (DWQAR):</b> A registered drinking water bore head must be sanitary. Meeting this requirement includes a 5 m radius exclusion zone around the bore head for farm animals.</p>	Keeping of farmed animals is a land use (s9) activity under the RMA. If Option 4A were adopted for proposal 2, the NES-DW would align with the DWQAR and require farm animals be excluded from the 5 m radius around the bore head.	Aligning the NES-DW with the DWQAR supports greater consistency and avoids potential confusion. Note: It is noted that the Stock Exclusion Regulations apply only to surface water bodies.
<b>NES-Freshwater 2020</b>	<p><b>Standards for farming activities (Part 2) – stock management:</b></p> <ul style="list-style-type: none"> <li><b>Feedlots, stockholding areas, agricultural intensification:</b> provides standards for use of land and associated discharge for these activities. Where a feedlot is not permitted and becomes discretionary, effluent must meet regional council rules and be no closer than 50 m to a bore used for abstraction.</li> </ul>	<p>The NES-DW does not contain related provisions for s9 land uses, however if Option 4A is adopted for proposal 2, farm animals would be excluded from the 5 m radius around the bore head.</p> <ul style="list-style-type: none"> <li><b>SWRMA 1:</b> NES-DW controls discharges of wastewater (including effluent and biosolids), and certain stormwater, to land and water.</li> </ul>	<p>Some limited interaction between the NES-F (farming activities) and NES-DW may exist should registered drinking water supplies be established within or immediately adjacent to farming activities controlled by the NES-F – this would mainly affect land associated within SWRMA 1 (ie, 5 m radius around bore head and 5 m riparian strip) (similar to the DWQAR interaction).</p> <p>The NES-F focuses on the wider environmental impacts of farming activities, and the NES-DW focuses</p>

<sup>58</sup> The preferred option for activity controls is 'Option 3 - refined controls'. However, as 'Option 4A – additional controls' provides for inclusion of some further activities, their interaction is also described where appropriate. It is also proposed to retain the current baseline requirements of the NES-DW – that a regional council cannot allow any activity that would cause a registered drinking water supply to breach the DWSNZ, after existing treatment. This would continue to apply in conjunction with other legislative requirements, as it does now (but this baseline is not described in each row of the above table).

	What the legislation says:	What the preferred NES-DW amendments do <sup>58</sup> :	Potential/perceived interactions and overlap:
	<ul style="list-style-type: none"> <li><b>Intensive winter grazing:</b> provides standards for this use of land and associated discharge to land. Requires identification and management of 'critical source areas' and a 5m setback from river and lake beds.</li> </ul> <p>The Stock Exclusion Regulations are also relevant to the NES-F.</p>	<ul style="list-style-type: none"> <li><b>SWRMA 2:</b> NES controls direct discharges of contaminants to water, of wastewater (including effluent) and certain stormwater.</li> </ul> <p>Controls on wastewater discharges are limited to those collected for managed discharge, so may apply to activities with such effluent or biosolid management practices. Stormwater controls are intended to apply to reticulated systems, not land runoff.</p>	on source water protection. Where provisions within either NES overlap, it is appropriate the more stringent provisions prevail; being the NES-DW restrictions on effluent and biosolids within SWRMA 1 would apply.
<b>NES-Freshwater 2020</b>	<b>Standards for farming activities (Part 2) – nitrogen fertiliser:</b> the NES-F provides standards for the application of synthetic nitrogen fertiliser to pastoral land, and places an annual cap on nitrogen usage.	The NES-DW imposes further restrictions than the NES-F, prohibiting synthetic nitrogen fertiliser application within SWRMA 1 ie the 5 m radius around the bore head, and the 5 m riparian strip.	The NES-DW does not impose additional restrictions on nitrogen beyond restricting discharge of synthetic nitrogen fertiliser in SWRMA 1. The NES-F and NPS-FM are considered more appropriate tools to holistically address nitrate concerns.
<b>NES-Freshwater 2020</b>	<b>Standards for other freshwater activities (Part 3), Natural wetlands (Subpart 1):</b> the NES-F sets various restrictions to avoid wetland loss with wetland restoration is enabled: vegetation clearance and earthworks are permitted activities within, or within a 10 m setback from a natural wetland. Take, use, damming, diversion, or discharge of water within or within a 100 m setback from a natural wetland is also permitted.	The NES-DW considers wetland as 'complex' systems. If a water supply take is within a wetland a bespoke mapping approach would be required. Wetlands may lie within SWRMA of lakes and rivers. RMA classifications considers wetlands as land, therefore proposed bed disturbance rules within SWRMA 1 do not apply. NES-DW controls on the disturbance of certain aquifers could apply within 100 m of a wetland, as could controls on dams that may result in cyanobacterial blocks, and certain discharges of contaminants.	It is not known how many registered drinking water supplies are in wetlands. There is potential for there to be some minor overlap between the NES-F wetlands provisions and the NES-DW, for earthworks where they are located over certain aquifers*, damming where it could result in cyanobacterial blooms, and discharges. If a registered water supply is located in a wetland, then where provisions in the NES-F and NES-DW overlap, the most stringent provisions of each NES should prevail.  <i>*shallow aquifers or aquicludes / aquitards sensitive to disturbance.</i>
<b>NES-Freshwater 2020</b>	<b>Standards for other freshwater activities (Part 3), passage of fish affected by structures (Subpart 3):</b> the NES-F provides for various structures in rivers to ensure fish passage is provided for. It establishes permitted activities for culverts and weirs in rivers.	The NES-DW does not address structures in rivers but does address the bed disturbance associated with structures. That bed disturbance is provided for, subject to minimum requirements that ensure adverse effects on source water are addressed.	There is no interaction between the NES-F fish passage provisions and the NES-DW.

