**Land and Water Forum advice on improving water quality: preventing degradation and addressing sediment and nitrogen - May 2018**

Chair’s Foreword

Fresh water is a key asset for New Zealand. In many respects the abundance of water underpins our prosperity as a nation and provides for our social and cultural well-being. But this abundance has seen us take it for granted. There are places where water is being used beyond its environmental capacity and its quality is deteriorating. New Zealand’s regulatory settings need improvement and we need to do more on the ground to help improve land management practices to get better outcomes.

This report sets out the steps members of the Land and Water Forum assert are needed to manage within limits and avoid further degradation, manage sediment better, and provide for a national approach to how nitrogen is allocated. It adds to our four full reports and four other pieces of advice that set out an integrated package of changes to water management, and which provide context to this report.

A motivated effort at a national level is required to improve water quality. It will require better coordination and deployment of resources, which we believe should be delivered through a new Land and Water Commission.

The outstanding issue of iwi rights and interests creates uncertainties in the freshwater management system. It should be resolved between the Crown and iwi. Otherwise it will make achieving a long-term durable framework for the management of fresh water more difficult, costly and time consuming.

There are number of national level actions which can quickly help prevent further degradation. These are:

* Ensuring, and being satisfied, that at-risk catchments have an effective plan-of-action in place. Where this hasn’t happened or plans are inadequate, the government should act, using tools already available to it.
* Improving the way the Resource Management Act (RMA) and its National Policy Statement for Freshwater Management (NPS-FM) is being applied around the country - especially protecting wetlands and outstanding freshwater bodies; how and when the requirement to maintain and improve water quality applies; how certificates of compliance are used and addressing situations where consents collectively add up to limits being exceeded.
* Changing the NPS-FM and its National Objectives Framework (NOF) as recommended in earlier Forum reports.

In addition, one of the most important things the government can do for all aspects of freshwater management is ensure through national instruments that everyone, urban and rural, is using good standards specific to their sector in their land management practices. The Forum has advocated since 2012 for everyone to operate at good management practice.

To improve management of sediment we recommend expanding and improving sediment and erosion programmes already underway. Further actions include: mandating farm environment planning especially in catchments with sediment problems; addressing capability and resourcing gaps; national regulation for particularly risky land management practices; accelerating current work on possible sediment attributes for the NPS-FM; and ensuring that complementary afforestation and climate change policy also support freshwater objectives. The *Billion Trees* *programme* should give quick wins in managing sediment, as well as wider environmental, social and economic benefits.

Unsurprisingly, managing nitrogen contamination through the allocation of nitrogen discharge allowances has been the most contentious issue within the Forum in preparing this report. The debate is not primarily about environmental limits (although how limits are arrived at and how discharges are measured is contested). The debate is about what share of allocation people get within limits, and where catchments are over a limit, where do the reductions in allocation fall to meet the limit and how much headroom should be created for whom? A further issue is that councils are in the meantime giving effect to the NPS-FM to establish catchment limits and consequentially explicitly or implicitly allocating nitrogen in the absence of any national framework. Council allocation approaches have caused dispute between and within agricultural sectors, with environmental groups, and with iwi over rights and interests. Because of these differences, complete consensus on all points was not achievable. This report sets out an approach which has general support from members. A dissenting view is reflected.

What the Forum proposes, drawing on specific nitrogen discharge and other recommendations of this report and previous reports is:

* Let current plans that appear to be addressing nitrogen effectively run till review time.
* Where nitrogen is a problem & it isn’t being addressed ensure that those catchments are identified.
* Require good management practice by all sectors.
* Don’t allow Certificates of Compliance to be used to avoid addressing nitrogen problems, and support councils to deal with situations where consents collectively may be inconsistent with a limit.
* Create a short-term interim national framework where, when a catchment is over-allocated, high emitters of nitrogen that contribute most to over-allocation must reduce, while at the same time providing some movement for those with no/little discharge provided the overall result does not collectively contribute to a threshold being exceeded.
* Meanwhile, move quickly to sort out essential nitrogen discharge and allocation tools (improved modelling for limits; a national framework for accounting for contaminants in catchments; a common understanding of the capacity of land to attenuate nitrogen discharges coupled with the sensitivity of the receiving waterbodies; and national consistency where nitrogen transfers are being contemplated).
* And, in conjunction seek to resolve iwi rights and interests, and create a long-term framework (based at a minimum on good management practice and based on the ability of the land to attenuate nitrogen discharges and the sensitivity of the receiving waters, with some of the Forum thinking this should include social, economic and cultural considerations).

This report has a separate section on urban freshwater management to halt deterioration and manage sediment and contaminants, because urban issues require specific and sometimes different action. Some major urban centres have recently lifted their game. However, to ensure this is happening across the board, specific urban national environmental policies and standards and approaches should be applied nation-wide.

Finally, there are also important complementary measures that should be progressed – enabling catchment level environment groups, and addressing key science issues.

In a stakeholder group like the Land and Water Forum there will naturally be differing views. We have been operating within a tight timeframe and some of our agreements did not come till the very end. We are also aware that some of our members are federal in structure and a number have large memberships with whom they have not yet been able to discuss this report in detail. We hope in this report we capture the views of members clearly and reflect the nature of debate and members views faithfully.

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# Introduction

1. Parties with major interests in freshwater management have worked together through the Land and Water Forum to reach consensus on a major reform of New Zealand’s freshwater management system. This is set out in a package of recommendations contained in our four reports provided to the government from 2010-2015, and further advice in 2016 and 2017. The advice in this report must be seen alongside our previous recommendations and reports.
2. The Minister for the Environment and the Minister of Agriculture have written to us stating:
3. “Our priority is avoiding further degradation. We invite the Forum to give more detailed consideration of interim limits and measures (paragraphs 129-142 of your report[[1]](#footnote-2)) and provide us with advice on what can be done between now and 2020 to prevent further damage. Or, in your words, what can be done to ‘hold the line’.
4. We are also interested in how to provide stronger national direction around allocation of nutrient and sediment loads by catchment[[2]](#footnote-3), to facilitate faster implementation at the regional level.
5. We therefore seek advice from the Forum on whether there is a consensus view on how best to:
	* Allocate nutrient and sediment loads by catchment, in order to achieve fairness between existing capital investment and undeveloped land, while meeting science based bottom lines; and
	* How to implement this without repetition of the same underlying policy debate in each regional council area.”
6. The Minister has clarified with the Forum’s Chair that he wants advice on managing sediment better, not necessarily just allocating sediment loads, and that his primary nutrient focus is nitrogen. This report responds to that request, including commenting on the issues from a specific urban context and addressing some key foundational steps.

# Central government must provide strong leadership on fresh water

1. Central government regulation has an important role to play – it sets the outcomes needed, provides a spur for action, and provides the framework for accountability. Regulations are only useful if they can be effectively implemented, monitored and enforced, and if individuals and businesses have the knowledge and resources to comply effectively. Strong central government leadership and direction is needed to address the critical gaps in capability, science, tools and resourcing that we have identified.
2. Improving freshwater management requires a mix of political will and government agency drive. The central government institutional arrangements have not proved sufficient to press forward with improving freshwater management. In our First Report we recommended setting up a Land and Water Commission to fill this role. We still think the need exists - a need that has become more urgent as freshwater reforms have proceeded iteratively and in a piecemeal fashion and as councils and the courts have been left to interpret and implement the emerging framework with little effective oversight. In our First Report we noted that a Commission would also be an avenue for iwi to express their Treaty partner aspirations.
3. In line with this, many of the references in our recommendations to ‘central government’ should be read as meaning the Commission. This is consistent with the Commission being an operational policy and implementation agency, and the list of functions set out below, and the discussion of an influential central government role in our previous reports. Actions that we expect the Commission to do should be undertaken by another central government agency if there is a delay in the establishment of the Commission.
4. A freshwater management implementation strategy is also required to clearly set out a detailed roadmap of the various phases of the water reforms, how they fit together and are sequenced, and when they will happen. The detail of this was discussed in our June 2017 report *Land and Water Forum Commentary on Implementation of the NPS-FM.*
5. The Commission would *inter alia*:
* Oversee and monitor the roll-out of a national freshwater management implementation strategy, including setting national priorities for actions, activities or priority catchments, and addressing urban and rural water management (Rec 1b)
* Undertake for the Minister a review of council identification and management of at-risk catchments (Recs 3-5)
* Oversee and provide technical assistance in the development of good management practice (GMP) (national standards and standardised risk assessment frameworks), technical and process support for GMP farm and catchment plan development and auditing, including personnel, minimum qualifications, and templates. Oversee the monitoring of the effectiveness and development of updated practices (Rec 13, 15)
* Provide advice on science and knowledge, data, monitoring and modelling requirements to sector groups, central government, regional councils and science providers (Rec 38). This would include on modelling implementation and development, including of GMP, and oversee national environmental monitoring standards and a central repository for that information
* Ensure a national view is represented at hearings on regional plans and water management frameworks, including in respect of nitrogen allocation (Recs 21, 24)
* Provide technical support and resources, including training and best practice plan provisions and implementation tools to councils
* Review all regional plans, provide recommendations and make submissions when necessary to improve consistency of regional responses to the NPS-FM
* Develop the aspects of the regime for managing nitrogen discharges set out in recommendation 23
* Provide a key interface between central government, with land users, sector groups, NGOs, science providers and regional councils.
1. It will be important to maintain integrated environmental management across the government environment sector. With a new Land and Water Commission, there will need to be procedures put in place to ensure this happens.

