greater WELLINGTON
REGIONAL COUNCIL
Te Pane Matua Taiao

If calling please ask for: Democratic Services

14 September 2018

Environment Committee

Order Paper for the meeting of the Environment Committee to be held in the Council Chamber, Greater Wellington Regional Council, Level 2, 15 Walter Street, Te Aro, Wellington on:

Thursday, 20 September 2018 at 9.30am

Membership

Cr Kedgley (Chair)
Cr Brash (Deputy)

Cr Blakeley
Cr Gaylor
Cr Laidlaw
Cr McKinnon
Cr Ponter
Cr Swain

Cr Donaldson
Cr Laban
Cr Lamason
Cr Ogden
Cr Staples

Ihaia Puketapu

Recommendations in reports are not to be construed as Council policy until adopted by Council

Environment Committee

Order Paper for meeting to be held on Thursday, 20 September 2018 in the Council Chamber, Greater Wellington Regional Council, Level 2, 15 Walter Street, Te Aro, Wellington at 9.30am

Public Business

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Please note that these minutes remain unconfirmed until the meeting of the Environment Committee on 20 September 2018

Report 18.338
09/08/2018
File: CCAB-10-558

Minutes of the Environment Committee meeting held on Thursday, 9 August 2018 in the Ramaroa Room, Queen Elizabeth Park, Paraparaumu at 9:34am.

Present

Councillors Kedgley (Chair) (until 12:40pm), Blakeley, Brash (Deputy Chair), Donaldson, Gaylor, Laban (from 9:35), Laidlaw (from 9:35am), Lamason, McKinnon (until 12:40pm), Ogden, Ponter (from 9:35am), Swain, and Peter Gawith.

Public Business

1 **Apologies**

Moved *(Cr Kedgley/Cr Donaldson)*

That the Committee accepts the apology for absence from Ihaia Puketapu and for lateness from Councillors, Laban, Laidlaw and Ponter.

The motion was **CARRIED**.

2 **Declarations of conflict of interest**

There were no declarations of conflict of interest.

3 **Public Participation**

Russell Bell Chair, Friends of Queen Elizabeth Park, spoke to items 6 and 10 on the agenda.

Councillors Laban, Laidlaw and Ponter arrived at the meeting during Public Participation, at 9:35am.

4 **Confirmation of the public minutes of 21 June 2018**

Moved *(Cr Lamason/Cr Donaldson)*

That the Committee confirms the public minutes of the meeting of 21 June 2018, Report 18.273.

The motion was **CARRIED**.

5 **Action items from previous meetings**

Report 18.281 File ref: CCAB-10-528

Moved *(Cr Brash/Cr Blakeley)*

That the Committee:

1. *Receives the report.*
2. *Notes the content of the report.*

The motion was **CARRIED.**

6 **Parks Network Plan review initial consultation feedback**

Luke Troy, General Manager, Strategy , Fiona Colquhoun, Parks Planner, Geoff Caham, Contractor, and Amanda Cox, Manager Parks, spoke to the report.

Report 18.307 File ref: CCAB-10-545

Moved *(Cr Gaylor/Cr Lamason)*

That the Committee:

1. *Receives the report.*
2. *Notes the contents of the report and appendices.*
3. *Notes that a workshop with councillors is planned to explore future directions for the new draft management plan in more detail.*

The motion was **CARRIED.**

7 **RiverLink Preliminary Design**

Councillor Lamason introcuded the report and Alistair Allan, Floodplain Management Plan Implementation, spoke to the report.

Report 18.326 File ref: CCAB-10-543

Moved *(Cr Lamason/Cr Laban)*

That the Committee:

1. *Receives the report.*

2. *Notes the content of the report.*

3. *Fully supports the NZ Transport Agency completing its Detailed Business Case for the Melling Transport Improvements that form part of RiverLink in collaboration with Greater Wellington Regional Council and Hutt City Council, and the recommendation of this Detailed Business Case going to the NZ Transport Agency board at the end of 2018.*

4. *Fully supports Hutt City Council in completing its preliminary design for the urban design, city infrastructure and local road components that form part of RiverLink, and approving its funding and programme in July 2018.*

5. *Recommends that Council:*

    a. *Approves the detailed design and the obtaining of resource consents proceeding for the flood protection components and associated works contained within the RiverLink preliminary design, as outlined in the RiverLink Preliminary Design Summary Report and in section 3 of this report, jointly with GWRC's project partners, Hutt City Council and NZ Transport Agency.*

    b. *Agrees to work proceeding on the basis of the outline programme for implementing RiverLink including consenting and construction included in the RiverLink Preliminary Design Summary Report [Attachment 1].*

    c. *Notes that programming is subject to decisions to be made by Hutt City Council and NZ Transport Agency.*

Moved as an amendment *(Cr Kedgley/Cr Lamason)*

That recommendations 3 and 4 were amended as follows:

3. *Supports the NZ Transport Agency completing its Detailed Business Case for the Melling Transport Improvements that form part of RiverLink in collaboration with Greater Wellington Regional Council and Hutt City Council, and the recommendation of this Detailed Business Case going to the NZ Transport Agency board at the end of 2018.*

4. *Supports Hutt City Council in completing its preliminary design for the urban design, city infrastructure and local road components that form part of RiverLink, and approving its funding and programme in July 2018 and encourages the Council to incorporate water sensitive features into any urban design.*

The amendment was **CARRIED**.

The substantive motion was put:

1. *Receives the report.*

2. *Notes the content of the report.*

3. *Supports the NZ Transport Agency completing its Detailed Business Case for the Melling Transport Improvements that form part of RiverLink in collaboration with Greater Wellington Regional Council and Hutt City Council, and the recommendation of this Detailed Business Case going to the NZ Transport Agency board at the end of 2018.*

4. *Supports Hutt City Council in completing its preliminary design for the urban design, city infrastructure and local road components that form part of RiverLink, and approving its funding and programme in July 2018 and encourages the Council to incorporate water sensitive features into any urban design.*

5. *Recommends that Council:*

    a. *Approves the detailed design and the obtaining of resource consents proceeding for the flood protection components and associated works contained within the RiverLink preliminary design, as outlined in the RiverLink Preliminary Design Summary Report and in section 3 of this report, jointly with GWRC's project partners, Hutt City Council and NZ Transport Agency.*

    b. *Agrees to work proceeding on the basis of the outline programme for implementing RiverLink including consenting and construction included in the RiverLink Preliminary Design Summary Report [Attachment 1].*

    c. *Notes that programming is subject to decisions to be made by Hutt City Council and NZ Transport Agency.*

The substantive motion was **CARRIED.**

The meeting adjourned at 11:07am and reconvened at 11:24am.

8 **Proposal for a Wellington region approach to community coastal adaption work programme**

Councillor Blakeley and Dr Iain Dawe, Senior Policy Advisor, Natural Hazards and Coastal, spoke to the report.

Report 18.328 File ref: CCAB-10-544

Moved *(Cr Blakeley/Cr Kedgley)*

That the Committee:

1. *Receives the report.*

2. *Notes the content of the report.*

3. *Agrees in principle with the proposal for the sub-group of the Wellington Region Climate Change Working Group to develop a plan for a regional approach to a community-council coastal adaptation programme for the Wellington Region.*

The motion was **CARRIED.**

9 **GWRC Submission on Draft National Planning Standards**

Matthew Hickman, Manager, Environmental Policy, and Lucy Harper, Team Leader , Policy Implementation, spoke to the report.

Report 18.311 File ref: CCAB-10-533

Moved *(Cr Swain/Cr McKinnon)*

That the Committee:

1. *Receives the report.*
2. *Notes the content of the report.*
3. *Approves the attached submission.*
4. *Approves the Council Chair to sign off any minor wording changes.*
5. *Approves a media release to be drafted for the submission and for the Council Chair to seek a meeting with the Minister for the Environment.*

Moved as an amendment *(Cr Kedgley/Cr Lamason)*

That a new recommendation 6 be inserted:

6. *Approves the attached submission with additional amendments.*

The amendment was **CARRIED**.

The substantive motion was put:

That the Committee:

1. *Receives the report.*
2. *Notes the content of the report.*
3. *Approves the attached submission.*
4. *Approves the Council Chair to sign off any minor wording changes.*
5. *Approves a media release to be drafted for the submission and for the Council Chair to seek a meeting with the Minister for the Environment.*
6. *Approves the attached submission with additional amendments.*

The substantive motion was **CARRIED.**

10 **Council submission on the Local Government New Zealand's draft sector position on climate change mitigation**

Councillor Blakeley spoke to the report.

Report 18.320 File ref: CCAB-10-549

Moved *(Cr Blakeley/Cr Donaldson)*

That the Committee:

1. *Receives the report.*
2. *Notes the content of the report.*
3. *Agrees that a submission based on the comments in section 3 of this report be developed.*
4. *Delegates to the Chair the ability to make minor editorial amendments to the submission.*

The motion was **CARRIED.**

11 **Whaitua Programme update – July 2018**

Tim Sharpe, Programme Manager, Whaitua, spoke to the report.

Report 18.320 File ref: CCAB-10-549

Moved *(Cr Swain/Cr Lamason)*

That the Committee:

1. *Receives the report.*
2. *Notes the content of the report*

The motion was **CARRIED.**

Councillors Kedgley and McKinnon left the meeting at 12:40pm, during discussion of item 11.

The Deputy Chair presided for the remainder of the meeting.

