Tairāwhiti Regional Freshwater Planning Advisory Group – Hui 3

Date: **13 September 2023**

Title of report: **Water quality and discharges to land and water**

Point source discharges and discharges to groundwater and bedrock

Report no: **1**

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Purpose of this report

This report provides information to the Advisory Group on:

- **point source discharges**
- **discharges to groundwater and bedrock**.

These two topics relate to the 'Water quality and discharges to land and water' section of the Regional Freshwater Plan.

Outcomes sought

1. Members of this Advisory Group understand the matters and issues relating to these topics.
2. Members' experience and knowledge helps to build our collective understanding of the issues relating to **point source discharges and discharges to groundwater and bedrock.**
3. Members will consider and discuss different approaches to managing these activities within the proposed Regional Freshwater Plan.

Getting ready for the meeting

Please consider the questions in this report ahead of the hui. These questions will be discussed at the hui so if you haven't made a note of your thoughts for each of the questions prior to the meeting, we can capture them then.

What are point source discharges?

Point source discharges are discharges of water and contaminants that occur from a defined point (or points) usually a pipe but sometimes a channel or similar.

Please note that other types of discharges, for example general runoff, will be discussed in a subsequent hui.

What are discharges to groundwater and bedrock?

Discharges to groundwater and bedrock are sub-surface discharges – made to underground geology. They include temporary discharges made while drilling (drilling fluid including bentonite clay) and water percolated or injected into groundwater aquifers to provide for artificial recharge of that aquifer.

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Introduction

This report focuses on two subsections of Section C6.2 *Water quality and discharges to land and water* of the Tairāwhiti Resource Management Plan (TRMP) - **point source discharges** and **discharges to groundwater and bedrock**. Activities covered by these sections include:

Point source discharges

- stormwater, including from industrial and trade premises
- rural field and tile drainage systems (unpumped/pumped)
- reticulated wastewater system discharges
- minor/temporary discharges - tracing dyes/agents, potable water, road construction and maintenance
- other discharges.

Discharges to groundwater and bedrock

- bore drilling and associated discharges
- discharges to groundwater, including Managed Aquifer Recharge.

Many activities do not require a resource consent if they meet the standards set in the TRMP, which manage aspects such as water quality. However, more significant activities require a resource consent and are assessed on a case-by-case basis.

Staff have reviewed the current TRMP provisions and their effectiveness in achieving the objectives of the TRMP, including water quality state and trends. We also need to consider recent legislative changes in respect of freshwater. Of most significance is the National Policy Statement for Freshwater Management (NPS-FM) 2020. This prioritises the health of waterbodies first, followed by the health needs of people and then social, cultural and economic wellbeing.

The review identified five key issues for discussion at this Advisory Group hui to help frame the direction for the new freshwater planning provisions. These are:

Key issue 1: Sediment/rural runoff

Key issue 2: Rural field and tile drainage and associated discharges

Key issue 3: Urban stormwater

Key issue 4: Wastewater network overflows

Key issue 5: Managed aquifer recharge

Some background information on these key issues is included in this report. The background includes the current approach in the TRMP, how other councils approach the issue, any relevant matters to consider, and questions to help guide discussions and feedback at the hui.

Questions for the Advisory Group to consider

Through the relevant sections of this report we have posed questions on the topics. The list below is a complete list of those questions. We would like to hear your thoughts on these key issues at the hui.

Sediment/rural runoff

- What are the key issues or concerns relating to sediment/rural runoff?
- Are these isolated to specific areas/locations or is this a region-wide issue?
- What activities do you think are the most important to control closely?

Rural field and tile drainage

- How extensive are rural field and tile drains in the region – are they predominantly on the Poverty Bay Flats or common in other parts of the region?
- What issues do you think are important when managing rural field and tile drainage?
    - e.g. water quality, flooding, effects on wetlands etc

Urban stormwater management

- Is urban stormwater management a significant issue for Tairāwhiti? If so, what are the key issues that you are aware of?
- Should there be greater emphasis on managing stormwater from new subdivision and development, including the use of low-impact design and minimising stormwater generation at the source?
- Do you agree with a risk-based approach – particularly activities that are generating 'higher risk' from an environmental perspective?

Wastewater overflows/discharges

- What are your expectations for wastewater overflows over the following timeframes?
    - Medium term (10 years)
    - Long term
- Is the approach one of 'keeping the foot down' to continue to drive improvement or is something else needed?
- Should the Plan specifically control discharges of treated wastewater to land and water?