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| **Recommendation:**1. Central government to:
	1. **Set up a Land and Water Commission to provide national leadership, direction, oversight and implementation of freshwater management reform. The Commission must be properly resourced and mandated to drive robust change.**
	2. **Develop a freshwater management implementation strategy within six months and mandate the new agency to implement it.**
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# Resolution of Iwi Rights and Interests

1. A critical gap in the freshwater management framework is the resolution of iwi rights and interests in fresh water. The Forum has previously encouraged the Crown to address these issues, noting that this is a matter between the Crown and iwi. Our Fourth Report provides complementary methods and opportunities to recognise rights and interests, following any agreement between the Treaty partners.
2. The outstanding issue of iwi rights and interests is creating uncertainty across the freshwater management system, including for existing water users. The lack of certainty is undermining the incentives to make long-term investment decisions and practice changes on land. It may also be encouraging landowners to enhance their position through regional planning and consent processes. The situation is hindering progress towards establishing a more durable freshwater management framework.
3. Potential changes to allocate nitrogen discharge allowances to an individual property or business has the effect of clarifying and firming rights, particularly if in the long term the transfer of discharge allowances between individual properties or businesses may be possible. Strengthening the rights of some parties prior to resolving iwi rights and interests will be opposed by iwi and make the process of reaching agreement between Treaty Partners more difficult, time-consuming and costly.
4. The Forum has previously recommended that government should work with its Treaty Partners to resolve iwi rights and interests as quickly as possible.

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| **Recommendation:**1. Central government must, as a priority, work with iwi to reach agreement on how to resolve rights and interests in fresh water.
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# Avoiding further degradation

1. Water quality varies across the country. Different reports paint varying pictures about how many waterbodies are improving or declining, and how that is measured, but it is clear that some catchments face resource pressures and water quality problems where attention is needed.
2. There is variation in the urgency with which declining quality is being addressed. Councils are planning at different speeds and taking different approaches to prioritising catchments for planning. Councils sometimes lack capacity to deal with urgent water quality issues. Combined, this means that some declines in water quality are not being met by a timely response.
3. **There is a need to take greater action in ‘at-risk’ catchments.** ‘At-risk’ catchments are those where:
	* there is a clear decline in water quality in the catchment or downstream receiving waterbody;
	* where the water resource is under pressure from existing or anticipated future land use change, leading to a likely decline in water quality;[[3]](#footnote-4) or
	* where the waterbody is vulnerable to irreversible detrimental change, and urgent action is needed.

National Policy Statement for Freshwater Management (NPS-FM) obligations, such as those set out in the National Objectives Framework (NOF), would be one set of indicators that the Minister would use to determine decline.

1. Some members also believe that greater action is required in catchments where water quality is degraded as measured by the national bottom lines in the NPS-FM and other measures of ecological health such as the macroinvertebrate community index (MCI). Others argue that the priority should be to focus on catchments where water quality is declining and not those where quality is poor but static. Some are concerned about the workability of addressing the ‘degraded’ catchments in the absence of the population of Appendix 3 of the NPS-FM.
2. There is regional inconsistency in whether councils are identifying ‘at-risk’ catchments and how they are identified, measured and managed. And yet addressing ‘at-risk’ catchments consistently and well is crucial to improving freshwater management.
3. The Minister should consult with regional councils as soon as possible to identify ‘at-risk’ catchments, including the particular activities giving rise to the water quality issues. This could include requiring councils to identify catchment characteristics including land type, land use, discharge sources, and the nature and sensitivity of the receiving environment, estimates of the relative contributions of different contaminants and of different sources, and drawing on information and advice from regional councils and others.
4. Regional councils should also be asked about the proposed timing for council planning to address the issue, and the effectiveness of the range of council, sector and community planning programmes in addressing the decline. Councils should be well placed to do this so it should not take long.
5. Concern over the capacity or performance of a regional council to address the water quality decline should be included as a factor in whether the Minister should intervene.
6. There are a variety of Ministerial responses, using existing statutory powers in the RMA and Local Government Act 2002. If there is a need to accelerate council planning because the council has not properly prioritised higher risk catchments for planning[[4]](#footnote-5), the Minister can require the council to prepare a plan, or a change to a plan, or review a plan. If not satisfied that a proposed plan will deal with the issue, the Minister can require a council to vary a proposed plan.[[5]](#footnote-6) The Minister could appoint a person to carry out an under-performing council’s role. [[6]](#footnote-7)
7. In some situations a moratorium on further land use will be needed. This would stay in place until a new plan had been developed. The Forum has previously stated conditions that should be considered when applying a moratorium – these are also relevant here and include the certainty of delivering the outcomes sought, targeting the water quality issue of concern, and a plan for exiting the moratorium to provide certainty for those caught by its imposition[[7]](#footnote-8). A moratorium can be imposed through either a Ministerial led process[[8]](#footnote-9), or through the use of prohibited activity status for intensification of land use or particular activities.[[9]](#footnote-10)
8. We have also considered three other tools – requiring consents for intensification; interim limits; and default limits. Views on these are set out in Appendix 1.
9. **There is a lack of clarity, and some loopholes, in the RMA and NPS-FM.** These include:
10. The preservation of the natural character of wetlands is a matter of national importance under the RMA, and protecting the significant values of wetlands is an obligation under the NPS-FM. There are no supporting policies for this – for example defining the physical characteristics of wetlands, or a nationally consistent process and criteria for spatially defining the extent of wetlands. This results in regional inconsistency and contention. Wetlands are still being completely or partially lost as land use intensifies in rural areas and urban land expands.
11. Two important policies in the NPS-FM (the requirement to maintain or improve overall water quality in freshwater management units, and the need to monitor and take action on MCI) only have effect when regional councils set values, objectives and limits in regional plans. This could be 2025 or 2030 leaving a lengthy interregnum during which deterioration could occur. Despite the general requirements in the RMA for regional councils to maintain water quality and safeguard the life supporting capacity of water, there is a risk some councils may not take action until these dates, thereby allowing quality to deteriorate in the interim.

Some members believe that councils have considerable water quality data and should be able to use that to ensure these provisions take effect from when they were introduced into the NPS-FM (2014 and 2017 respectively). Others question this availability of data, the implied retrospectivity of the obligation, and the difficulty this will pose for those councils that already have plans notified or in place, and think that the obligation should start from 2018.
12. As with wetlands, there is no policy support for the NPS-FM requirement to protect the ‘significant values of outstanding freshwater bodies’. Councils are interpreting this in different ways, with different outcomes.
13. There is a lack of clarity about the requirement to ‘maintain or improve’. Amendments to the NPS-FM in 2017 sought to clarify the meaning and application of the requirement to ‘maintain or improve water quality’ (namely, that it applies to each attribute within a freshwater management unit (FMU)). However, its interpretation is varied and the subject of much debate, which is complicating and delaying the freshwater limit setting process.

Particular issues include:

* FMUs are being set inconsistently around the country at different scales,
* there is debate as to whether a water quality attribute can decline so long as it stays within a band,
* difficulties with, and inconsistency between councils of, measurement and monitoring.

The Government should clearly define what ‘maintain or improve water quality’ means so that it is nationally consistent and that measurement and monitoring requirements are clear.

1. Regional councils have noted difficulties with some RMA provisions within a limits-based planning framework. In particular:
* Certificates of compliance must be granted for an activity that is lawful but not existing before a new regional plan is notified. This can create a ‘gold rush’ that can exacerbate allocation and equity issues.
* Consents granted under previous plan provisions continue to apply until reviewed by a council, even if collectively they are inconsistent with a limit. Reviews of large numbers of consents to ensure compliance with a limit can be difficult.
1. These issues can have a negative effect on councils’ ability to manage fresh water effectively. We have not had time to thoroughly consider best intervention for addressing these issues. They need reviewing in a way that improves freshwater management and recognises the interests of the environment and consent holders, but does not have unintended consequences for their broader use under the RMA.
2. In addition, councils can continue to grant consents under section 104 of the RMA as they need only ‘have regard’ to the NPS-FM, regional policy statement, regional plan and limit when considering consent applications.
3. The last of these can be addressed through the use of prohibited activity status in plans (as previously recommended by the Forum).
4. The Forum has previously recommended **changes to the NPS-FM and NOF** (the latest in December 2017) which we still support. This report also recommends development of a NOF attribute for sediment. Further changes should be transparent, signalled in advance, and clear about priority and sequencing to provide greater regulatory certainty for councils, sectors and communities.

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| **Recommendation:**1. The Minister should consult with regional councils and urgently identify ‘at-risk’ catchments[[10]](#footnote-11):
	1. **that exhibit a clear decline in water quality; or**
	2. **where water quality is likely to decline as a result (direct or indirect) of existing or anticipated future land use change and/or intensity of use (including urban growth); or**
	3. **where a catchment or sub-catchment is vulnerable to irreversible detrimental change.**
2. **The Minister is to require regional councils to report on how existing plan provisions, the current suite of community, industry and council plans and programmes, and council planning timeframes will manage the decline, with the primary objective of reversing it.**
3. Following receipt of this report, the Minister shall:
	1. **identify the extent and severity of the water quality decline**
	2. **identify the contaminant(s) and activities that are the key contributors**
	3. **assess the extent to which existing actions are sufficient to manage the decline**
	4. **assess the capacity of the regional council to reverse the decline and its likely timeframe for doing so**
	5. **determine the action that is necessary to ensure that the decline is halted as quickly as practicably possible.**
4. The Minister can:
5. require regional councils under section 25A of the RMA to prepare a plan, or a plan change or variation to successfully reverse the water quality decline in the at-risk catchment
6. appoint a person under section 25 of the RMA to carry out the functions of a regional council where the performance of the council is assessed to be inadequate to prevent further degradation
7. introduce interim measures – either prohibited activity status or Ministerial led moratoria – to stop activities which an investigation shows are clearly contributing to a decline in water quality, or are reasonably likely to do so. These should be in place until a new plan has been prepared to address the water quality issue.
8. **The NPS-FM be amended to:**
9. set a nationally consistent criteria and identification process for spatially defining the extent of wetlands, and set out criteria for defining and assessing the ‘significant values’ of wetlands
10. provide that there is no further loss or degradation of wetlands.
11. The NPS-FM be amended to:
	1. **bring forward the requirement under Objective A2 of the NPS-FM that the “overall quality of fresh water within a freshwater management unit is maintained or improved …”**
	2. **strengthen the NPS-FM’s MCI monitoring and action requirements, by bringing forward the obligation on councils.**
12. The NPS-FM to set out criteria for defining the characteristics of ‘outstanding waterbodies’, and for defining the ‘significant values’ of outstanding waterbodies.
13. Central government provide greater clarity on the requirement on Objective A2 of the NPS-FM that ‘the overall water quality within a freshwater management unit is maintained or improved’, including on greater national consistency in identifying freshwater management units, measurement and monitoring requirements, and how to account for lag times.
14. **The NPS-FM be amended to require regional councils to ensure that once a limit is fully allocated, additional resource use activity (e.g. discharges of contaminants and the taking of water) is a prohibited activity.**
15. **Central government to review the use of certificates of compliance and councils’ ability to review consents to ensure compliance with a limit,** **in a way that improves freshwater management but does not have unintended consequences for their broader use under the RMA.**
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# Implementing Good Management Practice now