12 **General Managers' Report**

Nigel Corry, General Manager, Environment Management, and Wayne O'Donnell, General Manager, Catchment Management, spoke to the report

Report 18.292 File ref: CCAB-10-530

Moved *(Cr Donaldson/Cr Lamason)*

That the Environment Committee

1. *Receives the report.*
2. *Notes the content of the report*

The motion was **CARRIED.**

The meeting closed at 12:56pm

Cr S Kedgley
(Chair)

Date:

Report	**18.334**
Date	11 September 2018
File	CCAB-10-551
Committee	**Environment Committee**
Authors	**Nigel Corry, General Manager, Environment Management and Wayne O'Donnell, General Manager, Catchment Management**

Action items from previous meetings

Attachment 1 lists items raised at Environment Committee meetings that require actions or follow-ups from officers. All action items include an outline of current status and a brief comment. Once the items have been completed and reported to the Committee they will be removed from the list.

No decision is being sought in this report. This report is for the Committee's information only.

Recommendations

That the Committee:

1. ***Receives** the report.*

2. ***Notes** the content of the report.*

Report prepared by:	Report prepared by:
Nigel Corry	**Wayne O'Donnell**
General Manager, Environment Management	General Manager, Catchment Management

Attachment 1: Action items from previous meetings

Attachment 1 to Report 18.334

Action points from previous Environment Committee meetings

Meeting date	Action point	Status and comment
22 March 2018	**Resolution** *Requests officers to arrange a workshop inviting both Wellington Water Limited and Regional Public Health to discuss their respective responses to the broader set of Inquiry recommendations. The workshop could also incorporate an update on the 'Waiwhetu Aquifer contamination' workstream.*	**Status**: Under action **Comments**: A meeting has been set up on 12 October 2018 to discuss this issue.
22 March 2018	**Resolution** *Requests officers to work proactively with territorial authorities, Wellington Water Limited and Regional Public Health to finalise the Memorandum of Understanding clarifying arrangements and responsibilities with respect to providing safe public drinking water supply in the Wellington Region.*	**Status**: Under action **Comments**: A meeting has been set up on 12 October 2018 to discuss this issue.
22 March 2018	**Resolution** *Requests officers to accelerate work with Wellington Water on wastewater and storm-water issues.*	**Status:** Under action **Comments**:

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Report **2018.409**
Date 10 September 2018
File ENPL-9-216

Committee **Environment**
Author **Gary Sue, Acting Manager, Biosecurity**

Regional Pest Management Strategy 2002-2022: Operational Plan 2018/19

1. Purpose

To seek adoption of the 2018/19 Operational Plan (the Plan) for the implementation of the Regional Pest Management Strategy 2002-2022 (RPMS).

2. Background

The Council approved the Regional Pest Management Strategy 2002 – 2022 (RPMS) on 17 September 2002. The current version of the Strategy underwent a statutory five year review and was approved by Council on 12 June 2009. A formal review of the Strategy is currently underway by the Biosecurity Department.

Operational Plans are prepared annually for Committee approval, followed by an annual report on performance against the objectives. An Operational Plan Report on the success of the Strategy for 2017/18 will be available in November 2018.

- The Biosecurity Act 1993 specifies a number of requirements for an Operational Plan. The Council must:
- Review the Plan annually and, if deemed appropriate, amend it
- Provide a copy of the Plan to the responsible Minister or the Council
- Prepare an annual report on the Plan, including the effectiveness of implementation, not later than five months after the end of each financial year
- Make copies of the Plan and annual report available to the public.

3. The Operational Plan

The proposed Operational Plan 2018/19 is attached as **Attachment 1**.

During 2018/19 Biosecurity resources will continue to be focused on the key aspects of strategy implementation. These include:

- Regional Surveillance and Total Control species, all of which are capable of becoming significant regional pests if establishment occurs
- Ensuring that containment pests are maintained within their current infestation zones
- Continuing the extensive site-led biodiversity programmes in Key Native Ecosystems (KNE) across private land, local authority reserves and regional parks
- Implementation of the eighth year of the expanding Regional Possum and Predator Control Programme
- Working with landowners, care groups, iwi, local and national government on a range of regional and national projects.

The proposed Regional Pest Management Plan (RPMP) differs in focus and proposes a different set of pest species. In instances where there is a change of pest status or programme to that of the current RPMS, and where there were no objections to the change in the consultation process, our activities will focus on notifying affected parties and landowners about the change; and aligning activities with the proposed RPMP. Where there is opposition to proposed changes, a precautionary approach will be taken to ensure that operational activities still meet the objectives of the current RPMS.

The successful KNE programme continues to protect and enhance the best sites of biodiversity in the Wellington Region. It is equally important for building and maintaining relationships with private landowners and Territorial Local Authorities (TLA) within the region. Alongside the KNE programme there are formal agreements to deliver additional pest control for a number of TLAs.

Public awareness and education remains an important aspect of implementing the Strategy. A range of paper and electronic resources are available to the public, with Biosecurity staff continuing to give presentations to schools and community and interest groups on RPMS related topics.

4. Review of the Strategy

A statutory review of the Regional Pest Management Strategy is underway. The reviewed document will be known as the Regional Pest Management Plan (RPMP).

The review is guided by a National Policy Direction (NPD) from the Ministry for Primary Industries. Regional Councils have worked together collectively to ensure that RPMPs are aligned to provide as much national consistency as possible.

The review assesses the progress of the current management programmes and consultation has taken place with iwi, key stakeholders and the wider Wellington community.

5. Communication

The Biosecurity Act requires that copies of the Operational Plan be made available to the public. An electronic version of the document is available on the GWRC website and a printed version is available upon request.

6. Consideration of Climate Change

The matters requiring decision in this report have been considered by officers in accordance with the process set out in the GWRC Climate Change Consideration Guide.

6.1 Mitigation assessment

Mitigation assessments are concerned with the effect of the matter on the climate (i.e. the greenhouse gas emissions generated or removed from the atmosphere as a consequence of the matter) and the actions taken to reduce, neutralise or enhance that effect.

Operational emissions associated with biosecurity operations are measured and reported via the GWRC Carbon Inventory and subject to the emissions reduction initiatives set out in the GWRC Corporate Sustainability Action Plan.

GWRC's role in enabling forests in the region to draw CO2 down from the atmosphere (carbon sequestration) is significant. Biosecurity operations contribute to protecting native forest and vegetation by maintaining large scale pest animal management programmes.

Possum control and KNE programmes help maintain the carbon sequestration capacity of forests located within the 129,000 ha under GWRC control (the KNE programme encompasses 48,000 ha of mostly forest ecosystems and regional possum control covers over 186,000 ha of the region). Biodiversity and parks programmes, along with erosion control initiatives, have resulted in thousands of new trees being planted each year.

6.2 Adaptation assessment

Adaptation assessments relate to the impacts of climate change (e.g. sea level rise or an increase in extreme weather events), and the actions taken to address or avoid those impacts.

Biosecurity threats are expected to increase as the climate in the Wellington region continues to change. Future challenges will include new exotic pests,

weeds and diseases which have previously not been able to flourish becoming established. The potential establishment of subtropical pests and current seasonal immigrants are of greatest concern, along with taxa that are already recognised as high risk.

The Operational Plan that is the subject of this paper is considered sufficient to address climate change induced changes in the dynamics of pest species over the coming year.

Biosecurity impacts related to climate change will be considered in greater detail when the Regional Pest Management Strategy is reviewed. Subsequent Operational Plans will address threats identified in that Strategy, as well as options for managing the effects climate change is expected to have on the departments operations (for example severe weather can impact service delivery of aerial and ground based pest control).

7. The decision-making process and significance

The matter requiring decision in this report has been considered by officers against the requirements of Part 6 of the Local Government Act 2002.

7.1 Significance of the decision

The matters for decision in this report do not trigger the significance policy of the Council or otherwise trigger section 76(3) (b) of the Local Government Act 2002. The matter can be considered to have low significance.

The Council is required to prepare an annual RPMS Operational Plan under Section 100B of the Biosecurity Act 1993. There is no formal requirement to have the Operational Plan approved by the Council, but it is considered appropriate to do so. This aligns with the Council's support of biosecurity matters in the region and transparency of expenditure.

8. Recommendations

That the Committee:

1. ***Receives** the report*

2. ***Notes** the content of the report*

3. ***Approves** the proposed Operational Plan 2018/19 (Attachment 1) for the Regional Pest Management Strategy 2002-2022.*

Report prepared by:	Report Approved by:	Report Approved by:
Tim Gale Biosecurity Policy Advisor	**Gary Sue** Acting Manager, Biosecurity	**Wayne O'Donnell** General Manager, Catchment Management Group

Attachment 1: Regional Pest Management Strategy – Operational Plan 2018/19

Attachment 1 to Report 18.409

Regional Pest Management Strategy 2002-2022 - Operational Plan 2018/19

greater WELLINGTON
REGIONAL COUNCIL
Te Pane Matua Taiao

Regional Pest Management Strategy 2002-2022

Operational Plan 2018/19

Biosecurity Department

Contents

1. Introduction

1.1 Background

Greater Wellington Regional Council (GWRC) biosecurity activities involve the control of unwanted plants and animals for environmental, economic and social reasons:

- **Environmental:** Many of New Zealand's native plants and animals cannot co-exist with introduced species. In areas of high biodiversity value, pest plants and pest animals need to be controlled to protect vulnerable ecosystems

- **Economic:** The impact of pest plants and pest animals leads to considerable economic loss in many of New Zealand's primary industries. Pest management is essential to the success of industries such as agriculture

- **Social:** Pest organisms create a range of social problems within our communities. Pest plants and pest animals cause a considerable nuisance in many aspects of rural and urban life, inhibiting the ability of people to enjoy their property, lifestyle and wellbeing.