Managed Aquifer Recharge (MAR)

- Is MAR likely to be a viable option for Tairāwhiti?
- In light of the first question, should the freshwater planning provisions include specific provisions for managing MAR?
- If so, what are some of the key issues that should be considered in managing MAR?

1 Background and context

The 'Water quality and discharges to land and water' section (discharges section) covers a range of discharge activities that may affect freshwater quality and other freshwater values.

Due to the range of activities and issues it covers, the discharges section will be discussed across three Advisory Group hui. The first hui will focus on two related topics:

- point source discharges
- discharges to groundwater and bedrock.

Other discharges including those from diffuse sources, fertilizer usage, hazardous chemicals, contaminated land and on-site wastewater disposal are also managed in the discharges section. These will be discussed in subsequent hui.

1.1 Point source discharges (C6.2.2 – 4)

Point source discharges are discharges into waterways that come from a single fixed point such as a pipe or drain. These include:

Type of discharge	Comment
Stormwater, including from industrial and trade premises	Can have widespread and/or significant impacts on water quality, human health and ecosystems, and on social and cultural values
Rural field and tile drainage systems (unpumped/pumped)	
Reticulated wastewater systems	
Tracing dyes/agents	Tend to be occasional and localized. They are typically associated with water supply and drainage infrastructure and roading, usually managed (subject to controls) as permitted activities. Of these, road construction has the potential to be the most significant if not well managed
Potable water to water/land	
Road construction and maintenance (temporary)	
Other discharges	A 'catch-all' for point source discharges that do not fit under any of the other identified activities or are not subject to rules in other sub-sections

All regional councils need to manage point source discharges through their regional plans[1]. The TRMP includes rules that permit a range of point source discharge activities subject to meeting specified standards, or otherwise requires activities to obtain resource consent.

The discharges section manages activities according to risk. As activities become larger scale, are more likely to create significant adverse effects, or cannot meet the permitted activity

[1] The Resource Management Act 1991 (**RMA**) requires resource consents to be obtained for all discharges of contaminants to water and land and water to water, unless allowed by a rule in a regional plan or by regulations.

standards, they will require resource consent. This allows Council to better assess the effects of those activities. Depending on the type and nature of the activity, the point source discharge rules range from controlled activity (must be granted) through to non-complying and prohibited activity (consent cannot be obtained).

Where resource consents are required, the freshwater objectives and point source discharge policies guide the assessment of an application.

1.2 Discharges to groundwater and bedrock (C6.6.5 – 7)

This topic relates to the drilling and construction of bores for purposes such as groundwater takes, investigations and monitoring and potentially hydrocarbon exploration/extraction. The section also includes general policies and rules for discharges to groundwater/bedrock, and a policy on Managed Aquifer Recharge (MAR).

Rules and standards for the drilling, construction and decommissioning of bores are also a feature of all regional plans. The bore drilling rules, like most regional plans, requires compliance with New Zealand Drilling Standards[2]. The TRMP also includes an appendix on Bore Construction Requirements but is quite narrow in its requirements. The New Zealand drilling standards are out of date and initial discussions, to which Council is a party, have occurred in respect of updating it. However, no confirmed timeframe is available.

Our bore drilling rules are similar to other regions, but more restrictive (stronger) than most for the drilling of water bores. More restrictive rules apply to the drilling of bores for hydrocarbon exploration and extraction, consistent with the greater depth (and risk) these bores present.

The discharges to groundwater and bedrock are mainly discharges associated with drilling (for example drilling fluids and sealants such as bentonite (clay)) and other discharges – including MAR discharges.

Policies for bore construction and discharges are largely focused on ensuring appropriate quality drilling and bore construction, with key issues including preventing surface leakage into groundwater through the bore or around the casing or leakage between sub-surface groundwater horizons where relevant.

1.3 Current state and plan effectiveness

State of the environment monitoring

Contaminants from point source discharges can go to land (and then potentially into water) or directly to surface or groundwater (or the coast).