**GMP’s purpose**

1. GMP is the term for a system comprising a suite of practices which equate to a quality standard for a sector. GMP can be tailored to a site or catchment and identified through an analysis of environmental characteristics and a risk assessment process, or it can be minimum standards required nationally across a sector for common activities. In rural contexts sector specific farm plans are often used to set out the GMPs required to be implemented by a particular enterprise. In urban contexts GMPs are often set out in site management plans although urban GMPs have not yet been defined nationally.[[11]](#footnote-12) Focusing minimum standards on nationally risky practices and a nationally consistent but locally applied risk assessment process helps to ensure that the costs of compliance are commensurate with the level of impact and greater amounts of mitigation are required for activities that pose higher risks.
2. Generally, the purpose of implementing GMP is to minimise the environmental impacts of activities and achieve sustainable land use. In the freshwater quality context the purpose of implementing GMP is to manage contaminant loss to fresh water and contribute to Te Mana o te Wai. Once a regional plan sets freshwater objectives and corresponding contaminant limits, GMP should contribute to staying within those limits and meeting those freshwater objectives.
3. Implementing GMP is not a ‘silver bullet’. Ensuring any given catchment meets its freshwater objectives and limits may require other actions, from additional mitigations through to changes in land use. Decisions around how contaminant loads or intervention responsibilities are allocated may impact whether GMP is sufficient or more is required. We consider that GMP is the minimum level for all enterprises that wish to operate in today’s social and environmental context and should be implemented as soon as possible. Transparency is required during planning processes to identify as soon as possible where GMP alone will be insufficient and more fundamental changes in farming systems or land use will be required to meet objectives and limits so that significant investment in GMP is not wasted.

**Operating context and problem**

1. Industry groups and regional councils have worked hard on designing and implementing GMP. Some important examples of the GMP programmes they have developed are:
* The Good Farming Practice programme.
* Beef and Lamb New Zealand’s recently released Environment Strategy and Implementation Plan that aims for every sheep and beef farmer to have a farm plan by 2021.
* The Dairy Tomorrow Strategy that includes a target for every dairy farmer to have a farm plan by 2025.
* The horticulture sector’s GAP programme – which uses farm planning tools based on nationally consistent peer reviewed codes of practice and independent third party audit.
* The National Environmental Standard for Plantation Forestry (NES-PF).
* Regional council programs such Canterbury’s Matrix of Good Management and Horizons’ Sustainable Land Use Initiative which require the use of farm plans.
* The development of the Long Bay catchment in Auckland following low impact and water sensitive design principles.
1. Progress in implementing GMP varies by sector and region. In some cases adhering to specific minimum GMPs or completing a farm plan or site management plan is required by regional plans or embedded in supplier agreements. In other regions and sectors GMP remains optional or has not yet been defined.
2. Successful implementation of GMP also faces other issues:
3. Resource and capacity constraints in identifying environmental characteristics,[[12]](#footnote-13) developing, auditing and monitoring GMP farm and site management plans, and provision of expert support and advice. There are only a small number of people in New Zealand with the requisite skills to undertake these processes. This is slowing implementation and limiting effectiveness in some cases.
4. There are gaps in the applied science required to support our modelling capability. The first gap is estimation of how effective mitigations will be. The second gap is estimating the proportion of nitrate discharge below the root zone that will be transferred to the waterbody from the property. As a result, it is often difficult to estimate the impacts of mitigations, aggregate that up to a catchment level, estimate the catchment load and the effect the proposed mitigations will have on the load, and then link changes in the catchment load to achieving freshwater objectives. Estimating legacy effects can also be difficult. Councils must do the best they can with the information and tools they have available and build uncertainty into their policy frameworks while work is undertaken to improve the science base.
5. Lacking of reporting data. A critical element of GMP is monitoring and reporting on the effectiveness of GMP interventions. Without this it is not possible to confidently identify the impact GMP is having on water quality.

**We agree that:**

1. GMP must be required of all rural and urban sectors impacting fresh water now. This consists of first co-constructing and defining GMP with industry groups and stakeholders, and then incorporating it into a national policy instrument, either a NES or regulation, to achieve national application.
2. GMP consists of two components which that instrument must contain:
3. Sector-specific, minimum standards or prescribed management practices to be adhered to nationally for those activities that pose a higher environmental risk. These should be measurable. Issues around sediment control as set out in Recommendation 16(b) are an example.
4. A sector-specific, standardised risk assessment to identify the best management practices in specific locations and circumstances. Where appropriate this should require a farm or site map identifying the environmental characteristics of the farm or relevant area, and identify:
5. the problems, including identification of critical source areas, sensitive environments and risky elements of the enterprise’s operation
6. the contaminants of concern
7. the mitigation approaches to be applied including those tailored for the specific site and those required to be applied nationally
8. an implementation process
9. a third party auditing process
10. a monitoring and reporting process.
11. Developing and defining these components should be undertaken by a government, industry and stakeholder technical working group. Further input from the Land and Water Forum should be possible at the policy phase of the process.
12. It is important that any regulation supports uptake and compliance with existing programmes and recognises and rewards those already operating under GMP rather than cutting across them and imposing different requirements. Cost of compliance should be commensurate with the level of environmental impact and enable flexibility in land use, adaptation and innovation in management practices.
13. Urban and rural GMP must be subject to third party audit to provide the accountability necessary to give regulators and the community confidence GMP is being implemented and will improve water quality within suitable timeframes. This will involve farm and site plan checks and some site visits. Consistent monitoring and reporting is equally critical. Without it, it is not possible to assess gains made from GMP and whether further steps are required to contribute to Te Mana o te Wai.

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| **Recommendation:**1. Central government in partnership with industry and stakeholders must co-construct and implement a national policy instrument (NES and/or regulation) that defines GMP in rural and urban environments and which:
	1. identifies sector-specific practices and minimum standards that can be applied across New Zealand for common activities that pose an environmental risk[[13]](#footnote-14)
	2. includes sector-specific risk assessments to identify the best management practices in specific circumstances. It must include the elements set out in paragraph 38(b) above
	3. identifies auditing requirements
	4. identifies monitoring requirements
	5. identifies reporting requirements
	6. requires (a)-(e) above to be implemented through farm plans in the rural context and an appropriate requirement for the urban context
	7. requires existing and new enterprises to apply GMP and specifies a date by which all existing operations must have a farm plan or have implemented GMPs in an urban context
	8. **enables flexibility, innovation and adaptation**
	9. **includes review provisions to allow for review and update of minimum standard GMPs and management practices as technologies develop and improve.**
2. Regional councils must identify through modelling the contribution GMP will make to meeting freshwater objectives. Where the implementation of GMP will not achieve freshwater objectives, the regional council must identify any additional actions and mitigations that need to be undertaken so that freshwater objectives can be achieved over time. This may include using allocation tools, as discussed in the allocation recommendations.
3. To support implementation of GMP central government should urgently:
	1. coordinate the development of a science programme to determine the effectiveness of mitigations. The programme needs to be updated continuously as new practices are identified.
	2. support building of capacity of persons with the requisite skill set to develop and audit GMP and farm and site management plans.
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# Managing sediment

1. In this section we focus mainly on sediment issues in a rural context, but sediment can be just as significant an issue in the urban context. We address the management of sediment in urban environments later in this report.
2. Phosphorus is carried into water by sediment, so measures that reduce sediment discharge into waterways will also tend to reduce phosphorus discharge into waterways.