The Greater Wellington Regional Council Pest Management Strategy 2002 – 2022 (the strategy) was prepared in accordance with the Biosecurity Act 1993. The original strategy was approved by GWRC on 17 September 2002. The five year review of the current strategy was adopted by resolution on 9 March 2009 and became operative on 12 June 2009.

1.2 Linkage to the Regional Pest Management Strategy

This Operational Plan has been prepared in accordance with section 100B of the Biosecurity Act 1993. The plan identifies and outlines the nature and scope of activities GWRC intends to undertake in the implementation of its Regional Pest Management Strategy (RPMS) for the financial year 2018/19.

The strategy contains objectives specific to individual pests and outlines the means by which GWRC, as the Management Agency, will achieve those objectives.

The strategy has clearly defined rules to be met by all land occupiers. GWRC has responsibility to ensure land occupiers are aware of, and meet, their obligations for pest management on their properties. GWRC can also undertake pest control operations where there is recognised regional benefit.

1.3 Review of the Regional Pest Management Strategy

Greater Wellington Regional Council (GWRC) is currently reviewing its Regional Pest Management Strategy (RPMS). The current version of the RPMS has served the pest management needs of the greater Wellington community for nine years, its lifespan being 2002-2022. Since 1996 the

GWRC RPMS has been reviewed twice. It was last reviewed in 2007, and the amended document was implemented in 2009.
To respond to changing national biosecurity requirements, The Biosecurity Law Reform Act 2012 was introduced. In particular, amendments have been made to Part 5 of the Act, 'Pest Management', which legislates for regional pest management. Regional Councils were involved through a range of consultative processes, ensuring that the amended Act met the requirements for regional pest management. The subsequent amendments to the Act led to the development of the National Policy Direction for Pest Management 2015 (the NPD) to guide the review and development process of what are now known as Regional Pest Management Plans (RPMP).

GWRC was required by law to determine whether the RPMS was consistent with the NPD for pest management which came into force on 24 September 2015. It was determined on 06 March 2017, by the Environment Committee [Report 2017.64] as required by section 100E of the Biosecurity Act 1993 that the Regional Pest Management Strategy 2002-2022 was inconsistent with the National Policy Direction. It was further determined, that the inconsistency between the Regional Pest Management Strategy and the National Policy Direction, would be resolved by a full review initiated under section 100D of the Biosecurity Act 1993.

The review of the RPMS led to the pest species programmes proposed in the RPMP. The Greater Wellington Proposed Regional Pest Management Plan (RPMP) was publicly notified on 30 June 2018 for a period of submissions until 27 July 2018. Following the submission period, a Hearing panel has been appointed to hear submissions on the proposed plan. The proposed date for implementation of the RPMP 2019 – 2039 is early 2019.

The proposed RPMP differs in focus and proposes a different set of pest species. In instances where there is a change of pest status or programme to that of the current RPMS, and where there was no objections to the change in the consultation process, our activities will focus on notifying affected parties and landowners about the change; and aligning activities with the proposed RPMP. Where there is opposition to proposed changes, a precautionary approach will be taken to ensure that operational activities still meet the objectives of the current RPMS.

1.4 Implementation

The purpose of the plan is to implement the RPMS for the Wellington Region. The principal objectives are to minimise the actual and potential adverse and unintended effects of pests on the environment, the economy and the community, and maximise the effectiveness of individual pest plant and pest animal management via a regionally coordinated response.

1.5 Review

The plan will be reviewed and reported on annually. The plan may be amended to ensure that the objectives of the strategy will be achieved within its terms. Section 100G of the Biosecurity Act allows GWRC to make minor changes to

the strategy, provided that it is satisfied that the changes will not have any significant effects on the rights and obligations of any persons.

1.6 Integration with Annual Plan

As far as practicable, the Operational Plan has been integrated with GWRC's Annual Plan. The Annual Plan sets the overall priorities and work programmes for the organisation and provides an overview of related pest management activities for the 2018/19 year. Implementation costs are included in the Annual Plan.

1.7 Integration with GWRC biodiversity activities

GWRC has responsibilities to manage biodiversity under the Resource Management Act 1991. Various council programmes that contribute to the management of biodiversity have been consolidated into the Biodiversity Department. Biodiversity related activities and the role of the Biodiversity Department are guided by the internal Greater Wellington Biodiversity Strategy.

The management of high value biodiversity areas across the region is coordinated by the Biodiversity Department. Pest plant and pest animal control is a key method for managing native biodiversity, requiring ongoing investment of council resources, with a significant amount allocated to the Key Native Ecosystems programme. This programme focuses on managing the areas of highest biodiversity value, predominately through ongoing coordinated pest control for sites. This work is complemented by other efforts such as fencing to exclude farm stock and advocating for legal protection.

1.8 Areas of responsibility

This plan and the strategy are based on the following core areas of GWRC's responsibility:

- **Regulation (standards and enforcement)**

  Standards, rules and restrictions are set and compliance enforced with penalties, when and where necessary.

- **Inspection**

  Regular property inspections ensure that rules and regulations are being met and changes in pest densities are determined over time.

- **Monitoring**

  GWRC undertakes monitoring for pests in the region to determine their presence, distribution and effects, and to measure the extent to which the objectives of the strategy are being achieved.

- **Direct control**

  GWRC funds and undertakes pest control in some circumstances as a service for regional benefit.

- **Advice and education**

  Free advice is given to raise awareness of pest problems and to provide land occupiers with the information to control their own pests.

- **Community initiatives**

  Guidance and support is provided for community driven initiatives to control pests.

- **Cost recovery**

  A full cost recovery operational service is available for pest control.

- **Biological control**

  As approved biological control agents become available, GWRC may elect to utilise them. Biocontrol is currently a key tool in the management of rabbits and various pest plant species.

1.9 How the pest species are decided

A cost-benefit analysis (CBA) is undertaken for all species proposed for the strategy. This process decides what control, if any, is to be undertaken and what level of management is needed for the species. The CBA works in conjunction with the infestation curve, which designates the different management policies.

Expanded infestation curve for the RPMS:

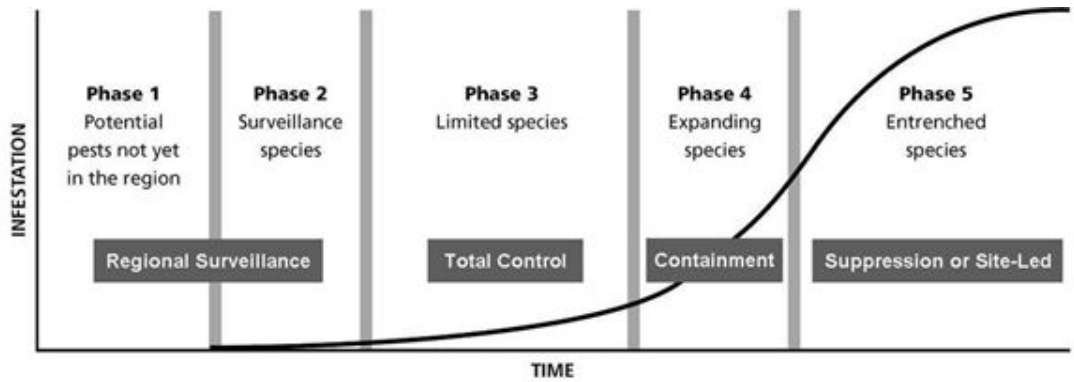

Figure 1: Phases of a pest through time in relation to its appropriate management. Adapted from Greater Wellington's Regional Pest Management Strategy, published April 2003.

Infestation phase	Phase characteristics	Management policies
Phase 1	Potential pest not currently in the region	Regional Surveillance
Phase 2	Recent arrival limited in distribution	Regional Surveillance
Phase 3	Limited in distribution and density	Total Control
Phase 4	Established but have not reached full distribution	Containment
Phase 5	Widespread or entrenched in most or all available habitat	Suppression or Site-Led

1.10 Species in the Operational Plan

The species in the plan are generally collated by category, but individual species or projects with a considerable investment or public interest are listed separately to provide greater transparency of expenditure.

1.11 Pest Control Methods

Greater Wellington Regional Council uses a range of methods and tools to control pest plants and pest animals within the region. All control operations are undertaken by trained staff, contractors or volunteers using industry accepted best practice techniques. This methodology considers environmental and humane factors alongside cost-effectiveness and practicality. Chemical based pest control methods are utilised only when non-chemical methods are impractical or inadequate. All GWRC control operations aim to minimise the amount of chemical used in the natural environment.

Image 1: With new technology, like this DJI Mavic Pro drone, there is potential to improve pest survey efficiency and capabilities.

2. Pest Animals

2.1 Performance targets and measures

2.1.1 Surveillance species

Aim: To prevent the establishment or minimise the impact, and prevent the further spread, of animal surveillance species in the region at a cost of $11,000

Objective	Means of Achievement
1. Monitor for the presence of Surveillance species within the Wellington Region. 2. Monitor and manage those Surveillance species already present in the Wellington Region.	• Provide information and publicity to enhance public awareness of Surveillance species. • Record and report any incidences of Surveillance species in the region. • Investigate the feasibility of eradication if a Surveillance species is detected within the region.