An assessment of Council's State of the Environment (SoE) monitoring data indicates:

Measure	Comment
Ammonia and nitrate toxicity	Generally at low concentrations across the region Five-year trend analysis suggests more sites show a likely improvement than likely degradation

[2] NZS 4411-2011 Environmental Standard for Drilling of Soil and Rock

	These measures may be affected by rural field and tile drainage systems and wastewater discharges and overflows
Phosphorus	A wide range of results – with high quality in the Ūawa and Waiapu catchment areas to predominantly D-grade in the Waimatā and Waipaoa catchment areas Five-year trend analysis suggest likely improvement across the majority of monitoring sites – but this isn't the case in all areas This measure may be affected by rural field and tile drainage systems and potentially wastewater overflows
Microbial contaminants (represented by E.coli)	Occur in high concentrations (poor quality) at most monitoring sites, particularly in the Waimatā and Waipaoa catchment areas Five-year trend analysis suggest slightly more sites are degrading than improving Wastewater overflows can contribute significantly to microbial concentrations. Stormwater discharges also contribute to elevated microbial levels as they act as a conduit for contaminants in land runoff
Indicators of ecological health (macroinvertebrates)	Results are variable but suggest a relatively poor ecological state overall Macroinvertebrates are an integrated indicator of ecological health and low values can be due to a range of stressors and not solely discharges/water quality
Sediment	A key issue for Tairāwhiti Suspended fine sediment is high in several catchment areas including Waimatā, Waipaoa, Mōtū and Waiapu However, sediment sourced from land and river erosion and activities that disturb the land surface such as earthworks and forestry preparation/harvesting can lead to large scale erosion, leading to the deposition of large volumes of sediment in waterways and the coastal environment

Some limitations of SoE monitoring

It is important to remember that water quality monitoring reflects the combined effects of all contaminant discharges including those from natural sources, land runoff and point source discharges. While SoE monitoring is an important indicator of water quality, caution needs to be applied when assessing data in the context of **point source discharges** for several reasons, including:

- Council is unable to monitor everywhere, and effects associated with point source discharges may not be picked up, unless they occur upstream of a monitoring site.
- The cumulative effect of smaller but more widespread diffuse discharges can obscure the effects of point source discharges.
- Water quality measures (particularly those of the National Policy Statement for Freshwater Management 2020) don't cover all the contaminants that could be in a point source discharge.

- Urban point source discharges in Tairāwhiti primarily occur in the tidally influenced and estuarine reaches of the main rivers. Water quality effects can be masked by regular inflow from the marine environment.

SoE monitoring is not the only method of identifying potential effects of point source discharges. Assessments into major discharges such as stormwater and wastewater overflows have been undertaken both in Tairāwhiti and elsewhere that contribute to the understanding of the negative effects of these activities.

Efficiency and effectiveness of the current discharge provisions

Council's freshwater team have considered whether the existing TRMP provisions have been effective and efficient in managing point source discharges.

Water quality in areas with intensive land use activities looks to be declining, indicating that the cumulative effects of a range of discharges (point source/general runoff and consented/permitted activities) are not being adequately managed and objectives that seek to improving water quality where it is degraded are unlikely to be met.

This is an even more important consideration when developing new freshwater planning provisions aimed at giving effect to Te Mana o Te Wai (see below).

The review highlighted five key issues for discussion at this hui:

Key issue 1: Sediment/rural runoff

Key issue 2: Rural field and tile drainage and associated discharges

Key issue 3: Urban stormwater

Key issue 4: Wastewater network overflows

Key issue 5: Managed aquifer recharge

The review also identified a range of structural issues, plan inconsistencies and provisions that are either no longer relevant or could be improved and these will be addressed at the plan drafting stage.

1.4 Legislation relevant to discharges

Several legislative tools are relevant to the topic of water quality and discharges. Councils are obliged to give effect to these higher order statutory documents in preparing their regional (and unitary) plans. More detail on these key policies is provided in **Appendix 1**.

National Policy Statement for Freshwater Management (NPS-FM)

The key direction in the NPS-FM is to give effect to Te Mana o te Wai by placing the health of waterbodies above other priorities such as human needs and economic interests. This includes managing water quality and quantity to achieve identified environmental outcomes and restoring and preserving the balance between the water, the wider environment, and the community.

Specific policy directions in the NPS-FM relevant to point source discharges include protection of the values and extent of rivers, wetland and outstanding water bodies and to phase out overallocation – which in a water quality sense relates to where water quality is degraded below levels necessary to meet freshwater objectives.

New Zealand Coastal Policy Statement (NZCPS)

The NZCPS incorporates considerations of relevance to management of some discharge activities, where they occur in the coastal environment[3], including in relation to stormwater and wastewater discharges and sediment.