**Operating context and problem**

1. Sediment is a significant water quality problem in many areas of the country.
2. There are no attributes or national bottom lines in the NPS-FM for sediment and the science base linking in-stream outcomes, catchment loads, and sources is less developed and more uncertain than for some other contaminants. The Ministry for the Environment (MfE) have work underway to address these issues, but at this stage allocating sediment discharge limits to individual farms and businesses is not a practical management approach.
3. There **is** evidence that certain practices and mitigations are effective at reducing sediment losses from land and that Farm and Land Environment Plan (FEP and LEP)-based soil conservation and erosion control programmes are effective at improving sediment-related measures of water quality.[[14]](#footnote-15) Regional councils and primary sector organisations are in the process of implementing these throughout the country, for example, with the development of industry programs such as the New Zealand Farm Assurance Programme, which includes a FEP/LEP module. A short outline of the types of mitigations required by soil conservation and erosion control programmes, and how they work, is provided in Appendix 2. We have focussed our deliberations on how to improve the reach and effectiveness of these programmes and better regulate certain land-management practices, while entrusting MfE with the development of sediment attributes and improvements to the science base.
4. In many regions, participation in soil conservation and erosion control programmes is still *voluntary*, which results in an inability to compel landowners to participate and comply with the requirements, including reporting.
5. Soil conservation and erosion control programmes are resource intensive. They require extension programmes and specialist land-management skills to identify critical source areas, identify appropriate mitigations and plan out the actions that will be undertaken and when. Follow up meetings are also required to monitor progress and solve other problems that emerge.
6. Council programmes are oversubscribed because councils lack the resources and skilled staff to manage the existing work, let alone scale this work up.[[15]](#footnote-16) Some councils and industry groups do not have enough skilled land management people to go on to the farm, work with the farmer to identify the work that needs done, and go through the farm plan with them.
7. Resourcing and capacity constraints are slowing the delivery of the farm-scale landscape resource mapping needed to implement soil conservation and erosion control programmes, and limiting the ability to provide ongoing support to participants. Making participation in these programs compulsory will improve uptake and send a strong signal that capability needs to be built, but it is likely that even with compulsion, a lack of capability will remain a problem in some regions and sectors and slow implementation.
8. Some land management practices have a particularly high risk of generating sediment. In the forestry sector, land management practices are regulated under the NES-PF. It provides nationally consistent rules. Equally risky management practices in other industries are not always regulated nationally at present, although in some cases regional councils have developed their own rules for them. As a result regional rules are inconsistent and sometimes inadequate. High-risk practices include:
* **Stock access to waterways** – livestock can disturb stream beds and transport soil into waterways if not excluded. This is particularly problematic in intensively farmed areas. In hill country areas sediment management is often more appropriately undertaken through critical source area identification and management. Requiring fencing in hill country can increase sediment loss to waterways through land clearance and track building and maintenance for fences.
* **Intensive winter grazing** – some intensive winter grazing practices (such as break feeding on fodder crops) can result in a lot of mud being generated which can make its way into adjacent waterways if improperly managed.
* **Hill country cropping** – the practice of spraying herbicide on the hillside pasture and seeding the ground with fodder crops can result in slopes that are vulnerable to erosion in rainfall events.
* **Building tracks, roads and culverts** - these activities can create a lot of sediment. They are regulated by the NES-PF, in other sectors the rules vary regionally.
* **Cultivation** – cultivated land has a higher risk of erosion, particularly during those times of year after the ground has been freshly cultivated and the soil is loose. Erosion and sediment control plans, backed by good practice guides, are used in the horticulture sector.
* **Drainage management** – when drains are too small, they overflow during high rainfall events and pour into private land. Where this is cultivated it strips soil from the property and discharges it further down the catchment. By ensuring that public and private drains are big enough, designed appropriately and integrated, and leaving certain areas that flood frequently in pasture, the amount of sediment going into the waterways can be reduced.

**Relationship to other government policies**

1. The government has recently announced the *Billion Trees programme* as part of its Provincial Growth Fund. This programme will provide a significant amount of funding for planting trees. Some funding has been agreed to get the programme underway but specific objectives for the programme have yet to be defined: these are expected to be addressed in a paper to Cabinet during June.
2. The *Billion Trees programme* provides an opportunity to achieve multiple objectives – soil conservation and erosion control, carbon capture, ecosystem health, biodiversity, employment, and the promotion of social and cultural values. For this to happen, the criteria being applied when deciding where to put those trees must include these objectives.
3. A key point of debate in the Forum has been how to best use this fund to achieve these objectives while at the same time recognising the polluter pays principle. Where we agree and disagree is set out below.
4. We agree that the *Billion Trees programme* should be used to improve the capacity and resourcing of natural resource mapping and farm planning for soil conservation and erosion control purposes.
5. We further agree with the principle that landowners should take responsibility for the environmental effects of their activities. In terms of freshwater management, landowner responsibility for reducing sediment discharges should be no different from reducing nitrogen discharges. Changes in farm systems and/or land use may be required in both cases.
6. The *Billion Trees programme* could be a tool to support land retirement if it meets individual, community, and national aspirations and is supported by the land owner. It will be appropriate for the *Billion Trees programme* to enable an offer to be made to landowners under which they could either relinquish land needing retirement or lease such land to the Crown for the establishment of permanent forest. We agree that acceptance by landowners of such Crown offers should be voluntary.
7. The *Billion Trees programme* also provides the opportunity to subsidise plantings for soil conservation and erosion control, carbon capture, biodiversity, and social and cultural values. We recognise that subsidies may speed the pace of planting and how quickly environmental benefits are realised; some of us believe however that subsidies may also underwrite the ongoing viability of activities contributing climate change emissions which may result in slowing the achievement of climate policy objectives, and/or shifting the cost on to the rest of the community. Others disagree with this view.
8. At present we disagree on the boundary at which plantings and land retirement should be considered as part of the landowner’s responsibility to manage the environmental effects of their activities, as opposed to an activity that is a legitimate use of taxpayer funds. We think that further deliberation by the Forum could be fruitful in defining this boundary and the situations in which the *Billion Trees programme* should be used to provide funding. In the meantime, we think Government should publish a plan outlining the objectives and principles for deciding where the billion trees should be planted and invite public comment.
9. The Government has many other funds that are used to promote afforestation.[[16]](#footnote-17) We think these should be reviewed to ensure soil conservation and erosion control, and other ecosystem health benefits are recognised (noting the considerations outlined above) and the funding contributes across all of the government’s policy objectives. Some amalgamation and/or rationalisation may be needed to achieve this.
10. Current Emissions Trading Scheme (ETS) rules make it difficult to receive carbon credits for some types of planting intended to prevent erosion. This includes riparian planting, where the width restriction prevents credits from being obtained; and plantings (e.g. poplars and willows) for erosion control where carbon credits can only be obtained if there is a significant increase in the density of planting. We urge the government to identify ways of making carbon credits more easily obtainable in these circumstances.
11. Although plantation forestry in general produces less sediment than other productive land uses over the complete growing/harvesting cycle, there are vulnerable periods at certain times, such as post-harvest. Climate change is likely to result in more frequent and serious adverse weather events that may increase the risk of sediment from harvested areas and other activities. The NES-PF aims to mitigate these risks but has only just become operative and time will be needed to gauge its effectiveness. When its implementation is reviewed in 12 months’ time we would expect these issues to be considered.
12. MfE has several important pieces of sediment-related scientific work underway:
* Developing Appendix 2 attributes for suspended and deposited sediment - we would like to see these developed and undergo rigorous testing by the NOF Reference Group – similar to the process used for other Appendix 2 attributes.[[17]](#footnote-18) This will allow technical merits and the costs and benefits of including them in the NPS-FM to be assessed.
* Ongoing scientific work to link in-stream sediment objectives to catchment loads and property-level contributions.
* Developing numeric indicators for estuaries – often the receiving environment. Estuaries or the nearshore coastal marine area are more sensitive to the effects of sediment and upstream management activities need to be designed around them. Water quality in the coastal marine area is regulated under the New Zealand Coastal Policy Statement (NZCPS), which unlike the NPS-FM contains no numeric water quality standards.

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| **Recommendation:**1. **The national policy instrument developed for GMP (as per recommendations 13, 14 and 15 of this report), to include the following measures to address sediment in sectors currently unregulated:[[18]](#footnote-19)**
2. **A requirement that all landowners in catchments identified as having significant sediment problems must be part of an FEP/LEP-based soil conservation and erosion control programme.**
3. **Specific rules to control the following practices:**
	* + **exclusion of stock from waterways and provision of appropriate riparian margins on appropriate terrain – e.g. some intensively farmed lowland areas**
		+ **hill country cropping**
		+ **intensive winter grazing**
		+ **land disturbance caused by the construction of tracks, roads and culverts**
		+ **earthworks from subdivision and development – as per recommendation 28 of this report**
		+ **integrated drainage management**
		+ **management of cultivated land.**
4. **To assist with implementation, central government should assist with the development of tools and guidance to support the implementation of good management practices identified above in recommendation 16(b).**
5. Central government should:
6. **Publish a multi-objective plan for where to plant the “one billion trees” and seek public comment on it. The plan should include a statement of objectives and principles about where the right tree in the right place for the right purpose is that recognises the value of soil conservation and erosion control, carbon capture, ecosystem health, biodiversity, and social and cultural values, while addressing the need to provide the right incentives to land users for reduction of sediment and carbon emissions. It should recognise:**
	* 1. **the principle that landowners should bear responsibility for the environmental effects of their activities**
		2. **that at sufficiently large scales taxpayer subsidies for land retirement may be justified if such retirement would render the remaining productive land incapable of reasonable use and place an unfair and unreasonable burden on the landowner, as recognised by the principles in Section 85 of the RMA**
		3. **that subject to the law, landowners should retain the choice of how to use their land.**
7. **Review existing government afforestation funds to ensure they are geared to achieve government policy objectives, and restructure them as necessary**
8. **Provide assistance to accelerate farm scale natural resource mapping, and build capacity and capability of soil conservation and land management experts to support implementation of soil conservation and erosion control measures**
9. **Change the ETS to recognise additional carbon stores generated by plantings for soil conservation, erosion control and riparian management**
10. **Consider the effectiveness of the NES-PF in reducing sediment discharges when its implementation is reviewed in 12 months’ time.**
11. Attributes for suspended and deposited sediment should be developed. These should then be thoroughly tested for inclusion in Appendix 2 of the NPS-FM by the NOF Reference Group.
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# Managing nitrogen contamination through the allocation of nitrogen discharge allowances