2.1.2 Total Control species – rooks

Aim: Total control of rooks in the Wellington Region at a cost of $101,000

Objective	Means of Achievement
1. Manage rooks to levels that protect economic values in the Wellington Region. 2. Achieve total control of rooks within 25 years (by 2027) in the Wellington Region.	• Undertake direct control by service delivery where rooks are known to exist. • Survey rook populations annually in areas where they are known to exist, and where new infestations are reported. • Support appropriate research initiatives, including biological control should it become available. • Ensure compliance with the strategy rules in order to achieve the strategy objectives. • Encourage Horizons and Hawke's Bay Regional Councils to actively pursue management of rooks within their regions that complements the GWRC Total Control programme. • Annually inspect pet shops and rook keepers to prevent sale and/or breeding of rooks.

2.1.3 Suppression species – rabbits

Aim: To minimise the adverse impacts of feral rabbits at a cost of $202,000

Objective	Means of Achievement
1. Ensure that no area in the region exceeds Level 5 on the Modified McLean Scale at any one time. **Refer to Appendix 1** for the Modified McLean Scale of rabbit infestation.	• Undertake direct control by service delivery to control rabbits on riverbeds, esplanades or similar public commons to ensure that rabbits do not exceed Level 5 of the Modified McLean Scale. • Ensure compliance with the strategy rules in order to achieve the strategy's objectives. • Survey land in high to extreme rabbit prone areas to determine the extent of rabbit infestation. • Make occupiers aware of their responsibilities for rabbit control. • Provide information and publicity to enhance public awareness of the threat rabbits pose to the region. • Release biological control agents for the control of feral rabbits when appropriate. • Support research initiatives including biological control. • Annually inspect pet shops to prevent the sale of feral rabbits.

2.1.4 Site-Led species – human health - magpies

Aim: To manage magpies to minimise adverse human health and environmental impacts in the Wellington Region at a cost of $60,000

Objective	Means of Achievement
1. Respond to reports of magpies attacking members of the public within 10 working days. 2. Supply traps to occupiers wishing to undertake their own control. 3. Establish representative population trend monitoring sites for magpies.	• Undertake direct control by service delivery of magpies within 10 working days where there is known to be a threat of injury to members of the public, or complaint(s) are made to that effect. • Respond to landowners wanting to undertake magpie control within 15 working days of receiving a request for information and/or assistance. • Provide advice, education and assistance to occupiers wanting to undertake magpie control. • Support appropriate research initiatives into magpie impacts. • Annually inspect pet shops to prevent the sale of magpies.

2.1.5 Site-Led species – human health - wasps

Aim: To minimise the adverse human health and environmental impacts of wasps at selected sites at a cost of $7,000

Objective	Means of Achievement
1. Reduce the anti-social and adverse environmental impacts of common and German wasps in the Wellington Region.	• Provide advice and education to occupiers wanting to undertake wasp control. • Provide a referral service to landowners/occupiers who require wasp control. • Support research initiatives into the human health impact of wasps in the Wellington Region.

2.1.6 Site-Led – biodiversity – possum

Aim: To minimise the adverse impacts of possums in areas of ecological significance and maintain accrued biodiversity and economic gains in the Wellington Region at a cost of $123,000

Objective	Means of Achievement
1. Address the adverse impacts of possums in selected areas for catchment functions, biodiversity and economic prosperity. 2. Minimise the adverse environmental impact of possums in areas of ecological significance in the region.	• Undertake direct control by service delivery in sites of ecological significance in agreement with the landowner/occupier. • Support the establishment of new possum control programmes, in collaboration with landowners, in areas which have historically received bovine Tb vector control and now meet the Animal Health Board criteria to be declared Tb free. • Provide information and publicity to enhance public awareness of the threat possums pose to the region. • Provide advice, education and assistance to occupiers wanting to undertake possum control. • Provide a referral or cost recovery service to landowners/occupiers who require possum control. • Support research initiatives including biological control. • Annually inspect pet shops and other outlets to prevent the sale of possums.

Explanatory note:

1. The cost of possum control associated with this Site-Led – biodiversity – possum category will only be for possum control conducted outside the Key Native Ecosystem (KNE) programme.

2. This Operational Plan has a Site-Led category for KNEs, Reserves and Forest Health with the aim of protecting indigenous biodiversity in a comprehensive range of KNEs throughout the Wellington Region.

3. Possums, together with rats and mustelids are the principal target species in KNE management areas. This holistic management regime through multi species control makes it impracticable to separate and allocate specific costs to specific pests.

2.1.7 Site-Led – Regional Possum Predator Control Programme

Aim: To minimise the adverse impacts of possums in areas declared Bovine Tb free at a cost of $1,545,000

Objective	Means of Achievement
1. Address the adverse impacts of possums in Bovine Tb free areas for catchment functions, biodiversity and economic prosperity.	• Maintain a possum residual trap catch of 5% or lower across 109,900 ha of the Wellington Region.

2.1.8 Site-Led – Key Native Ecosystems, Reserves and Forest Health

Aim: To protect indigenous biodiversity in a comprehensive selection of Key Native Ecosystems and Reserves at a cost of $1,793,000

Objective	Means of Achievement
1. Achieve a measurable improvement in the ecological health and diversity of Key Native Ecosystems (KNEs) and reserve areas using a range of suitable indicators.	• Ensure KNEs are legally protected into perpetuity. • Establish and implement integrated pest management plans for all KNEs and selected reserves. • Undertake direct control by service delivery of pests identified in the management plan for KNEs and reserves. • Facilitate the involvement of community groups where appropriate. • Coordinate site management with other biodiversity initiatives where possible. • Use biological control agents where appropriate, and support relevant biological control research initiatives. • Monitor site recovery using a range of ecological indicators. • Manage external pressures that are inconsistent with KNE and reserve management objectives. • Provide public education and advice to foster biodiversity management outside formal KNE and reserve areas. • Maintain holistic management in existing managed KNE and reserve areas. • Where KNEs are identified on Territorial Local Authority land, seek funding from the relevant authority to form financial partnerships.

3. Pest Plants

3.1 Performance targets and measures

3.1.1 Surveillance species

Aim: To determine the distribution and means of control for Regional Surveillance pest plants within the Wellington Region at a cost of $255,000

Objectives	Means of Achievement
1. Carry out a Regional Surveillance pest plant programme to determine the status of these species within the Wellington Region. 2. Carry out a trial control programme to ascertain the best method(s) for controlling selected Regional Surveillance pest plants within the region.	• Identify new sites of Regional Surveillance pest plants by GWRC Biosecurity staff, the public, or through the Regional Surveillance pest plant programme. • Undertake a control trial programme on selected Regional Surveillance pest plants within the region. • Undertake training and research to be conversant with the identification and biological characteristics of all Regional Surveillance pest plants. • Provide information and publicity to enhance public awareness of the threat posed by Regional Surveillance pest plants to the region. • Annually inspect all plant outlets and markets within the region to prevent the sale and/or propagation of Regional Surveillance pest plants. • Report outcomes of investigations into new incursions or species known to be established in the region. • Use biological control agents where appropriate, and support relevant biological control research initiatives.

3.1.2 Total Control species

Aim: To manage all Total Control species within the Wellington Region at a cost of $348,000

Objective	Means of Achievement
1. Control all Total Control species at all known sites on an annual basis.	• On an annual basis undertake direct control by service delivery of all Total Control species at all known sites within the region. • Provide information and publicity to enhance public awareness of the threat posed by Total Control species to the region. • Identify new sites of Total Control species through incidental reports by GWRC Biosecurity staff, the public, or through the Regional Surveillance pest plant programme delimiting known infestation sites. • Annually inspect all plant outlets and markets within the region to prevent the sale and/or propagation of Total Control species. • Use biological control agents where appropriate, and support relevant biological control research initiatives.

3.1.3 Containment species

Aim: To control all Containment species outside the Containment zones within the Wellington Region at a cost of $164,000

Objective	Means of Achievement
1. Control all Containment species at known sites outside the Containment zones on an annual basis subject to successful control trials.	• Undertake direct control by service delivery of Containment species outside the Containment zone within the region on an annual basis. • Provide information and publicity to enhance public awareness of the threat posed by the Containment species to the region. • Identify new sites of Containment species outside the Containment zones through incidental reports by GWRC Biosecurity staff, the public, or through the Regional Surveillance pest plant programme. • Annually inspect all plant, animal outlets and markets in the region to prevent the sale and/or propagation of the Containment species. • Use biological control agents where appropriate, and support relevant biological control research initiatives.

3.1.4 Site-Led - boundary control, suppression and human health species

Aim: To minimise the adverse impacts of Site-Led boundary control species and the risk to human health of species in specific situations throughout the Wellington Region at a cost of $179,000

Objective	Means of Achievement
1. Prevent the spread of Site-Led boundary control species onto properties that are clear, or being cleared of boundary control species. 2. Prevent the spread of Site-Led human health species onto properties that are clear, or being cleared, of human health species.	• Action complaints received within the parameters of the Regional Pest Management Strategy. • Provide information and publicity to enhance public awareness of the threat posed by Site-Led boundary control and human health species to the region. • Annually inspect all plant outlets and markets within the region to prevent the sale and/or propagation of Site-Led boundary control and human health species. • Use biological control agents where appropriate and support relevant biological control research initiatives.