2 Key issues for discussion and feedback

The identified key issues are presented and discussed below, including where relevant:

- a description of the key issue
- how the TRMP currently manages the issue
- how other councils address the issue
- some information points for the Advisory Group to consider and build on
- questions to consider to help guide the direction for the future Plan.

2.1 Key issue 1 – sediment/rural runoff

Context

Sediment runoff, primarily from rural land-use activities, is one of the most significant water quality issues facing Tairāwhiti, in no small part due to the erodible geology of the region and rainfall patterns. While erosion is a natural process, it can be contributed to, or significantly accelerated by, inappropriate or poorly managed land-use activities.

Sediment, particularly in large volumes, can have significant effects on freshwater and coastal water quality and systems including reducing visibility in the water column, and in severe cases, infilling areas of habitat and smothering ecological systems and environments.

Current approach

Rural runoff or sediment discharges are managed across the whole of the TRMP[4] and not specifically in the point source discharges section. A range of national requirements and regulations are also relevant including:

- the National Environmental Standard for Plantation Forestry, 2017 (NES-PF)
- Resource Management (Stock Exclusion) Regulations 2020
- Freshwater Farm Plan requirements (RMA, part 9A and Resource Management (Freshwater Farm Plans) Regulations 2023.

Work is progressing on 'un-picking' the current TRMP and national requirements to understand where and to what activities they apply and the inter-relationship between the various requirements and regulations. The aim is to confirm the coverage and control provided by the requirements and identify any key gaps or areas where greater control may be required. A more comprehensive approach for consideration will be brought back to the group at a

[3] Tairāwhiti has mapped the coastal environment, and this included the tidally influenced reaches of the Waimata and Taruheru Rivers and the Waikanae Stream.
[4] Including in the Land Management section (C7 – soil conservation and land disturbance/vegetation removal); diffuse discharges (C6.2), beds of lakes and rivers (6.3 – for example stock exclusion) and riparian margins (C6.4).

later hui.

Other Regional Plan approaches

All regional plans include provisions to manage point source discharges of sediment – with a focus on earthworks as a key source.

Questions for the Advisory Group

- What are the key issues or concerns relating to sediment/rural runoff?
- Are these isolated to specific areas/locations or is this a region-wide issue?
- What activities do you think are the most important to control closely?

2.2 Key issue 2 – rural field and tile drainage

Context

Rural field and tile drainage refers to the drains that are installed in horticultural or rural areas to remove excess sub-surface and surface water from fields and improve the cultivation, maintenance and harvest of crops. Tile drains, or similar types of rural farm drains, are used for some horticultural activities (for example kiwifruit) on the Poverty Bay Flats and other rural areas in Tairāwhiti. This drainage can be drained by gravity or pumped from sumps and discharges can be via the drainage system itself or via water table drains (subject to available capacity).

The discharge from these drains contains contaminants that are present in groundwater, either sourced from the subject site or from upstream land uses, and act as a conduit – providing a more direct route and point discharge to rivers. As indicated above, areas of intensive horticultural activity tend to have degraded water quality and ecological health; however, there is little information on the relative contribution of rural field and tile drainage, compared to other sources, to this degradation.

Pumped drainage can also result in significant volumes of water being discharged when water tables are high – potentially leading to capacity issues in water table drains and flooding in areas receiving the water.

Current approach

The gravity discharge of water from rural field and tile drainage is permitted under the discharge section, subject to conditions, including in relation to flooding, erosion and cumulative contribution to degraded water quality. The discharge of pumped rural field and tile drainage water requires consent.

Other Regional Plan approaches

Most of the plans reviewed[5] incorporate rules for land drainage, which is typically a permitted activity provision subject to conditions that include, being outside of sensitive areas (for example water supply zones and ecological areas) and meeting specified water quality standards. Where these are not met, a resource consent is required.

The Canterbury Regional Plan provides a permitted activity for existing land drainage systems (at a specified date – 2004 and subject to conditions on water quality) but that new land drainage systems that discharge to freshwater require consent.