	What the legislation says:	What the preferred NES-DW amendments do <sup>58</sup> :	Potential/perceived interactions and overlap:
<b>Stock Exclusion Regulations 2020</b>	<p>Stock Exclusion Regulations apply to different farmed animals in different ways, some apply to certain stock in all circumstances, while others only apply to certain stock present in mapped areas. General requirements are:</p> <ul style="list-style-type: none"> <li>• <b>Setbacks:</b> a 3-metre setback from lakes, rivers wider than 1 m, and natural wetlands applies to certain stock.</li> <li>• <b>Animal crossings:</b> the need for lawful crossings are provided for, either using a dedicated bridge or culvert, or infrequent and actively managed crossing.</li> </ul>	<p><b>SWRMA 1:</b> surface water includes a 5 m riparian strip.</p> <p>However, there are no similar or overlapping s9 or s13 activity controls proposed within SWRMA 1.</p> <p>If Option 4A is adopted for proposal 2 farm animals would be excluded from the 5m radius around the bore head.</p>	<p>There is no interaction between Stock Exclusion Regulations and the NES-DW. The Stock Exclusion Regulations are intended to be the primary means to address stock access to surface water bodies.</p> <p>There is an option for the NES-DW to exclude stock around the bore head of registered water supplies, in accordance with the DWQAR 2022. This would not result in overlap as the Stock Exclusion Regulations are focussed on surface water and do not contain exclusions for aquifers / groundwater.</p>
<b>NES-Plantation Forestry 2017</b>	<p>The NES-PF provides for various activities and it provides a permitted rules for discharge and bed disturbance.</p> <ul style="list-style-type: none"> <li>• <b>Setbacks:</b> afforestation and earthworks are prevented within 5 – 10 m of perennial rivers (depending on size), large wetlands or lakes, outstanding freshwater bodies, and water bodies subject to conservation. Quarrying setback is 20 m.</li> <li>• <b>Quarrying:</b> permitted with restrictions if the quarry; extends into the aquitard above a confined aquifer, and within 1 m of the seasonable high-water table above an unconfined aquifer.</li> <li>• <b>Sediment discharge and bed disturbance:</b> basic sediment and stormwater control measures are required, and activities must minimise disturbance.</li> <li>• <b>Slash and slash traps:</b> slash must not be deposited into water bodies or riparian margins, however slash is permitted within water bodies and riparian margins.</li> <li>• <b>Management plans:</b> where required, must identify registered drinking water supply, including drinking water sources for more than 25 people within 1 km downstream of the activity.</li> </ul>	<p>The NES-DW will establish controls for the following activities:</p> <ul style="list-style-type: none"> <li>• Earthworks above certain aquifers*</li> <li>• Disturbance of the riverbed in SWRMA 1, including that associated with clearing vegetation and construction or maintaining structures. It will provide for bed disturbance subject to minimum requirements intended to address source water risk</li> <li>• Certain stormwater discharges.</li> </ul> <p><i>*shallow aquifers or aquicludes / aquitards sensitive to disturbance</i></p>	<p>Interaction between the NES-PF and NES-DW if a registered drinking water supply is located within or near plantation forestry. The NES-PF recognises environments specifically related to drinking water and provides for regional councils to set more stringent rules, therefore it is appropriate that the more stringent provisions of the NES-DW prevail over the NES-PF.</p> <p>There is unlikely to be conflict with the NES-PF setback requirements as the NES-DW does not impose controls on afforestation, or on earthworks or quarrying unless over 'certain aquifers'. Note: detailed drafting of aquifer provisions is still underway however it is likely they will be consistent with the NES-PF.</p> <p>The NES-PF enables bed disturbance and sediment discharge with effects that may be inconsistent with source water protection. Therefore, it is appropriate to the more stringent provisions of the NES-DW prevail. Larger scale forestry activities will already have management plans which identify drinking water supply, and consequently operators should already be considering additional measures required to manage adverse effects on source water.</p>