3.1.5 Site-Led – Key Native Ecosystems, Reserves and Forest Health

Aim: To protect indigenous biodiversity in a comprehensive selection of Key Native Ecosystems and Reserves at a cost of $1,199,000

Objective	Means of Achievement
1. Achieve a measurable improvement in the ecological health and diversity of KNEs and Reserve areas using a range of suitable indicators, including five-minute bird counts.	• Ensure KNEs are legally protected into perpetuity. • Establish and implement integrated pest management plans for all KNEs and selected Reserves. • Undertake direct control by service delivery of pests identified in the management plan for KNEs and Reserves. • Facilitate the involvement of community groups where appropriate. • Coordinate site management with other biodiversity initiatives where possible. • Use biological control agents where appropriate and support relevant biological control research initiatives. • Monitor site recovery using a range of ecological indicators. • Manage external pressures that are inconsistent with KNE and Reserve management objectives. • Provide public education and advice to foster biodiversity management outside formal KNE and Reserve areas. • Maintain holistic management in existing managed KNE and Reserve areas. • Where KNEs are identified on Territorial Local Authority land, seek funding from the relevant authority to form

	financial partnerships.

4. Indicative funding sources

The table below outlines indicative funding sources:

Revenue Sources	Pest Animals $	Pest Plants $	Regional Possum Predator Control $
General Rate and Levies	1,292,258	1,511,857	1,330,000
Internal Income	810,000	582,550	0
External Revenue	194,500	50,500	0
Reserves			215,000
Total Revenue	2,296,758	2,144,907	1,545,000

5. Implementation report

A report on the Operational Plan and the success or otherwise of its implementation will be prepared no later than five months after conclusion of the financial year. Copies of the report will be made available to the public.

Appendix 1

Modified McLean Scale

Scale	Rabbit Infestation
1	No sign seen. No rabbits seen.
2	Very infrequent sign seen. Unlikely to see rabbits.
3	Sign infrequent with faecal heaps more than 10 metres apart. Odd rabbit may be seen.
4	Sign frequent with some faecal heaps more than 5 metres apart, but less than 10 metres apart. Groups of rabbits may be seen.
5	Sign very frequent with faecal heaps less than 5 metres apart in pockets. Rabbits spreading.
6	Sign very frequent with faecal heaps less than 5 metres apart over the whole area. Rabbits may be seen over whole area.
7	Sign very frequent with 2-3 faecal heaps often less than 5 metres apart over the whole area. Rabbits may be seen in large numbers over the whole area.
8	Sign very frequent with 3 or more faecal heaps less than 5 metres apart over the whole area. Rabbits likely to be seen in large numbers over the whole area.

Attachment 1 to Report 18.409

The Greater Wellington Regional Council's purpose is to enrich life in the Wellington Region by building resilient, connected and prosperous communities, protecting and enhancing our natural assets, and inspiring pride in what makes us unique

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GW/BIO-G-18/127
September 2018

greater WELLINGTON
REGIONAL COUNCIL
Te Pane Matua Taiao

Report	**2018.396**
Date	11 September 2018
File	CCAB-10-562
Committee	**Environment Committee**
Author	**Colin Munn, Team Leader, Operations Deliver & Planning**

Flood Protection Annual Asset Management Report 2018

1. Purpose

To advise the Environment Committee of progress made with the Flood Protection department's asset management system, the overall physical condition of the flood protection infrastructural assets, and opportunities for the future.

To seek confirmation from the Environment Committee that they are satisfied that our flood protection infrastructural assets have been maintained to their agreed service level.

2. Background

The Flood Protection department is responsible for a variety of assets, including infrastructure, land and property, located on 15 river schemes across the region. These assets have a total combined value of $386.3 million[1] and provide flood protection to the communities located on these floodplains and infrastructure supporting the whole region.

The department has established a comprehensive asset management system, which demonstrates that the service level of our infrastructural assets is being maintained in an efficient and cost-effective manner, will perform as designed and where required, are being enhanced.

The Environment Committee has overall responsibility to monitor the maintenance and improvement of these assets on behalf of the Council. The Committee relies on feedback from the various Subcommittees, Scheme Advisory committees and Friends Groups to confirm flood protection assets are being satisfactorily maintained to the agreed service level.

3. Asset Management highlights and future challenges

Asset Management continues to be a focus for the department and good progress is being made with projects and in system and business process improvements.

[1] As at June 2017

Highlights for the year were:

- Application of the Asset Performance Code of Practice and associated Asset Performance Tool (APT). The asset performance tool identifies critical river assets and evaluates risks which inform the asset management plan and work programs.
- Re-defining and adjusting our data structure for complex and critical assets based on critical components and consequence of failure.
- Continued improvements to the quality of our data through cleansing and rationalisation of the SAP Plant Maintenance and GIS asset databases as a result of condition assessments and required for the proposed new the Project Optimus[2] system.
- Improvements to our mobile applications for data collection in the field, including; ability to capture new, improved and removed assets in the field and electronic inspections of our complex assets. This information is then being used to inform work planning and update the information database.

Looking to the future, the department is in a period of ongoing change driven by a number of factors, including:

- Implementing the 2018 Asset Management Plan (AMP) to focus on the service the assets provide rather than the physical assets themselves;
- Using new technology to our advantage;
- Implementation of the proposed new ERP system (Project Optimus)
- Asset management improvement projects; actively identifying improvements in business systems and processes.
- The renewal of our river management resource consents.

In 2018/19 we will progress improvement projects that focus on defining our critical assets and developing specific plans for our complex assets such as the Porirua flood detention dams and the Geoffrey Blundell Barrage Gates. A substantial portion of time will also be spent working on Project Optimus to ensure the asset management needs of the department are met, well into the future.

4. Asset Condition

Asset condition is a measure of the physical state of the asset and is assessed visually by staff on an annual basis. Consistency between assessors is achieved through the application of guidance documents. Asset condition does not identify the criticality of the asset or whether the asset meets a service level or design standard; this is determined through application of the asset performance tool.

Condition information enables us to predict maintenance, renewal requirements and develop effective, proactive work programmes. Asset condition is fundamental to

[2] GWRC is currently in the process of replacing the ERP system SAP. The Optimus Project encompasses a new Asset Management system which will integrate with other business processes.

managing asset risk, because it is linked to the likelihood that the asset will physically fail.

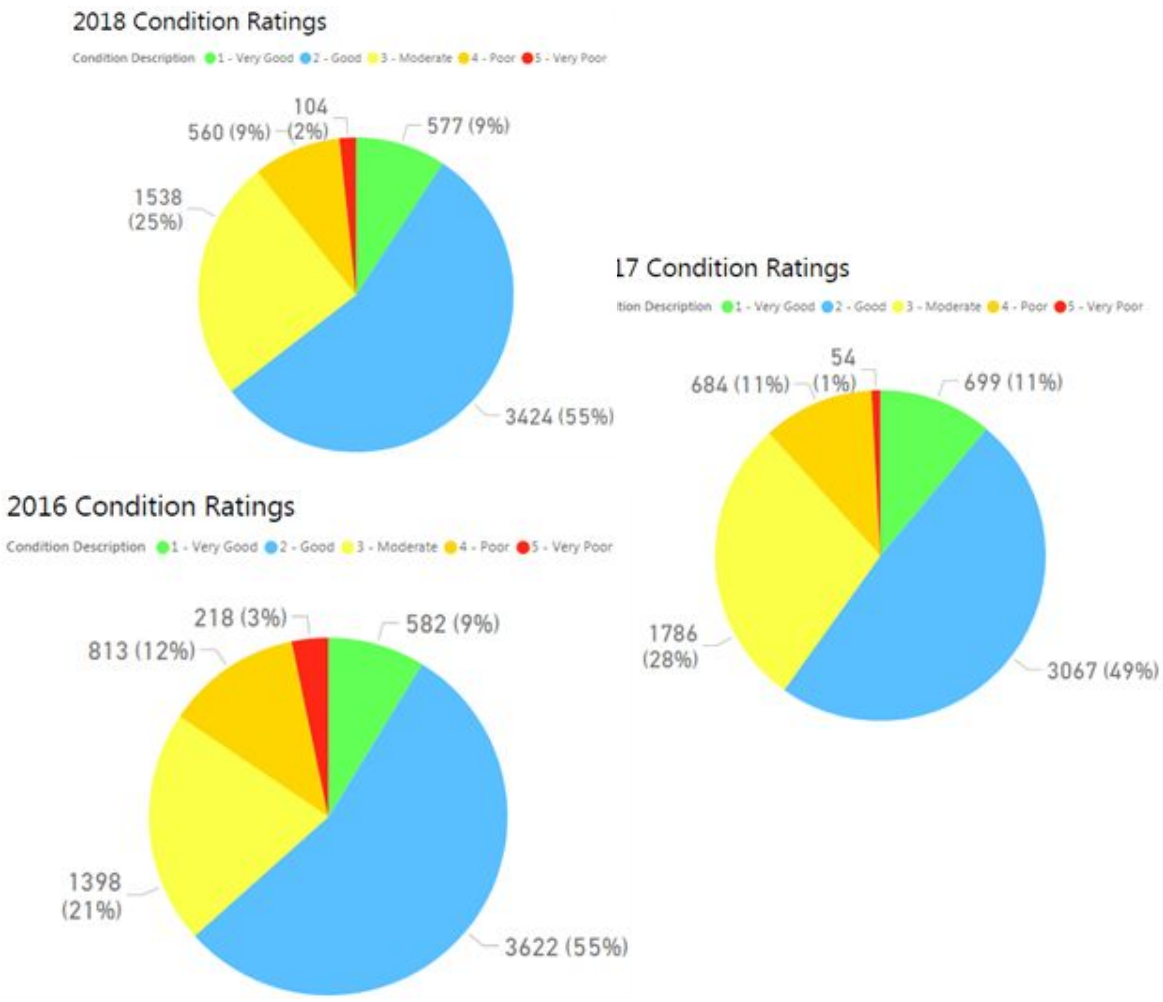
4.1 Regional summary

In general, the condition of flood protection assets is being maintained and the number of assets that are rated in very good (1) to moderate (3) condition has remained high and improved from year to year as shown in Figures 1 and 2 below. A detailed summary of asset condition is included in **Attachment 1**.