Some points to consider

- The cumulative effect of numerous small discharges is difficult to manage. Ideally small-scale activities would be permitted in the Plan, but this depends on their potential for creating adverse effects and Council's ability to implement and monitor standards needed to minimise these effects.
- The focus of the point source provisions is on the discharge from rural field and tile drainage and other land drainage systems – both in terms of water quality and quantity (flooding). However, the diversion or draining of land can result in effects on freshwater bodies – natural inland wetlands in particular. Given the much stronger directive for protecting natural inland wetlands in the NPS-FM, consideration will be given to whether additional controls are required to manage effects on wetlands[6].
- Contaminants in discharged drainage water are thought to primarily come from surface land uses and percolate into the shallow groundwater table, which is then drained and then discharged. One method of improving the quality of the discharge could be to manage the application and use of fertilizer and other chemicals. This would reduce the transfer to groundwater and subsequent drainage and discharge. Other methods of improving discharges may include treatment of water prior to discharge, if this is feasible.

Questions for the Advisory Group

- How extensive are rural field and tile drains in the region – are they predominantly on the Poverty Bay Flats or common in other parts of the region?
- What issues are important when managing rural field and tile drainage?
  - e.g. water quality, flooding, effects on wetland etc

2.3 Key issue 3 – urban stormwater

Context

[5] The initial review of plans focussed on four relatively recent regional plans – being Northland, Auckland, Wellington and Canterbury – to understand current approaches. However, all regional plans are being reviewed in accordance with the RMA freshwater planning requirements.
[6] The National Environmental Standard for Freshwater contains regulations relating to activities that may result in draining of natural inland wetlands.

Stormwater is defined as:

"*runoff that has been channeled, diverted, intensified or accelerated by human modification of the land surface or run-off from the external surface of any structure*".

Despite this broad definition, the point source discharge rules relate to urban stormwater.

Stormwater networks are an integral component of an urban environment – transporting rainfall runoff away from roads, houses and buildings and discharging it to streams, rivers, the sea and in some cases groundwater. For this reason, urban stormwater discharges are necessary and unavoidable.

The collection of stormwater in a network and its discharge can give rise to a range of effects including flooding and impacts on water quality and ecosystem health. Investigations of stormwater and related discharges (for example industrial activities) in Tairāwiti indicate elevated contaminant loads, particularly in the 'first flush' - which is the initial stormwater discharge in a rain event that washes off contaminants from roads, roofs and other surfaces that has built up over time. Flooding occurs in urban areas, in part due to the low-lying and flat topography, elevated road network and also, in some areas, limited stormwater drainage networks.

Modern urban stormwater management takes a holistic approach – integrating how land is used and developed with the management of stormwater and its discharge – and as part of this, a low impact, water sensitive design approach is common. Low impact design seeks to, as far as possible, minimise the generation and discharge of stormwater through design and the retention of natural features to slow and accommodate water. The concept of '*space for water*' has become a common phrase following the flooding events of early 2023 – in recognition that built drainage networks can only have a certain capacity and that urban areas need to provide space for flows in excess of this capacity.

In relation to improving water quality in existing areas some regions, for example Auckland, focus stormwater management and treatment on activities that are higher risk of pollution or generate higher levels of contaminants – such as industrial sites and high use roads to get the biggest water quality benefit for the investment.

Current approach

The discharges section incorporates specific policies in relation to urban stormwater. These seek to manage stormwater by:

- promoting low impact design (where there is a need to address degradation)
- ensuring water quality objectives will not be compromised by reducing existing effects of the public stormwater network, requiring new impervious area/industrial and trade activities to treat stormwater and adopt a stormwater management plan
- improving the quality of stormwater discharges where water quality is degraded.

The rules generally permit smaller and existing stormwater discharges from land roofs and paved areas and the existing public stormwater network, provided conditions are met. However, the rules require Council's stormwater network to obtain consent by 2025, provided an Integrated Catchment Management Plan (ICMP) has been prepared. Council is developing an ICMP for its urban areas to support a future consent application. This will help identify key issues (including water quality and flooding) and options and priorities to address these.

Other Regional Plan approaches

Other Regional Plan approaches for the management of urban stormwater depend on the extent of the issue in that region – recognising that stormwater is a major issue in regions with large urban areas, for example Auckland, Wellington and Christchurch. However, in terms of general approaches:

- All reviewed plans have rules for stormwater discharges from smaller areas (often private) and large networks (public) and have separate rules for industrial and trade activities.
- Most plans require resource consents for the public stormwater network.
- Some plans promote a holistic approach, including the adoption of low impact design.