## Context and problem

1. Nitrogen is one of the key contaminants affecting New Zealand freshwater bodies, alongside phosphorous, sediment and e-coli.
2. Programmes for managing the effects of nitrogen are built into existing regional plans to a greater or lesser extent. While some plans may not be considered efficient or effective, it must be acknowledged that we are not starting from a blank slate, and all councils are in the process of implementing the NPS-FM. We need to be careful to avoid undermining promising management responses, but we equally need to ensure clarity and accountability so that everyone, resource users and regulators included, knows what needs to be done to comply with limits and is held accountable for taking appropriate actions within agreed timeframes.
3. The Forum has previously agreed that the allocation of nitrogen discharge allowances holds promise as an effective way to deliver both clarity and accountability, but that before the move to allocation takes place, certain steps need to be taken and tools need to be available.
4. In a limits based system, any form of regulation that controls use of a resource implicitly allocates rights and responsibilities between parties. A form of allocation is therefore occurring by default around New Zealand through:
5. the setting of limits and distribution of numerical contaminant loads within a cap
6. decisions on relative in-stream values across sub-catchments
7. decisions on activity status
8. the design of rules and land use controls, and
9. through decisions to grant consents to develop land, abstract water or discharge contaminants.
10. Because allocation is an inherent part of our limits-based system, the fact we still lack the necessary tools to account adequately for contaminant sources across catchments is a serious weakness. It is equally concerning that we are not confident in our systems for monitoring and enforcing compliance with limits.
11. Although consented and permitted nitrogen discharge allowances are time bound and do not technically confer a property right, allocation does inevitably create ‘winners and losers’ - in broad terms, those who retain the ability to discharge nitrogen and those who don’t. The end-game of allocating discharges needs to be an equitable system that gives effect to Te Mana o Te Wai, while also maximising the economic, social and environmental benefits of our water resources. In some cases land uses will need to change, and some current land use activities will be constrained if we are to manage the effects of nitrogen discharges effectively.
12. Each individual approach adopted by councils to managing nitrogen discharges can have implications for the nature of real or perceived rights and responsibilities. The current ad hoc approach to managing the effects of nitrogen discharges can be ineffective, costly, time consuming and divisive, and can cause conflict between regulators, mana whenua, landowners, sector groups and communities.
13. A degree of conflict is inevitable when scarce resources are allocated, but an overarching framework that recognises and reduces the tensions between competing interests and provides a consistent framework or process for ensuring equitable decision-making at the regional level has the potential to reduce that conflict.
14. National level policy interventions can, however, be blunt and it is unlikely that central government will be able to avoid the need for regional debates on policies for determining the allocation of nitrogen discharge allowances. To be fair and durable and to achieve environmental and economic outcomes, solutions will need to reflect specific catchment characteristics.
15. Addressing water quality issues, including nitrogen discharges, will require investment in actions to improve management practices and the implementation of catchment mitigations to achieve outcomes directly (e.g. purchasing and retiring land or changing land use, constructing wetlands, building water infrastructure), and investment in the regulatory and planning changes necessary to define, allocate and audit compliance with individual nitrogen discharge allowances. Any overarching national framework needs to allow flexibility to accommodate regional variations.

### We have agreed that

1. Any system that relies on the allocation of discharge allowances to manage the effects of nitrogen on waterbodies needs to address several key uncertainties:
2. **Uncertainty regarding the relationship between landowner activities and in-stream effects, and between in-stream effects and desired community outcomes**

We need to improve our understanding of: the relationship between actions in specific locations and contaminant discharges; the interaction of contaminant loads from across a catchment; and the cumulative effects of contaminant discharges on Te Mana o te Wai. This is to improve our knowledge about the extent to which nitrogen is causing or contributing to water quality degradation. We also need further knowledge about whether the tools we have available now for estimating nitrogen discharges are accurate enough, or whether the estimates they provide are still too coarse or vulnerable to gaming to be relied upon for defining discharge allowances.

1. **Uncertainty as to how best to safeguard and enable land use flexibility**

We need an agreed process for determining whether allowances to discharge nitrogen should be tied to land (e.g. prioritising the inherent characteristics of land), to enterprises (prioritising human innovation) or to a mix, and we need to agree whether, how and under what conditions they should be able to move between users.

1. **Uncertainty whether enough is being done or whether management programmes are working quickly enough**

We need to know when and where rapid and direct action is required to recognise and provide for Te Mana o te Wai, address iwi rights and interests, accelerate progress towards compliance with load limits, and prevent gains from practice improvements being overwhelmed by intensification elsewhere in the catchment. In these cases, a process needs to be signalled well in advance for when the allocation of nitrogen discharge allowances will be put in place.

1. Before allocating nitrogen discharge allowances, other than as part of an interim management arrangement, a series of foundational steps must be taken:
2. Limits must be set that recognise and provide for Te Mana o Te Wai, taking into account the spatial variation in biophysical characteristics of waterbodies.
3. Iwi rights and interests in water need to be resolved.[[19]](#footnote-20)
4. A robust catchment accounting framework must be available that will enable councils to identify and account for all activities that individually and cumulatively make more than a minor contribution to the catchment load.[[20]](#footnote-21) [[21]](#footnote-22)
5. GMP and extension practices must be clearly defined and understood, steps must be underway to ensure compliance with them within prescribed timeframes and approved auditing schemes (including Audited Self-Management) must be in place to ensure adequate accountability for implementing required practice changes effectively.[[22]](#footnote-23)
6. A nationally consistent procedural framework to guide regional nitrogen allocation decisions must be available, along with a nationally consistent framework enabling the transfer of allowances between users.[[23]](#footnote-24)
7. Programmes must be underway to improve capacity and capability across land users, central and local government agencies, and sector groups.
8. There must be integrated freshwater management information framework in place that, among other things, identifies and prioritises gaps, identifies opportunities to feed Mātauranga-derived knowledge into decision-making, defines agreed national data standards, and increases knowledge on nitrogen leaching and attenuation rates.[[24]](#footnote-25)
9. The sequence of steps involved in moving to the allocation of individual discharge allowances is critical. At the outset it is necessary to establish whether nitrogen discharges are causing or contributing to the degradation of water quality, whether regional regulatory processes are sufficient to address them efficiently and equitably, or whether more active central government support is required to ensure limits are set and met within agreed timeframes. This will involve:
10. Regional councils: evaluating risks to water quality arising from nitrogen discharges - identifying areas vulnerable to leaching and sensitive receiving environments, and areas of intensive activity; and developing management programmes and regulatory planning provisions to address risks and bring nitrogen discharges into line with limits within agreed timeframes.
11. The Minister for the Environment and the Land and Water Commission: evaluating whether regional councils have prioritised the right locations and activities for management attention, and whether plans and programmes will deliver desired outcomes and are on track to ensure compliance with limits within agreed timeframes.
12. Where it has been established that nitrogen discharges are causing or contributing to current or future water quality degradation, a series of short-term interim steps can be taken to reduce nitrogen discharges. At the same time the foundation needs to be laid for longer-term changes to improve the framework for managing nitrogen discharges.
13. In the **short term** any interim arrangements for managing nitrogen discharges should:
	1. ensure that limits are met as a first priority
	2. provide opportunities that give effect to the resolution of iwi rights and interests in water
	3. recognise the investment that farmers have made to maintaining and protecting natural assets including soil, native biodiversity, and wetland habitats
	4. recognise the local context by taking account of the history of land use and land development incentives in a catchment, and the investment and debt profiles of existing land and water users
	5. take into account the cost and implications of stranding investment at both property and community scale, as well as the economic and environmental cost of any new infrastructure required to support changes to land uses
	6. recognise that land owners should have a reasonable degree of flexibility to change their land uses and management practices in response to market opportunities and personal aspirations - including by allowing low emitters to intensify their activities below an agreed threshold - so long as doing so does not breach catchment limits
	7. focus on ensuring all land and water users are operating in accordance with GMP requirements as quickly as possible
	8. concentrate management effort on areas of risk – high intensity activities, sensitive receiving environments, vulnerable soils
	9. work with landowners and urban entities (including local authorities) having the greatest effect on water quality to design and implement targeted programmes that will reduce nitrogen losses to reasonable levels for the land uses as quickly as possible
	10. consider and evaluate the benefit and costs of public investment in infrastructure, land purchase to enable retirement or de-intensification, and other interventions to mitigate the effects of nitrogen discharges.
14. In parallel to these interim arrangements, steps must be taken to accelerate the development of the foundational aspects of the national policy framework and management tools set out in paragraph 75 to support effective and efficient allocation of rights and responsibilities for managing the effects of nitrogen discharges.
15. Once these foundational aspects are in place, it will be easier to establish a **long-term** nationally consistent approach to managing the effects of nitrogen discharges through the allocation of discharge allowances – one that facilitates a pattern of allocation that delivers the greatest possible value to New Zealand while complying with catchment-specific limits. This also infers a system that allows, where appropriate, the transfer of allowances between land parcels and land uses – this is necessary to enable flexibility and innovation in land use and management practices.
16. There is live debate among members over what pattern of allocation is most likely to deliver the greatest possible *value* to New Zealand and, indeed, what constitutes ‘value’. Some of us think that, once catchment limits have been set, value can be defined in purely economic terms – that the objective of the long-term framework for managing nitrogen discharges should be to deliver the greatest financial return on investment from use of the allocable quantum, provided the limit is complied with. In addition, some members also believe that some form of rental or royalty should be paid by resource users to the public for access to a common good (water).
17. Others of us believe that the definition of value needs to be broader, delivering a pattern of land use that reflects the inherent characteristics of land, safeguards the natural capital of land and preserves its ability to continue to provide ecosystem services into the future. Others believe the definition of value needs to be broader still, incorporating social and cultural wellbeing. To effectively safeguard natural capital, some of us also believe that further changes are required to the NOF, specifically to introduce additional attributes for nitrogen and phosphorous.
18. Some of us think this move to a long-term system of allocation can take place quickly – within 5 to 10 years. Others of us think it needs to be over a longer period, commensurate to the sunk investment both at enterprise and community scale. The optimum pace of transition that balances cultural, social, economic and environmental factors is likely to vary from catchment to catchment but there should be national oversight to avoid overly conservative or ambitious timeframes.
19. Some of us find it difficult to accept a starting point for the allocation of nitrogen discharge allowances that largely reflects or is based on current land use patterns. Those of us who feel this way believe there is an inherent right of landowners to develop land in accordance with its inherent characteristics and vulnerabilities, and in a way that will provide economic, social, cultural and environmental benefits in the long term. As such, some of us believe that allocation should be based on the natural capital of the land. Even when interim allocation is considered, flexibility based on the natural capital of the land should be provided for low intensity operators and undeveloped land. Unless the interim allocation provides this flexibility, and the long-term pattern of allocation is based on the natural capital of the land, these members believe any interim arrangement is likely to buttress current land uses and lead to some form of ‘grand parenting’ of existing patterns of allocation and land use.
20. Still others of us are concerned about the potential perverse outcomes of moving to a system that manages the effects of nitrogen loss by allocating nitrogen discharge allowances to the individual property level, even if the foundational steps we have agreed have been taken. Those of us who feel this way consider that the management framework should maximise opportunities to find and implement alternative solutions to allocating individual discharge allowances. They feel a movement to allocate individual allowances will inevitably pit sector groups against sector groups, neighbour against neighbour, and will result in the accumulation of discharge allowance over time by wealthy individuals and enterprises. They also believe that in some circumstances the cost and complexity of designing and maintaining a system for allocating nitrogen discharge allowances may not be justified, such as where nitrogen is not the key cause of water quality issues and is not ‘fully allocated’. These members believe the allocation of nitrogen discharges allowances may be an option in some catchments, but shouldn’t be a mandatory requirement even if the foundational steps have been taken.
21. The recommendations set out below represent a general but not full consensus – they are followed by a short narrative outlining the alternative views advanced by one Forum member. They are nested within the framework established by our previous reports, specifically the recommendations and narrative in pages 40-47 of our Fourth Report, and should be read accordingly.