Figure 1: Asset condition summary

Asset Condition	2016	2017	2018
Very Good to Moderate (1-3)	84%	88%	89%
Poor to Very Poor (4-5)	16%	12%	11%
Grand Total	**100%**	**100%**	**100%**

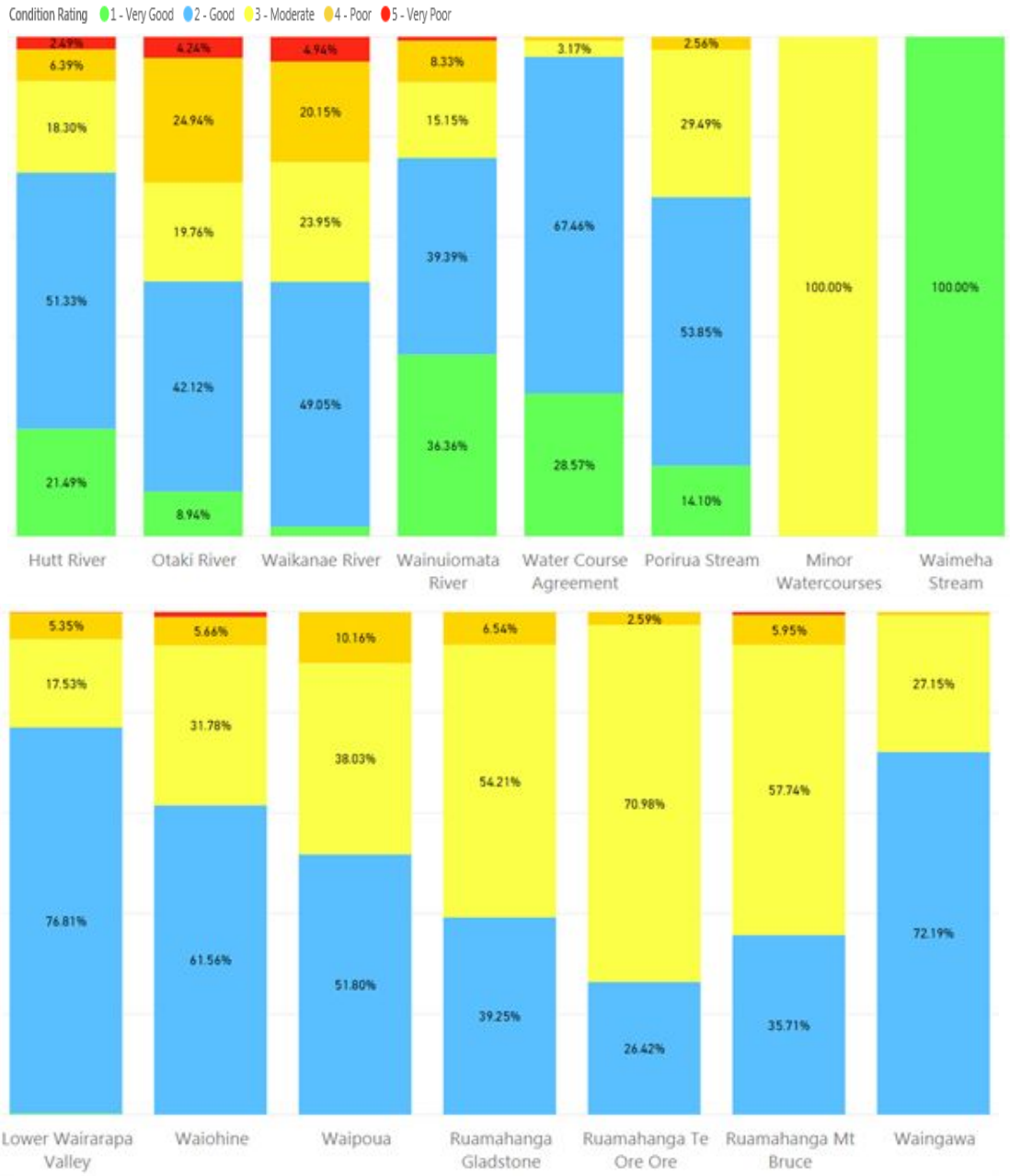
Figure 2: Comparison of asset condition by year



4.2 Asset Condition of River Schemes

The status of condition ratings for various schemes varies across the region, as shown in **Figure 3** below. This is expected due to the differing service levels the schemes provide and the type of assets used to deliver that service. For example, the Hutt River Scheme is more constricted and uses a more structured engineering approach as opposed to the majority of the Wairarapa schemes which use soft, vegetative methods.

Figure 3: Comparison of asset condition by scheme



5. Asset Criticality

Critical assets are selected based on the flooding consequence of an asset failure during a design flood event. In general, stopbanks protecting large urban areas and some rural stopbanks in the Wairarapa are critical due to their consequences of failure. Complex assets, like the Porirua Stream Detention Dams and the Geoffrey Blundell Barrage Gates have also been identified as critical, along with many of the floodgates and most floodwalls due to the flood risks they mitigate.

The current condition of the critical assets are summarised in **Figure 4**.

Figure 4: Critical assets by type

Asset Type	1 – Very Good	2 – Good	3 - Moderate	4 – Poor	5 – Very Poor	Total
BARRAGE GATE	1		1			2
DETENTION DAM	1	1				2
FLOODGATE	16	15	8	2		41
FLOODWALL	21	8				29
STOPBANK	146	201	27	48		422
Total	**185**	**225**	**36**	**50**	**0**	**496**

48 stopbanks were rated in poor condition. Of these, 32 relate to stopbanks on the northern side of the Otaki River where the geotechnical integrity of these banks is uncertain. This area has been identified for additional geotechnical investigation and has been rated as having a medium risk overall. Other problem areas relate to defects such as vegetation growth on the stopbanks or the lack of adequate grass cover.

Remediation or improvements on these defects will be achieved through prioritisation of work through the operational work programs, more detailed investigations or capital improvements. The results from the 2017/18 asset inspections and condition ratings have been used to develop 2018/19 annual work programs for each scheme.

6. Asset Performance Code of Practice

The current asset performance in Wellington and across the country is very reliant on the experience of key river engineering staff taking the holistic view of asset condition and criticality to guide maintenance decision. We are currently in a phase of developing more sophisticated tools that will improve our asset management approach and allow a more consistent and nationally comparable approach which will enable Councillors to have greater confidence in overall performance of our assets. The Asset Performance Code of Practice and Tool was developed by Waugh Infrastructure Group to assess and determine flood risk within separable river sections. The APT takes into account asset condition and a range of other data including consequence and probability of failure. The APT is supported by the LGNZ River Managers Special Interest Group and is being implemented by the majority of regional authorities across NZ.

Following ongoing development and implementation the APT is going to be instrumental in advancing the data collected from the asset condition rating to risk based assessment for discrete river reaches. This will help define and locate critical assets and river reaches by assessing the performance of the flood protection assets based on the current condition, agreed service level, capacity and the consequence of failure.

The APT provides improvement in asset management by;

- Identifying critical assets
- Risk based approach to flood protection assets
- Prioritising operational work programs.
- Allowing the assessment of asset improvement benefits
- Recognising the impact on the community

A presentation of the performance tool will be made at the Committee meeting.

7. Community engagement

Across the region, 15 river schemes are managed by the Flood Protection Department. Staff report to a Council subcommittee, Scheme Advisory Committees or Friends Groups who confirm that they are satisfied with the standard of maintenance. These groups include

- Lower Ruamahanga Floodplain Management Advisory Committee
- Waingawa River Advisory Committee
- Upper Ruamahanga River Mt Bruce Advisory Committee
- Upper Ruamahanga River Te Ore Ore Advisory Committee
- Upper Ruamahanga River Gladstone Advisory Committee
- Waipoua River Advisory Committee
- Taueru River Advisory Committees
- Whangaehu River Advisory Committee
- Kopuaranga River Advisory Committee
- Friends of the Otaki River
- Friends of the Waikanae River
- Hutt Valley Flood Management Subcommittee

During the year the Committees and Friends Groups meet to confirmed resolutions stating that their respective river schemes had been maintained to their satisfaction.

8. Scheme budgets and flood damage reserves

A summary of the individual river schemes and total flood damage reserves are detailed in **Figure 5** below. While minor damage was incurred during recent flood events, this was funded from maintenance budgets without calling on contingency funds.