Some points to consider

- Stormwater runoff from urban areas is inevitable – it occurs when it rains – so the approach needs to manage adverse effects in the context of the objective and values framework of the NPS-FM and Te Mana o te Wai.
- For the Tairāwhiti urban area, discharges occur at the lower end of the catchment where water quality may already be degraded due to the cumulative effects of up-catchment land use and discharges such that improving stormwater quality may not result in material improvements in freshwater quality. However, improvements in stormwater management will also benefit estuarine and marine environments.
- The NPS-FM promotes an integrated approach – ki uta ki tai – which requires recognition of the interconnectedness of systems and the need to manage land use and development and stormwater in an integrated and holistic way. This is also directed by the NZCPS.
- Minimising the generation of stormwater and associated pollutants is more efficient and effective than managing and treating large volumes of stormwater after they have been generated – particularly for new development.
- The NPS-FM directs attention to water quality and associated effects, but flooding is an issue in some areas that requires continued focus, both in its own right and also in relation to the contribution to wet weather wastewater overflows.
- Urban intensification, which is an option under the draft Future Development Strategy, may increase adverse effects from stormwater. At the same time, if done well, it provides an opportunity to progressively reduce existing adverse effects.

Questions for the Advisory Group

- Do you consider that urban stormwater management is a significant issue for Tairāwhiti? If so, what are the key issues that you are aware of?
- Should there be greater emphasis on managing stormwater from new subdivision and development, including the use of low impact design and minimising stormwater generation at source?
- Do you agree with a risk-based approach – particularly activities that are generating 'higher risk' from an environmental perspective?

2.4 Key issue 4 – wastewater overflows

Context

Wastewater overflows are discharges of untreated wastewater from the wastewater network. They occur in two main forms.

Dry weather overflows: occur as a result of a blockage or failure in the wastewater network, including as a result of inappropriate material being put into the wastewater network (which is the main cause). Dry weather overflows are typically short-term (until remedied) and low volume but can significantly affect small waterways if they reach freshwater, particularly in dry conditions/low flows.

Wet weather overflows: result from too much stormwater entering the wastewater network through direct connections (household stormwater), overtopping of gully traps as a result of surface flooding and through cracked pipes (both private and public). The discharge is a mix of wastewater and stormwater, and large volumes can be discharged over the duration of a very heavy rainfall event.

Overflows lead to a range of adverse effects including:

- being fundamentally offensive to tangata whenua and the community
- affecting the microbiological quality of the water – both freshwater and marine – including exceeding health guidelines for recreational water quality
- affecting microbiological quality of shellfish in estuarine and near-shore marine area
- causing visual and aesthetic effects due to the presence of sewage material
- affecting stream ecosystem health – particularly dry weather overflows to smaller watercourses.

Current approach

The discharges section includes specific rules to manage wastewater overflows. This incorporates:

- a direction that wet weather overflows should be reduced to no more than one every two years
- overflows/discharges in wet weather were permitted until 1 July 2020, subject to conditions requiring monitoring, signage and reporting and subsequent to this date require a resource consent
- overflows in dry weather are non-complying (strongly controlled).

Council was granted a resource consents in 2021 for wastewater overflows for a period of 10 years (dry weather) and 15 years (wet weather) respectively. These consents require Council to substantially reduce the frequency and volume of wet weather overflows – to an average of no more than one every two years within 10 years – and to implement a strategy to manage and eliminate (as far as possible) dry weather overflows.

The transitional permitted activity is now redundant and should be removed.

Other Regional Plan approaches

All reviewed regional plans restrict wastewater overflows and require consent, but the approach varies. Some councils differentiate between existing and new networks while others

have a single rule – generally requiring a resource consent to be obtained.

Some points to consider

- Approximately half of the wastewater drainage network is 'private' – that is, the pipes are located on private property and owned by landowners. Solutions need to be delivered across both public and private networks.
- Council is continuing to implement its DrainWise programme, including inspecting private properties and requiring illegal drainage to be fixed. This programme has reduced the frequency and volume of overflows and is on-going, but further improvement to reach targets requires significant effort and investment including on private property.
- Wet weather overflows are interlinked with stormwater flooding on private property, which can enter the wastewater network through a variety of routes. The Building Act specifies design performance for key private drainage elements (such as the height of gully traps). It is important to ensure that new development is appropriately located and designed to not increase existing overflow problems.
- Education is an important element of any programme to manage dry weather overflows, as these can occur from a range of private actions. For example, the use of 'wet wipes' is a common problem in respect of causing blockages and overflows.
- There are no specific provisions for the discharge of treated wastewater from a reticulated network to land/freshwater. While this is not common in Tairāwhiti, most other plans include specific provisions for treated wastewater discharges. One example is Alternative Use and Disposal of wastewater (AUD), which may involve the discharge of wastewater to a wetland and or the reuse of treated wastewater (for example for irrigation).