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| **Recommendation:**1. **Where nitrogen discharge allocation limits are currently in a regional plan, are being implemented by the regulator and community, and are reducing nitrogen discharges towards those limits in accordance with a set time-frame, those interim arrangements should continue for the current term of the regional plan or time-frame specified within a regional plan or regional policy statement.**
2. **Central government amend the NPS-FM to require regional councils to take immediate interim actions to address nitrogen discharges if: a catchment or sub-catchment has been identified as being ‘at-risk’; where nitrogen has played or is likely to play a significant role in water quality degradation, including where there is an anticipated ‘lag’ in effects. In undertaking these interim actions regional councils should:**
3. **prioritise resources to identify the specific location and nature of threats to water quality and ecosystem health, identify controls required to prevent further water quality degradation due to nitrogen discharges and determine land use and practice changes required to comply with agreed GMP**
4. **identify the nitrogen discharging entities within a catchment that have the greatest level of effect on water quality and work with these entities to design and implement targeted programmes to reduce nitrogen discharges as rapidly as possible, additional to what would normally be expected through agreed GMP**
5. **agree, as part of their planning process, the percentage increase in nitrogen discharges available to lower-intensity operations, if any, to facilitate management flexibility and market responsiveness, if any such increases are possible without risking a breach of catchment limits**
6. **seek to simultaneously drive rapid improvements in water quality while achieving co-benefits such as improved biodiversity, greenhouse gas reductions, and increased public access and amenity, through public investment in catchment mitigation, targeted training and capacity-building.**
7. **While iwi rights and interests remain unresolved and a national allocation framework is not in place:**
8. **any existing nitrogen discharge allowances (whether directly or indirectly allocated) are deemed to be expressly interim, are time-bound and do not confer a property right**
9. **any existing and interim allowances and arrangements for managing nitrogen discharges should include provisions that preserve the flexibility of each entity exercising such nitrogen discharge allowances to make minor alterations to their activity, including to appropriately manage crop rotation across changing parcels of shared, owned and leased land, provided doing so does not breach catchment limits**
10. **central government shall actively participate in regional council processes and court proceedings that set transitional nitrogen discharge allowances in order to ensure accurate and consistent interpretations of national policy direction.**
11. **Central government rapidly establish the foundational aspects of the limits-based system recommended by the Forum that are not yet in place and that represent a national approach for allocation decisions:**
12. **a standardised contaminant accounting framework to integrate a suite of models and operational protocols, and to ensure transparency of model inputs and assumptions when applied in local planning processes**
13. **a classification system and accountability framework embedded in regulation that: connects land-based activity, practice changes and regulatory actions to effects/outcomes in waterbodies and agreed limits; specifies GMP requirements for reducing nitrogen discharges in urban and rural locations; and specifies monitoring and reporting requirements, compliance protocols and methods, and a robust and transparent enforcement process using approved auditing schemes (including** **Audited Self-Management)**
14. **a nationally consistent procedural framework for guiding regional council decisions on the allocation of nitrogen discharge allowances, including the timeline for doing so, if allocation is to occur**
15. **a national framework that provides a greater understanding of the effects of transferring nitrogen discharge allowances within a catchment and enables the transfer of nitrogen discharge allowances between users.**
16. Immediately after iwi rights and interests have been resolved and the national approach for allocation decisions set out in recommendation 23 is available, where allocation of nitrogen discharge allowances is occurring or is a viable option for effective and efficient management of nitrogen discharges:
17. **central government should specify a default timeframe for regional councils to implement the policies and processes set out in national framework for allocation decisions**
18. **regional councils should establish an implementation programme and transitional processes in their regional plans to give effect to the policies and procedures set out in the national framework for allocation decisions**
19. **regional councils should be able to request that the Minister for the Environment approve an alternative timeframe for implementing the policies and procedures set out in the national framework for allocation decisions, if exceptional circumstances justify a faster or slower period of transition.**
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## Alternative view on recommendations 20-24

1. One member has a few key concerns that prevent them from supporting the recommendations:
* The requirement in relation to an ‘interim framework’, specified in recommendation 21(a) and (b), refers to application of GMP, and achievement of limits. The member is of the opinion that the framework is not ‘interim’ if limits are achieved by the framework, and therefore the recommendation as proposed essentially grandparents existing land uses (including undeveloped and iwi owned land) and practices at current levels albeit modified by GMP.
* The member considers that allocation frameworks should enable flexibility in land use and management practices, including adaption and innovation, and should be based on the underlying natural capital of land.
* GMP remains undefined, and so its implications on extensive farming systems cannot be determined including whether the cost of achieving GMP is commensurate with the level of impact from an extensive land use. The member is of the opinion that the costs of meeting environmental limits on land owners/operators should be commensurate with the level of their impact, and that where achievement of limits requires land use change then this should be indicated upfront before investment in GMP is made.
1. This member considers the proposed management framework for allocation should be revised to:
* Provide flexibility in land use, innovation, adaption, and the ability to increase discharges of nitrogen up to the natural capital of land, or its inherent capability. That capability can be established through an allocation framework based on Land Use Capability (LUC) now.
* Any transitionary or interim allocation must identify the highest leaching land users and uses, and mandate restrictions in nitrogen discharges commensurate with the levels of initial discharge and status of over-allocation.
* Require that where any transitionary or interim framework for allocation is proposed, the nature of the eventual framework must be clearly articulated at the outset along with the magnitude and nature of eventual changes to management practices or land uses required to achieve a limit.

# Urban water management

## Context and problem

1. Water quality objectives may have been less of a driver in urban environments relative to other objectives such as flood control or urban growth - especially given that many of our cities are coastal. Water networks have historically been designed to convey water to the marine environment as quickly as possible, and the water management framework lacks specified water quality or ecosystem health objectives and/or contaminant load limits for estuaries and harbours.
2. Urban water management networks often cross natural catchment boundaries, are very large in scale, are buried underground alongside other utilities, and receive a diverse range of contaminants.[[25]](#footnote-26) Some councils lack the in-house capacity and/or capability to maintain effective regulatory oversight of urban water network operators, or to manage robust and efficient consenting processes for network infrastructure.
3. The consolidation of urban water authorities has the potential to deliver economies of scale, concentrate capability and facilitate the development of centres of excellence in design, delivery and operation of urban water networks. Consolidation would also concentrate responsibilities and resources, and to ensure adequate oversight would need to be complemented by the establishment of an independent body to monitor financial and environmental performance, as is the case in the electricity sector.
4. Earthworks during greenfield development and, in some cases, brownfield intensification are a major source of sediment. While best practice guidelines for urban earthworks exist and are reasonably prescriptive, there is a large amount of variation in how rigorously they are required, monitored and enforced.
5. Increasing the proportion of a catchment covered with impervious surfaces accelerates flow rates and causes stream bed erosion during wet weather, and reduces base flows during dry weather - an effect commonly known as ‘Urban Stream Syndrome’.
6. Water Sensitive design philosophies are integral to managing these effects - managing stormwater at source, recharging the ground water through devices such as rain gardens and infiltration trenches, and detaining runoff and releasing it slowly.
7. Asset managers often find it difficult to factor the cost profile of water sensitive approaches into business cases for investment, or to give appropriate ‘weight’ to their non-monetary benefits (environmental, aesthetic, social and cultural). Training will be needed to ensure practitioners are able to adopt and implement these practices effectively. In some cases these practices are new, and training programmes are costly, difficult to access or do not yet exist.
8. Litter is consistently raised by urban communities as a major concern, but its importance as a water contaminant is often overlooked. Tackling litter alongside sewage, sediment, heavy metals and other contaminants visibly demonstrates the benefits of the cost associated with increased investment and regulation for urban water management.
9. MfE has convened a group of urban water experts to discuss and develop high level principles for urban water management. The work has shifted away from identifying and defining specific practices that would make up urban GMP in the way the Forum have envisaged it (defined in paragraph 31). In addition, some issues crucial to improving urban water management have not yet been included in this programme, such as reticulation network installation and management, and water use efficiency measures.
10. There is poor understanding about the impact of day to day actions by private individuals and households on the performance of urban water networks and freshwater outcomes. Pressure on infrastructure could be reduced through better public education, potentially improving freshwater outcomes. Greater awareness may increase the public’s willingness to pay for increased investment in water infrastructure to improve water quality. The link between a more informed public and willingness to pay for infrastructure has been demonstrated in Auckland recently where enhancements to monitoring and reporting of water quality at bathing beaches helped secure public support for a new targeted rate to deliver water quality improvements.[[26]](#footnote-27)