Figure 5: Scheme reserves to June 2018

	June 2018		
Scheme	**Scheme Reserve**	**Major Flood Investment Reserves**	**Total Reserves**
Lower Valley	1,964,915	1,444,834	3,409,750
Waiohine	685,357	47,653	733,010
Mount Bruce	80,463	10,801	91,264
Upper Mangatarere	37,630		37,630
Te Ore Ore	336,130	10,801	346,932
Gladstone	75,759	10,801	86,560
Waingawa	172,263	31,769	204,032
Waipoua	226,015	31,769	257,783
Kopuaranga	-14,609		-14,609
Taueru	6,458		6,458
Whangaehu	9,395		9,395
Eastern River Total	**3,579,775**	**1,588,429**	**5,168,204**
Western Rivers Total	**2,667,270**	**1,588,428**	**4,255,698**
Sub Total of River Schemes Reserves	**6,247,045**	**3,176,857**	**9,423,902**
GW Flood Contingency Reserve	2,531,837		2,531,837
GW Major Flood Investment		3,176,857	3,176,857
Total River Schemes Reserves	**8,778,883**	**6,353,714**	**15,132,597**

9. Consideration of Climate Change

The matters requiring decision in this report have been considered by officers in accordance with the process set out in the GWRC Climate Change Consideration Guide.

9.1 Mitigation assessment

Mitigation assessments are concerned with the effect of the matter on the climate (i.e. the greenhouse gas emissions generated or removed from the atmosphere as a consequence of the matter) and the actions taken to reduce, neutralise or enhance that effect.

The effect of any further works associated with the assets discussed in this report, and commissioned by GWRC, are subject to GWRC's corporate sustainability policy and/or procurement process, the latter of which is undergoing review and will encourage suppliers and contractors to minimise emissions.

9.2 Adaptation assessment

Adaptation assessments relate to the impacts of climate change (e.g. sea level rise or an increase in extreme weather events), and the actions taken to address or avoid those impacts.

Officers have considered the impacts of climate change in relation to the matter. The assets discussed in this report were developed over an extensive period of time, during which climate change projections (e.g. rainfall intensity, sea level rise etc.) have evolved with the scientific community's understanding of how climate change will affect the Wellington region. Climate change projections were incorporated into the modelling that underpins relevant management plans and asset designs at the time they were developed.

10. The decision-making process and significance

The matters requiring decision in this report have been considered by officers against the requirements of Part 6 of the Local Government Act 2002.

10.1 Significance of the decision

Officers have considered the significance of the matter, taking into account the Council's significance and engagement policy and decision-making guidelines. Due to the procedural nature of this decision officers recommend that the matter be considered to have low significance.

Officers do not consider that a formal record outlining consideration of the decision-making process is required in this instance.

10.2 Engagement

Engagement on the matters contained in this report aligns with the level of significance assessed. Engagement has been undertaken in the Wairarapa River Advisory Committees and western river Friends' Groups. In accordance with the significance and engagement policy, no further engagement on the matters for decision is required.

11. Recommendations

That the Committee:

1. ***Receives** the report.*

2. ***Notes** the content of the report.*

3. ***Notes** the advice from officers that the assets on the Te Awa Kairangi/Hutt River, Waiwhetu Stream, and Wainuiomata River have been satisfactorily maintained.*

Report prepared by:	Report approved by:	Report approved by
Colin Munn Team Leader, Operations	**Graeme Campbell** Manager, Flood Protection	**Wayne O'Donnell** General Manager, Catchment Management

APPENDIX 1 - Asset condition by type

Asset Group	Asset Type	1 – V.Good	2 – Good	3 - Moderate	4 - Poor	5 –V.Poor	Totals
Individual Structures	BARRAGE GATE	1		1			2
	BRIDGE	4	5				9
	DETENTION DAM	1	1				2
	DIVERSION CUT		2				2
	DRAIN	8	57	11	2		78
	DROP STRUCTURE	1	1				2
	DUCKSBILL STRUCTURE		2				2
	FLOODWAY SILL		8	1			9
	CULVERT	4	26	9	1		40
	FLOODGATE	16	77	35	14		142
	FLOODWALL	27	8		1		36
	STOPBANK	146	410	152	147	1	856
	TRAINING BANK		12	1			13
	WINGWALL	4	6				10
	Total	**212**	**615**	**210**	**165**	**1**	**1203**
Channel	CHANNEL	106	654	250	42	1	1053
	WEIR		9	7			16
	Total	**106**	**663**	**257**	**42**	**1**	**1,069**
Berms - Amenity	FENCE	1	29	13	2		45
	GATE	6	5				11
	NATIVE PLANTING	12	54	39	3		108
	SEAT	9	9	1			19
	SIGN	3	2				5
	TRACK	178	292	56	10	1	537
	Total	**209**	**391**	**109**	**15**	**1**	**725**
Bank Edge - Vegetative	DEBRIS ARRESTOR	2	11	1	1	2	17
	DEBRIS FENCE	3	212	122	98	32	467
	WILLOW	7	349	473	183	54	1,066
	Total	**12**	**572**	**596**	**282**	**88**	**1,550**
Bank Edge - Structural	BLOCKLINE	3	25	4	3	1	36
	DEMOLITION LINE		2	7	6		15
	FASCINE		2				2
	FENCE RAIL IRON NET		8	14		1	23
	GROYNE	5	912	292	34	10	1,253
	RIPRAP	30	233	49	13		325
	Total	**38**	**1,182**	**366**	**56**	**12**	**1,654**
Grand Total		**577**	**3,423**	**1,538**	**560**	**104**	**6,202**

greater WELLINGTON
REGIONAL COUNCIL
Te Pane Matua Taiao

Report	**2018.356**
Date	17 August 2018 CCAB-10-560
Committee	**Environment**
Author	**Alistair J N Allan, Team Leader FMP Implementation**

Floodplain Management Plan Implementation: Annual Progress Report to June 2018

1. Purpose

To advise the Environment Committee of progress made to June 2018, in implementing the Hutt, Otaki, Waikanae and Pinehaven Floodplain Management Plans, the Lower Wairarapa Valley Development Scheme (LWVDS), Te Kauru FMP and the Waiohine River FMP.

2. Background

This is the sixteenth (16) annual report on the implementation of the Western Floodplain Management Plans and the eleventh (11) annual report on the Wairarapa capital works.

2.1 Western Floodplain Management Plans

The Hutt, Otaki, Waikanae and Pinehaven Floodplain Management Plans (western FMPs) were completed in 2001, 1998, 1997 and 2016 respectively. They recommend structural, non-structural and environmental measures to reduce the flood risk to the respective floodplains and improve the environment. Greater Wellington Regional Council (GWRC) has adopted a 40-year time frame to fully implement the four FMPs. Implementation of the FMPs commenced in 2000.

The river and stopbank works adjacent to the Hutt City Centre have been repackaged as the joint organisation RiverLink project which is identified as a separate project for GWRC within the 2018-2028 LTP.

A review of the Otaki FMP continues. Work on this review is not expected to be completed until 2019, at which point implementation of projects will be recommenced. An exception to this is the Waitohu stream channel and Convent Road stopbank project which has continued alongside the review.

2.2 Wairarapa Capital Works

2.2.1 LWVDS

A major review of the LWVDS, completed in 2006, recommended a structural upgrade programme to improve the security of the flood defences in the lower Wairarapa valley. The original programme was for implementation over 8 years, commencing in 2007/08. Generally the work involved strengthening river bank protections and upgrading stopbanks on the Ruamahanga and Tauherenikau Rivers. In 2011, Council approved a revised programme of works extended for a further 3 years.

2.2.2 Waiohine FMP

The Waiohine FMP development process was restarted in a joint process with the community, it is anticipated that this process will complete in the 18/19 financial year.

Implementation will commence once the FMP is completed. The 2018-2028 Long Term Plan includes funding for delivery of these outcomes following agreement of the FMP.

2.2.3 Te Kauru Upper Ruamahanga FMP

The process for developing a FMP for the upper Ruamahanga floodplain commenced in 2013/14. Implementation will commence once the FMP is completed.

The 2018-2028 Long Term Plan includes funding for delivery of these outcomes following agreement of the FMP.

3. Summary Progress

The 2018 to 2028 LTP has included adjusted work programmes that accommodate the delays experienced in completion of the Floodplain Management Planning processes for Te Kauru and Waiohine, and delays in completion of the Otaki FMP review. Funding the delivery of RiverLink has also been taken into consideration in adjustments made to forecast delivery programmes detailed in councils infrastructure strategy.

Attachments 1 to 5 provide a summary by project of implementation progress. Table 1 below shows the summary of financial progress to date and the forecast to 2028. The progress shown in Table 2, as '% complete' to June 2017 and the forecast progress to 2028 has been calculated by discounting current dollar value to dollar value at the time of adoption of the respective FMPs.

A new set of measures have been developed and incorporated into the 2018-2028 LTP. These measures have been adjusted with support and input from Audit NZ and provide improved accuracy and a more repeatable reporting process.

The issue, raised by audit NZ in their review for 2017/18, was created by a combination of inflation effects, changes to the natural resources plan affecting project delivery costs, and changes to market construction costs. This meant that over time the relationship between project delivery costs developed in

2001 bore little resemblance to todays and future project delivery costs. The developed solution, incorporated into the 2018-2028 LTP, disconnects project delivery cost from project delivery benefit to enable a more accurate measure of progress. The progress summary table 2 below was developed as a method to show progress towards completion of FMP outcomes. The method uses dollars spent as a proxy for a progress towards outcome indicator. This method will be removed and replaced for the 2018-2028 LTP period. This change will first be reported in the 2018/19 annual reports.