Questions for the Advisory Group

- What are your expectations for wastewater overflows over the following timeframes?
  - Medium term (10 years)
  - Long term
- Is the approach one of 'keeping the foot down' to continue to drive improvement or is something else needed?
- Should the Plan specifically control discharges of treated wastewater to land and water?

2.5 Key issue 5 – Managed Aquifer Recharge (MAR)

Context

Bore drilling and construction is a common activity and the current approach is broadly consistent with other regional plans. Accordingly, we propose that the current provisions be updated and refined to be consistent with best practice.

The main identified gap in the provisions is the management of larger scale discharges to groundwater, with the main potential discharge being MAR – the managed injection (or passive recharge through surface layers) of water from rivers to groundwater. MAR is

undertaken for a number of reasons including alleviating declining groundwater levels and increasing salinity trends and utilising the aquifer system as a storage medium for abstraction at a later date.

A MAR trial has been undertaken in Tairāwhiti, injecting water from the Waipaoa River into the Makauri aquifer. The completed MAR trial determined that it is technically feasible to recharge the aquifer. However, there's currently no resource consent application lodged for a permanent MAR scheme.

This trial has indicated that this aquifer could be suitable for an operational MAR scheme for several reasons, including the properties of the coarse-grained gravel aquifer. Key risks and potential physical effects include:

- clogging of the aquifer system with solids from the source water
- contaminants being introduced into the aquifer, including new and long-lasting ones.
- creating high water-tables/artesian conditions elsewhere
- ensuring appropriate bore construction to limit recharge to the aquifer target zones.

In addition to these physical effects, there are potential cultural issues associated with MAR.

Current approach

The discharges section includes a policy that '*provides for the recharge of aquifers through discharges to groundwater provided that these will not result in adverse effects on water quality*'. There is no specific rule for MAR, it is covered by the default rule and requires resource consent.

Other Regional Plan approaches

None of the reviewed regional plans include specific provisions (policies and rules) for MAR. As such, MAR would need to be authorised by a resource consent, which would consider a range of specific issues and potential adverse effects.

Questions for the Advisory Group

Managed Aquifer Recharge

- Is MAR likely to be a viable option for Tairāwhiti?
- In light of the first question, should the Plan include specific provisions for managing MAR?
- If so, what are some of the key issues that should be considered in managing MAR?

3 Next steps

Following this hui, advice received from the Group will be used to develop and assess potential options for the proposed Plan. These options will be discussed with members at a future hui to confirm the preferred approach. Once the preferred approach is decided, drafting of policies, rules and schedules will commence.

The focus at the next monthly hui in October will be on the next two subsections of Chapter 6.2 Water quality and discharges to land and water – being:

- **Diffuse discharges**
- **Fertilizers and solid discharges**

Appendix 1: Overview of relevant statutory requirements

The key statutory direction in relation to discharge comes from the RMA and a range of policy statements and the Freshwater Plan needs to interact with a range of national regulations. The relevant parts of these higher order documents are briefly summarised below.

Resource Management Act 1991 (RMA)

The proposed Regional Freshwater Plan will need to achieve the purpose of the RMA which is to promote the sustainable management of natural and physical resources. This means that natural and physical resources are managed to provide for human needs within the envelope of a healthy functioning environment. To achieve this purpose, the RMA sets out matters of national importance and other matters to be addressed when making decisions. Of relevance to discharge include:

- the preservation of the natural character of lakes and rivers and their margins
- the protection of significant indigenous vegetation and significant habitats of indigenous fauna
- the relationship of Māori and their culture and traditions with their ancestral lands, water, sites, waahi tapu and other taonga
- the management of significant risks from natural hazards.
- Kaitiakitanga
- The ethic of stewardship
- the efficient use and development of natural and physical resources
- maintenance and enhancement of amenity values
- the intrinsic values of ecosystems:
- maintenance and enhancement of the quality of the environment
- the effects of climate change.

Additionally, decisions are required to take into account the principles of the Treaty of Waitangi – Te Tiriti o Waitangi.