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	What the legislation says:	What the preferred NES-DW amendments do <sup>58</sup> :	Potential/perceived interactions and overlap:
	<ul style="list-style-type: none"> <li><b>Regional plan rules:</b> can be more stringent in 'unique and sensitive environments'.</li> </ul>		
<b>Hazardous Substances and New Organisms Act 1996</b>	<p>HSNO intends to protect the environment, and the health and safety of people and communities, by preventing or managing the adverse effects of hazardous substances and new organisms.</p> <p>It provides for the assessment of hazardous substances, and for the Environmental Protection Authority (EPA) to establish a hazard classification system. Controls are mainly prescribed by EPA Notices, which also provides for Codes of Practice for implementation. Exposure limits can be set for substances with toxic or ecotoxic properties.</p> <p>HSNO contains strict controls on vertebrate toxic agents (a type of pesticide) (also see the Resource Management (Exemption) Regulations in row below). When certain vertebrate toxic agents are used near source water, the power to grant permissions is delegated to medical officers of health and health protection officers. They can set extra terms and conditions as appropriate.</p> <p>In addition to the permissions issued under s95A HSNO, by the medical officers of health and health protection officers for VTAs, the EPA issues permissions to use certain aquatic herbicides into or onto water for the control of aquatic pest plants.</p>	<p>The NES-DW will establish controls for the following activities:</p> <ul style="list-style-type: none"> <li>Discharge of certain aquatic pesticides to water in SWRMA 1 and 2.</li> </ul> <p>and in SWRMA 1 (the 5 m riparian strip and 5 m radius around the bore head):</p> <ul style="list-style-type: none"> <li>Discharge of certain pesticides to land in a manner that may enter water.</li> <li>Storage of hazardous substances (if Option 4A is adopted for proposal 2).</li> </ul>	<p>HSNO authorises the manufacture and import of hazardous substances for use in New Zealand, and sets controls on their use. Users of hazardous substances need to comply with the requirements imposed through all relevant EPA Notices and any additional controls set in approvals granted under HSNO.</p> <p>Many aquatic herbicides require a permission from the EPA before they can be used. These permissions set additional controls that are relevant to the specific region where the aquatic herbicide is being used. These additional controls will continue to be set as part of the Permissions process.</p> <p>However, regional councils can choose to impose additional controls under the RMA as a discharge of a contaminant to the environment, and users also need to comply with any additional requirements imposed through regional plans.</p> <p>The NES-DW ensures the focus is on managing adverse effects to source water in a nationally consistent manner.</p> <p>While HSNO provides hazardous substances storage requirements, there are no specific controls to prevent their storage near freshwater bodies, or groundwater bores.</p> <p>HSNO states its relationships to other Acts. It does not apply to any current discharge permit granted prior to 1996, and any controls of hazardous substances under the RMA must not contravene the provisions of EPA notices.</p>

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	What the legislation says:	What the preferred NES-DW amendments do <sup>58</sup> :	Potential/perceived interactions and overlap:
			In future, SWRMA could support a more nuanced EPA assessment of some hazardous substances.
<b>Resource Management (Exemption) Regulations 1996</b>	These regulations grant exemptions from RMA s15, for biological insecticide <i>Bacillus thuringiensis</i> var. <i>kurstaki</i> , including from an aircraft.	<p>The NES-DW will establish controls for the following activities:</p> <ul style="list-style-type: none"> <li>• Discharge of aquatic pesticide to water in SWRMA 1 and 2.</li> <li>• Discharge of pesticide to land in a manner that may enter water in and in SWRMA 1 (the 5 m riparian strip and 5 m radius around the bore head).</li> </ul>	The regulations will override controls in the NES-DW.
<b>Resource Management (Exemption) Regulations 2017</b>	<p>These regulations grant exemptions from RMA s15, for three vertebrate toxic agents (brodifacoum, rotenone and sodium fluoroacetate), as the RMA requirements were found to duplicate controls under HSNO (see description in row above) and the Agricultural Compounds and Veterinary Medicines Act 1997.</p> <p>Discharge of these agents can occur under the conditions specified in the regulations. This includes notice to the regional council.</p>		

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# Definitions and Abbreviations