### We have agreed that

1. Everyone needs to lift their weight - it is essential that urban New Zealanders commit to maintaining and improving water quality.
2. Water needs to be available for human drinking water and sanitation as urban areas expand, but all alternative options must be evaluated before water is transferred from current uses and users to service this need, and appropriate provisions to compensate existing users must be in place.
3. Land use, transport and water planning must be aligned, and ‘water sensitive’ approaches must be adopted in the building and upgrading of stormwater and roading infrastructure and residential urban development.
4. Territorial authorities should review or revise trade waste by-laws to encourage or require the pre-treatment and recycling of trade waste before disposal into municipal wastewater systems, and the long-term goal for urban water managers should be to phase out wastewater overflows to rivers, estuaries and harbours.

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| **Recommendation:**1. Central government to:
	1. develop human and ecological health objectives, values and attributes for estuaries, and evaluate their costs and benefits through a process similar to that used to develop the NOF in the NPS-FM
	2. identify and evaluate options for introducing those objectives, values and attributes into the regulatory framework in a way that promotes efficiency and regulatory integration, including through additions to the NOF and/or amendments to the NZCPS.
2. Central government to amend the NPS-FM to prevent further loss of urban streams due to urban expansion (including through channelisation), unless the effects of urban stream loss can be offset in ways that will deliver net improvements in water quality and ecosystem health in the relevant Freshwater Management Unit.
3. Central government to quickly evaluate and publicly report the merits of national regulation to control sources of water quality contamination arising from building practices (e.g. the design and installation of wastewater and stormwater pipes on private land, and septic tanks and small wastewater systems), construction materials (e.g. zinc coated roofing) and vehicle components (e.g. brake pads and tyres).
4. Central government to develop a regulatory tool that specifies:
	1. standardised best practice requirements for earthworks and urban development
	2. mandatory additional requirements above good practice for sediment management in proximity to sensitive receiving environments and/or where earthworks impact mobile top soils and land prone to erosion
	3. standards for discharges from sediment traps for application in high-risk circumstances.
5. Central government to:
	1. specify methods for event based-sampling of water quality to capture the effects of intermittent and short-duration causes of poor water quality in urban environments (e.g. high intensity, short duration rain events)
	2. develop frameworks to guide the design and operation of remote sensors on stormwater and wastewater networks
	3. develop frameworks to guide the design and operation of models to complement event-based sampling and longitudinal monitoring, and enable forecasting of risk
	4. develop standardised monitoring methodologies for urban waterways, and establish protocols for data capture, storage and sharing.
6. Central government, in conjunction with local government and sector representatives, to develop and implement a public education campaign to increase understanding of how urban water networks function, how day to day activities can put pressure on them, and what individuals, households and businesses can do to reduce these pressures.
7. Central government to expand the scope and resourcing of the MfE urban GMP work programme to:
	1. identify and define urban GMPs as defined by the Forum (not just high level principles)
	2. assess the existing suite of guidance, codes of practice and standards that relate to urban GMPs and develop a prioritised work programme to address critical gaps
	3. assess sector capacity and capability to implement urban GMPs, including the coverage and suitability of training programmes
	4. develop exemplar solutions for water sensitive approaches to urban catchment management, road design and urban design
	5. develop business case templates for water sensitive solutions
	6. evaluate options for mandating codes of practice, performance standards and guidance notes, including through rules, bylaws, regulations and other national instruments.
8. Central government to review and amend the criteria for the Housing Infrastructure Fund to ensure government funding supports infrastructure that is designed in accordance with water sensitive principles and is consistent with freshwater outcomes set through regional planning processes.
9. Central and Local government to ensure that resources are available to build the technical capability for overseeing the financial and environmental performance of water network operators.
10. Central government to:
	1. standardise consenting requirements for urban wastewater and stormwater systems (including templates, data standards, monitoring and reporting protocols)
	2. devote resources to supporting smaller councils without sufficient in-house capacity to process consents for urban wastewater and stormwater systems in a timely and robust fashion.
11. Central government to investigate incorporating consenting, monitoring and compliance functions for wastewater and stormwater systems within the functions of the new regulator being contemplated following the recommendations of the inquiry into the Havelock North drinking water contamination issue.
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# Complementary measures

1. The Forum has made recommendations in the past on a number of issues that have some bearing on the topics of this report. The key ones are set out below.

## Use collective environmental management schemes

1. In recent years collective environmental management schemes have emerged – particularly in irrigated areas in the South Island. Collective management schemes allow farmers to pool their resources, reduce the individual cost of accessing expert advice, reduce compliance costs and implement interventions that have cross-catchment benefits such as constructing wetlands, retiring land and developing infrastructure. They can also allow communities to pool their resources for environmental restoration projects – e.g. for spring-fed streams where the stream is unable to flush out existing sediment.
2. Accountability for managing within limits can be achieved by allocating a contaminant load to a scheme rather than individuals within it. The load is then distributed across scheme members by the scheme manager, who is able to require members to implement management practices informed by farm management decision-support tools (i.e. OVERSEER or APSIM). This can be done contractually (in irrigation schemes, compliance is assisted by the ability to withhold water). The council is then able to hold the scheme as a whole accountable for its compliance with catchment load limits through consent requirements.
3. This approach has potential but is still in its early days. It is not clear yet, for instance, how effective collective schemes will be in reducing loads in significantly over-allocated catchments. In the short term we think removing barriers to the effective operation of schemes should be encouraged rather than moving to mandate them; investigating their benefits; and returning to consider their potential wider application in two to three years.

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| **Recommendation:**1. Central government to encourage councils to use collective environmental management schemes by:
2. **Issuing group consents to collective environmental management schemes, which shall include collective contaminant loads where appropriate.**
3. **Allowing collective environmental management schemes to allocate to their members responsibility for making practice changes to comply with absolute numerical load limits.**
4. **Ensuring effective compliance and monitoring of performance outcomes.**
5. **Where schemes are operating, applying the same level of administrative/consent requirements, monitoring rigour and regulatory oversight to individual landowners who are not members of a scheme.**
6. After being trialled for 2-3 years, central government should evaluate the effectiveness of collective management schemes.
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## Science and information

1. This report and previous Forum reports have made a number of recommendations on science and information. The most pressing are set out in the following recommendation.

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| **Recommendation:**1. Central government to work with sectors, regional councils and science providers to:
2. **develop a better understanding of groundwater, lag times and attenuation and how they vary within regions**
3. **continue to improve water management data collection and management**
4. **continue to use and improve tools and models (including for example OVERSEER and APSIM) to ensure quicker adoption of environmentally responsive land practices across land types and farming systems. The Government should provide guidance on how they should be used in plans.**
5. **improve understanding about the relationship between in-stream nutrients, flows and aquatic plant growth**
6. **give further consideration to the appropriateness of developing an additional nitrogen attribute that deals with ecosystem health more broadly than the current requirements to derive in-stream DIN concentrations for managing periphyton**
7. **improve the tools and methods used for scenario modelling**
8. **improve the ability of economic models to test a wider range of policy tools and behavioural responses**
9. **provide information to help people understand Te Ao Māori, Mātauranga Māori and Te Mana o te Wai and incorporate them into community freshwater management decisions and planning**
10. **accelerate the development of National Environmental Monitoring Standards**
11. **review approaches to generating information on periphyton cover, dissolved oxygen, deposited sediment and water quality in lakes, estuaries and wetlands**
12. **investigate the establishment of protocols for event-based sampling, water quality modelling and the design and operation of remote sensor networks.**
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## Government policy integration

1. Siloed policy can lead to poor outcomes. Successful water management means thinking carefully about the combination of different policies and the way they interact.
2. Previous government policies have been siloed with respect to water management – for example, the Regulatory Impact Statement (RIS) for the NPS on Urban Development and its guidance makes no substantive comment on the NPS-FM; the September 2016 RIS on the Dairy Industry Restructuring Act (DIRA) Act makes no mention of water. There are a number of areas where policy is being developed where there are close linkages to water management and where integrated water management needs to be considered. Particularly important examples are:
* climate change policy which will influence land use, hazards, sea levels, electricity generation, and water availability, affecting the type and quantity of particular contaminants and demands for water that regional councils will have to manage
* whether the DIRA Act influences land use choices and the environmental impact of that land use
* afforestation initiatives that replace existing land uses will see adjustments to the timing and extent of the impact of land use on water quality (depending of course on whether it is indigenous or exotic, permanent or harvested). Large scale afforestation may also affect water availability and allocation settings
* urban expansion and changes to urban development will have water quality implications (not only stormwater and wastewater but also through soil disturbance and sediment), raises water allocation issues, and can intrude into lands with the most fertile and productive soils
* the Review of Three Waters Infrastructure Services underway at the Department of Internal Affairs
* biosecurity management
* biodiversity
* the Government’s primary industry policies
* the interface between the NPS-FM and the NZCPS.