In addition, the RMA requires that before a regional plan includes a rule permitting a discharge of a contaminant that none of the following effects are likely to arise in the receiving waters, after reasonable mixing, as a result of the discharge of the contaminant (either by itself or in combination with the same, similar, or other contaminants):

- the production of conspicuous oil or grease films, scums or foams, or floatable or suspended materials
- any conspicuous change in the colour or visual clarity
- any emission of objectionable odour
- the rendering of fresh water unsuitable for consumption by farm animals
- any significant adverse effects on aquatic life.

The RMA also includes requirements for Freshwater Farm Plans (**FFPs**) which, in part, contribute to the management of discharge activities that may affect fresh water and freshwater

ecosystems. These are being rolled out nationwide in accordance with the requirements of the Resource Management (Freshwater Farm Plans) Regulations 2023.

National Policy Statement for Freshwater Management 2020 (NPS-FM)

The NPS-FM is highly relevant to this topic and many of its provisions will guide the preparation of provisions for the new Regional Freshwater Plan.

Most importantly, the NPS-FM applies the concept of Te Mana o te Wai which refers to the fundamental importance of water and recognises that protecting the health of freshwater protects the health and well-being of the wider environment. It protects the mauri of the wai. Te Mana o te Wai is about restoring and preserving the balance between the water the wider environment, and the community.

Key policy directions in the NPS-FM (relevant to this topic) include:

- Give effect to Te Mana o te Wai by placing the health of waterbodies above other priorities such as economic interests. This includes managing water quality and quantity to achieve identified freshwater objectives (and associated target states) and restoring and preserving the balance between the water, the wider environment, and the community.
- Manage freshwater in an integrated way that considers the effects of the use and development of land on a whole-of-catchment basis, including the effects on receiving environments.
- Avoid the loss of river extent and values to the extent practicable.
- Ensure no further loss of extent of natural inland wetlands, their values are protected, and their restoration is promoted.
- Protect the significant values of outstanding water bodies.
- Phase out existing over-allocation (from a contaminant/water quality perspective) and avoid future over-allocation is avoided.
- Contribute to achieving the national target for water quality (primary contact).

The New Zealand Coastal Policy Statement 2010

The NZCPS incorporates considerations of relevance to management of some discharge activities, where they occur in the *coastal environment*[7], including:

- Improving the quality of water in the coastal environment where it has been degraded.
- Avoid, as far as possible, the discharge of untreated human sewage to water in the coastal environment.
- Manage stormwater discharges to:
    - Avoid where practicable/remedy contamination of stormwater by sewage.
    - Reduce contaminants and sediment loadings in runoff and in stormwater

[7] Tairāwhiti has mapped the coastal environment, and this includes the tidally influenced reaches of the Waimata and Taruheru Rivers and the Waikanae Stream.

systems through controls on land use activities.

- Promote integrated management of catchments and stormwater networks and design options that reduce flows to stormwater reticulation systems at source.

National Environmental Standards for Freshwater Management 2020 (NES-F)

The National Environmental Standards for Freshwater (NES-F) contain a series of regulations that include controls on discharges within, or in proximity to natural inland wetlands.

Other provisions (more relevant to other discharge topics) include controls on farming activities, including stock holding areas, feedlots, the application of nitrogen fertilizer etc.

Regional Plans are able to be more stringent than the NES-FM.

Resource Management (Stock Exclusion) Regulations 2020

The Stock Exclusion Regulations came into force on 3 September 2020 and prohibit the access of cattle, pigs and deer to specified natural wetlands, lakes and "wide rivers"[8]. The regulations specify that:

- Stock that are to be excluded from lakes and wide rivers must not be allowed closer than 3 metres to the edge of the bed of a lake or wide river unless access is needed to enter or exit a dedicated bridge or culvert; or are supervised and actively driven across the lake or wide river and stock do not cross more than twice in any month.

The regulations specify that a more stringent rule in a regional plan prevails over a provision in the regulations that relates to the same matter.

National Environmental Standards for Plantation Forestry 2017 (NES-PF)

This national direction controls plantation forestry activities, some of which have a discharge/runoff component – for example earthworks.

A regional plan can include rules that are more stringent than those of the NES-PF where necessary to give effect to freshwater objectives set under the NPS-FM and specified policies of the NZCPS.

[8] means a river (as defined in the Act) with a bed that is wider than 1 metre anywhere in a land parcel.