## Glossary

Term or abbreviation	Definition
Abstraction point	In this RIS, generally means the location at which source water is taken from the environment (eg, river, lake, or aquifer) for use in a registered drinking water supply.  Note: both the NES-DW and Water Services Act 2021 define this term. The issues found by HNI with use of the term in the NES-DW, and alignment with the WSA, will be addressed during drafting of an amended NES-DW.
Catchment or Capture zone	The drainage area upstream of the surface water abstraction point, or the aquifer and recharge zone of a groundwater abstraction point.
Determinand	A substance or characteristic that is determined or estimated in drinking water (Refer s.3 of the Water Services (Drinking Water Standards for New Zealand) Regulations 2022). A determinand can adversely affect the taste, odour, colour, clarity of general appearance of drinking water.
Domestic self-supply	Refer s.10 of the Water Services Act 2021.
Drinking water	Refer s.6 of the Water Services Act 2021.
Drinking water standards (DWSNZ)	Drinking Water Standards set the Maximum Acceptable Values, or MAVs, for a range of contaminants which can affect the safety and quality of drinking water. From 14 November 2022 the drinking water standards are Water Services (Drinking Water Standards for New Zealand) Regulations 2022 established under the Water Services Act 2021. Prior to this time, the drinking water standards were the Drinking-Water Standards for New Zealand 2005 (Revised 2018) established under the Health Act 1956.
Freshwater or fresh water	All water except coastal water and geothermal water (Refer s.2 RMA).
FMU	Freshwater management unit – all or any part of water bodies and their related catchments that a regional council determines is an appropriate unit for freshwater management and accounting purposes (Refer s.1.4 of the NPS-FM).
Gastroenteritis	An intestinal infection marked by diarrhoea, cramps, nausea, vomiting and fever, it is commonly called food poisoning, tummy bug, traveller's diarrhoea, viral enteritis or intestinal flu and often caused by unclean food or contaminated water.
Gazette	The official Government newspaper and authoritative journal of constitutional record.
Groundwater	Groundwater is freshwater found underground in aquifers (underground rock formations that are sufficiently permeable to contain or conduct water).
Guillain- Barré Syndrome	An autoimmune disorder that affects the nervous system.
HNI	Havelock North Drinking Water Inquiry.
Intake	Generally, means the location at which source water is taken from the environment (eg, river, lake, or aquifer) for use in a registered drinking water supply.  While it has the same meaning as 'abstraction point', it is used to simplify terminology and avoid potential confusion with its current definition in the NES-DW and WSA.
Mahinga kai	Mahinga kai generally refers to freshwater species that have traditionally been used as food, tools, or other resources (Refer Appendix 1A, NPS-FM 2020).
Multi-barrier approach	As defined by principle 3 of the HNI Stage 2 report: any drinking water system must have, and continuously maintain, robust multiple barriers against contamination appropriate to the level of potential contamination. This is

Term or abbreviation	Definition
	because no single barrier is effective against all sources of contamination and any barrier can fail at any time. Barriers with appropriate capabilities are needed at each level between 'source to tap', including source protection.
National direction	National direction is a tool used to support local decision-making under the RMA. It is provided by national policy statements, national environmental standards, national planning standards and section 360 regulations.
NES-DW	Resource Management (National Environmental Standards for Sources of Human Drinking Water) Regulations 2007.
NES-F	Resource Management (National Environmental Standards for Freshwater) Regulations 2020.
NPS-FM	National Policy Statement for Freshwater Management 2020.
Public health	Refer s.4 of the Pae Ora (Healthy Futures) Act 2022.
RMA	Resource Management Act 1991.
Safe in relation to drinking water	Refer s.7 of the Water Services Act 2021.
Smaller water supplies	This RIS considers smaller water supplies as those serving fewer than 501 people – not to be confused with Taumata Arowai's definitions.
Source water	Source water is raw untreated water, ie, it is natural fresh water that could be abstracted (taken) and processed to make it suitable for drinking water use—this RIS does not consider source water when it is either roof water or water supplied by a tanker by a registered water supplier. The report also does not consider bottled drinking water.
Surface water	Water present on the land surface, including in streams, rivers, creeks, drains, lakes and wetlands (ie, where water is present on top of the ground). Does not include any geothermal water or coastal water.
SWRMA	Source water risk management area.
SWRMP	Source water risk management plan (refer s.43 of the Water Services Act 2021).
Te Mana o te Wai	Refers to the vital importance of water and imposes a hierarchy of obligations (health and well-being of the water, health needs of people, ability of people/comities to provide for their social, economic and cultural well-being (Refer NPS-FM 2020).
Three waters	Refers to drinking water, wastewater and stormwater systems.
Three waters review	The cross-government initiative which considered how to improve the regulation and supply arrangements of New Zealand's 'three waters' beginning mid-2017.
WSA	Water Services Act 2021.