# Appendix 1: Consideration of other tools

## Interim limits

The Forum’s Third Report (2012) stated that in over-allocated catchments, regional councils should set interim limits and targets, and that these could take the form of default discharge caps (see discussion on default discharge caps below). The thinking at the time was that interim limits could help where significant land use change and intensification was occurring or likely to occur before objectives and limits framework could be developed.

However, these recommendations were made within the regulatory and planning context of 2012, and they may not be as relevant today. The practicality of a council going through a process to set interim limits (including gathering data, information and analysis, writing rules, and going through a plan change process), and then a further process to set full catchment limits before 2025, is questionable.

As stated in the body of this report, the Forum’s preference now is to prioritise catchments at risk, using existing tools, and thus avoid doing the job twice. Where interim limits are implemented, they should be used judiciously to avoid unanticipated impacts. They should be effective at minimising the impact of existing and future resource pressures, be well defined, not cause unnecessary social and economic dislocation, and should not extend longer than is necessary before objectives and limits are developed.

## Nationally applied default take and discharge limits

Theoretically, a national instrument could set temporary default discharge limits for catchments where limits have not yet been established through a regional planning process. The following practical difficulties are recognised:

* National default limits are not applicable for some contaminants (or flows) and spatial variation would be needed.
* It may take just as long to arrive at a set of default limits and to complete the national instrument(s) required as the regional planning process.
* It is not clear what relationship any default limits would have with existing plan provisions, how those limits might affect permitted use activities, and how ‘over-allocation’ might be addressed without requiring detailed changes to an existing plan.
* Nationally derived default discharge limits may actually exceed a catchment load limit.

## Consents for intensification

The draft NPS-FM produced in 2010 by the Board of Inquiry headed by Judge Shepherd proposed, among other things, that a consent (as a discretionary activity) be required for any change in character or increase in intensity or scale of any land use or activity. Theoretically, it would be possible to use an instrument to require this to apply nationally, to all catchments and contaminant types, where there was no ‘NPS-FM plan’, or to specific catchments where there were particular water quality issues.

Some councils who have integrated different consent requirements into their planning for catchments at risk from further degradation now require a resource consent to intensify land use (for example, in Canterbury for nitrate discharge in sensitive lake zones).

Imposing such a requirement through national direction for particular catchments would mean that all activities would require a consent for further intensification, capturing all intensive activities within the same regulatory consideration. Many activities (for example, urban developments) already require this. This would require the council to assess the increase in intensity against the current plan (including the requirements set out in Policy A4 of the NPS-FM). This would provide a greater level of scrutiny of intensification activities while an NPS-FM consistent plan was being developed, and would inevitably constrain some activities where catchments were under resource pressure. This would prevent over-allocation issues becoming worse and reduce the potential for a ‘gold rush’ during the planning process.

On the other hand, requiring consents without a catchment limits framework to support it, does not guarantee a particular water quality issue of concern will be addressed. It is possible that consents would continue to be granted (as they have in urban areas with degraded waterbodies). Decision makers would be faced with a lack of baseline data about current levels of land use activity which is an essential part of the planning process. Councils and landowners often do not have this information prior to a limit setting process.
A blunt no intensification rule might be unenforceable without some level of baseline information on which to base decisions.

Further, such an approach could entrench the position of those that already have consents, effectively grandparenting their rights and making allocation decisions harder in the future.
It might reduce the position of those existing activities that are not consented (for example, those with permitted activity status).

It would also apply to changes in intensity and land use even where these were not a problem in that particular catchment, increasing compliance costs for all sectors.

The definition of ‘intensification’ is a further challenge. A move from one land use to another might see more intensive use made of one contaminant but less intensive use of others, meaning that a sophisticated, spatially variable, multi-parametric assessment tool would be needed.

Urban development should be considered “intensification” as it places significant pressure on water quality.

# Appendix 2: Soil conservation and erosion control programmes

Soil conservation and erosion control programmes involve councils and/or industry good organisations working one-on-one with landowners across catchments to implement a number of different mitigations that act in a combined manner to reduce erosion and sediment deposition into waterways. They require identification of critical source areas and implementation of mitigations appropriate to the situation. Generally speaking, the best way of rolling out, monitoring and auditing these programmes is through the use of Farm Plans. The types of mitigations used in soil conservation and erosion control programmes are:

* Converting erodible areas to plantation forestry – trees prevent erosion by providing cover and holding the soil together. Forested land produces generally less sediment than farmed land overall, although during the vulnerable period after harvest larger amounts of sediment can be generated.
* Land retirement – allowing native bush to regenerate.
* Planting poplars and willows in farmed hill country – these hold soil together in specific places and reduce erosion during rainfall events.
* Riparian strips – these act as physical barriers around waterways that intercept surface runoff, filter out sediment par0ticles and prevent them from entering the waterway. They also stabilise stream banks, preventing them eroding into the waterway. Riparian strips are ineffective on steep slopes.
* Gully planting – this involves planting in gullies to reduce erosion, intercept sediment and prevent it running down the gully into waterways.
* Integrated drainage management – when drains are too small, they overflow during high rainfall events. Then as the water recedes it can drag large amounts of soil back into the drain with it – this sediment then finds its way into waterways. By doing things like ensuring that drains are big enough and designed appropriately, and leaving certain areas that flood frequently uncultivated, the amount of sediment going into the waterways can be reduced.
* Sediment traps – these allow the water to spread out over a larger area and for the sediment to filter out. Sediment traps can be built on individual properties or larger ones at the bottom of the catchment.

Successful implementation of these mitigation measures requires people with the necessary land-management skills to identify the appropriate mitigation and/or land use in each situation on-farm. The approach is based on fine-scale land use capability mapping. Coarser mapping approaches are not appropriate as there can be up to a 50% change in the land identified for planting if coarser mapping is used.

1. Better Freshwater Management – Land and Water Forum, December 2017 [↑](#footnote-ref-2)
2. In this report, catchment also means sub-catchment where appropriate. [↑](#footnote-ref-3)
3. There will also be occasions – for example waterbodies affected by lags in the delivery of contaminants – where water quality will continue to decline and will not be able to be improved in the short term. There will also be occasions where action might need to be taken to prevent future water decline where there are lags in nitrogen entering waterbodies. [↑](#footnote-ref-4)
4. The Ministry for the Environment report *National Policy Statement for Freshwater Management review : national themes report and regional reports 2017* notes that not all councils have prioritised towards higher risk catchments. [↑](#footnote-ref-5)
5. ss 25A, 25B RMA. [↑](#footnote-ref-6)
6. s25 RMA or Part 10 Local Government Act. [↑](#footnote-ref-7)
7. Better Freshwater Management – Land and Water Forum, December 2017 [↑](#footnote-ref-8)
8. Akin to the process taken to establishing a moratorium on aquaculture in the Marlborough Sounds. [↑](#footnote-ref-9)
9. Achieved through either a directive change to the NPSFM (s55 RMA), a direction to prepare a plan change (s25A RMA), or a NES. [↑](#footnote-ref-10)
10. Effectively a nation-wide investigation under s24A RMA. [↑](#footnote-ref-11)
11. The terms farm plan and site management plan are used in a general sense in this report. Currently in both contexts a variety of titles are used for these plans. For example, in the rural context: Farm Plan, Farm Environment Plan, Farm Management Plan; in the urban context: site management plan, assessment management plan, precinct plan. [↑](#footnote-ref-12)
12. Sheep and Beef advanced Farm Environment Plans use Land Use Capability (LUC) to identify land management areas, opportunities, and risks. [↑](#footnote-ref-13)
13. As noted, see Recommendation 16(b) in respect of the sediment component [↑](#footnote-ref-14)
14. Assessment of recent reductions in E. coli and sediment in rivers of the Manawatu-Whanganui Region. Ton Snelder, February 2018. [↑](#footnote-ref-15)
15. The Hill Country Erosion Fund is the primary form of central government assistance for council soil conservation and erosion control programmes. The bidding for funding is very competitive - much more money is requested than is granted. No council gets all the funding it needs and some get very little. The funding for this programme was significantly increased in the last budget. [↑](#footnote-ref-16)
16. The Hill Country Erosion Programme

The Afforestation Grant Scheme

The Erosion Control Funding Programme (Gisborne District Initiative)

The Permanent Forest Sink Initiative

The Primary Growth Partnership

The Sustainable Farming Fund

The Freshwater Improvement Fund [↑](#footnote-ref-17)
17. There is an important caveat here. In its commentary on implementation of the NPS-FM (9 June 2017), the Forum stated that: **MfE must get wider agreement on the framework for Appendix 2 attribute development before any new attributes are considered.** Please refer to the implementation commentary for a detailed discussion of the relevant issues. [↑](#footnote-ref-18)
18. The measures outlined here will also improve management of other contaminants and issues. [↑](#footnote-ref-19)
19. See the Fourth Report, recommendations 2-4 for mechanisms to provide for those rights and interests [↑](#footnote-ref-20)
20. See the Fourth Report, recommendation 25 [↑](#footnote-ref-21)
21. The establishment of a robust accounting framework is something that members believe should be progressed regardless of whether or not an allocation regime is being considered immediately. [↑](#footnote-ref-22)
22. See the Fourth Report, recommendations 16 and 17 [↑](#footnote-ref-23)
23. See the Third Report, recommendation 19, and the Fourth Report, recommendation 26. [↑](#footnote-ref-24)
24. See the Fourth Report, recommendations 5 and 7 [↑](#footnote-ref-25)
25. For example: commercial and trade waste, residential waste, road runoff, sediment-laden runoff from urban earthworks, wastewater overflows or cross-connections, and contaminants from rural headwaters. [↑](#footnote-ref-26)
26. See [www.safeswim.org.nz](http://www.safeswim.org.nz) [↑](#footnote-ref-27)