Table 1: Expenditure Summary

River	Original FMP Total 40 year estimate ($M)[1]	Expenditure in 2017/18($M)[2]	Expenditure to June 2018($M)[2]	Total expenditure forecast to 2028 ($M)[2]
Hutt	78.00[1]	27.2	79.9	112.8
Otaki	12.07[1]	0.0	8.3	12.6
Waikanae	8.69[1]	0.9	7.7	6.4
Pinehaven	5[1]	0. 2	1	5.7
Total western FMPS	**-**	**28.4**	**96.9**	**137.5**
LWVDS	8.8[1]	0.2	7.5	30.1
Waiohine	11.4[1]	0.0	1.5	13.8
Total Wairarapa	**-**	**0.2**	**9.0**	**44.0**
Total	**-**	**28.6**	**105.9**	**181.4**

Notes:

1. Hutt, Otaki, Waikanae and LWVDS budgets are based on 1999, 1998, 1997 and 2007 dollar (FMP dollars) values respectively. Waiohine and Pinehaven are 2008 and 2014 estimates.

2. Expenditure figures are the sum of expenditure to date in current dollars and the budget (indexed) provided in the current Annual plan. The figures shown are current, and have not been backdated to dollar values at the time the FMP's were developed.

Table 2: Progress Summary

River	Budget/Expenditure FMP dollars			
	Total original FMP estimate ($M) [1]	Expenditure to June 2018 ($M) (indexed to FMP dollars)	Actual to June 2018 in dollar terms	Forecast to June 2028 in dollar terms
Hutt	78	79.9	NA	NA
Otaki	12.07	8.3	69%	88%
Waikanae	8.69	7.7	89%	81%
LWVDS	12.7	7.5	59%	100%

Pinehaven	5	1.0	20%	100%
Waiohine	11.4	1.5	13%	100%

1. Hutt, Otaki, Waikanae and LWVDS budgets are based on 1999, 1998, 1997 and 2007 dollar (FMP dollars) values respectively. Waiohine and Pinehaven are 2008 and 2014 estimates.

4. 2017/18 Targets and achievements

4.1 Non-structural measures

The Hutt and Kapiti flood hazard information has been included in Hutt City and Kapiti District Plans. The Kapiti flood hazard has been amended to reflect the reduced flood risk from the Chrystalls stopbank and Jim Cooke Park realignment works. The Wairarapa flood hazard information has been included in the Wairarapa Combined District Plan.

A recommendation, by an independent commissioner, to include flood hazard information for Mangaroa and Pinehaven, has been supported by Upper Hutt City Council, however this decision on Plan Change 42 has been appealed and UHCC is in preparation for this appeal to be heard at the environment court.

4.2 Structural measures

4.2.1 Hutt River

The planning and design for the RiverLink project (City Centre stopbank and channel improvements) commenced in October 2012. The preliminary design for RiverLink has been adopted by HCC and GWRC who have included funding to deliver the project in their respective long term plans. The adoption of the preliminary design was a major milestone for the project which delivers on the urban design aspirations of HCC and the LTP priority outcome of Regional Resilience for GWRC. The project also supports or has positioned itself to be able to support delivery across several of GWRC's other LTP priorities, Freshwater Quality and Biodiversity, Regional Leadership and Public Transport.

The construction phase of this project is currently scheduled for commencement in 2021. However, programme alignment with Hutt City Council and the New Zealand Transport Agency will determine the final construction programme. Land purchase for the RiverLink project and strategic land purchase at other critical locations in the Hutt River are continuing.

The benefits in terms of flood damages saved are estimated at 35% on the basis of Hutt FMP works completed to date. The benefits on the basis of flood damages saved will be 66% when the flood protection upgrade and Melling Bridge replacement components of the RiverLink project are completed.

Property acquisition has continued, and approximately 60% of properties identified as required for delivery of flood protection components of the project

are now owned by GWRC, a further 20% are in some form of negotiation. The forecast property acquisition costs remain steady and the 2018-2028 LTP includes funding for these acquisitions. GWRC currently is acquiring property on a willing buyer/willing seller approach meaning the acquisition process is voluntary and subject to property owners approaching GWRC if they are interested in sale.

4.2.2 Kapiti Rivers

In Otaki, the Chrystalls stopbanks, the Rangiuru floodgates, the Mangapouri culverts and about 52% of the river management works upstream of SH1 are complete.

In Waikanae, the Kauri Puriri works, Otaihanga Road raising, Jim Cooke Park realignment and part of Otaihanga edge protections are complete. About 59% of the planned river management works are now complete. The Jim Cooke park stopbank works have been completed. Various amenity and environmental enhancement projects associated with the Jim Cooke Park project are ongoing.

The planting plan associated with enhancement works that are part of the Jim Cook Park stopbank upgrade project will be implemented in 2018/19 following completion of track improvements and removal of dangerous trees. The dangerous poplar trees adjacent to Jim Cooke Park have been made safe a number of times during the past year in response to storm damage, however this approach requires ongoing work and the long term plan is for removal of these aging poplar trees.

4.2.3 LWVDS

Implementation of the LWVDS development works programme commenced in 2007/08. In 2017/18 the Tainui project was completed, but the Pukio East Stopbank work was not completed due to delays in reaching land entry agreements with landowners. The works are programmed for completion in the current financial year. This will bring to a close the development works programme. While some further capital works may be required to secure scheme assets not major new works are programmed until a review of the Lower Valley scheme has been completed.

4.2.4 Pinehaven Stream FMP

Implementation of the structural measures has continued with the development of the design and consenting strategies. While this work is progressing there may need to be a hold point until the appeals to the flood hazard maps is resolved. It is not considered viable to continue with the structural measures based around the current catchment runoff properties if there is no certainty that we can manage future development in a way that will not increase the current rainfall runoff characteristics.

4.3 Environmental enhancement works

Environmental enhancement works continue across all rivers, in conjunction with large capital work projects. These enhancement works are guided by the

environmental strategies that exist for the Hutt, Otaki and Waikanae Rivers, and enhancement opportunities are suggested in the Pinehaven Stream FMP. These strategies generally include planting native trees, improving existing walkways or providing new amenity facilities.

The Hutt River Environmental Strategy Action Plan 2018, developed following a review of the 2001 Environmental Strategy, was accepted by Council in 2018.

Improvements have continued within the Taita and Pomare areas adjacent to the river. These works have included trail and track improvements, safety improvements and further native planting in and adjacent to the Robin Maud memorial area.

A review of the Waikanae Environmental Strategy, undertaken as part of the 10 yearly review of the Waikanae FMP, was completed in 2016 and has been used to guide work carried out in 2017. The work to develop an addendum to this strategy containing an action plan has been delayed and is now programmed for 2018/19.

In other works a fish ramp has been installed on the Waiwhetu Stream weir, supported by Friends of Waiwhetu Stream and GWRC supported Pinehaven School to develop and complete a stream enhancement project in Pinehaven Reserve, Upper Hutt.

4.4 Emergency Management

Most of the emergency management measures identified in the FMPs to enhance the existing systems have been completed. Providing flood warning to local authorities and selected land owners is continuing on an on-going basis. The Long Term plan 2018-2028 includes funding for additional warning systems including flow and rain gauging stations and for the implementation of the outcomes of a broader Flood Warning review recently completed.

4.5 FMP progress reviews

All three western FMPS have adopted a 40 year timeframe to fully implement with progress reviews proposed every 10 years. The 10 yearly progress review of the Waikanae FMP is now complete and the review of Otaki FMP has commenced. The programmed Hutt FMP review has been delayed and will be reconsidered upon completion of the RiverLink project.

The project to update the Lower Wairarapa Valley Development Scheme with a Floodplain Management Plan is delayed until the Waiohine & Te Kauru FMPs are completed.

5. The 2018/19 works programme

5.1 Western FMPs

The key western FMP projects for the coming year include:

- Support UHCC through its Plan Change 42 process within the environment court.
- Commencement of detail design and consenting phase for RiverLink
- Continuing to progress property acquisition for the Riverlink project in alignment with the project property strategy.
- Development, as part of the ongoing RiverLink design, of a trial stormwater treatment wetland at Belmont to test methods and management techniques
- Completion of the amenity and environmental enhancement aspects linked to the completed Jim Cooke Park stopbank reconstruction project in the Waikanae River.
- Progressing with land entry negotiations for the lower Waitohu Stream channel works and review of the designs for the channel and stopbank upgrades.
- Design and implementation of the channel capacity improvements for the Pinehaven FMP.
- Addendum of an Action Plan to the Waikanae River Environmental Strategy to establish projects that will delivery strategy outcomes.
- Strengthening our relationships with mana whenua partners through our implementation projects
- Implementing upgrades to monitoring and gauging networks in our rivers and streams.

5.2 Wairarapa Schemes and FMPs

The key projects for the year include:

- Assessment of the Tauherenikau River gravel build up criticality
- Ruamahanga River Erosion protection works
- Completion of the Pukio East Dairy Ltd stopbank relocation project
- Continuation of Whakawhiriwhiri Stream improvement works

6. Communication

This report is written primarily for GWRC purposes. However, a copy will be sent to Territorial Authorities in the Region for their information.

7. Consideration of Climate Change

No decision is being sought in this report.

The matters addressed in this report have been considered by officers in accordance with the process set out in the GWRC Climate Change Consideration Guide.

7.1 Mitigation assessment

Mitigation assessments are concerned with the effect of the matter on the climate (i.e. the greenhouse gas emissions generated or removed from the atmosphere as a consequence of the matter) and the actions taken to reduce, neutralise or enhance that effect.

The effect of any works progressed under these plans and commissioned by GWRC will be addressed via GWRC's procurement process which is undergoing review in 2017 and will encourage suppliers and contractors to minimise emissions.

7.2 Adaptation assessment

Adaptation assessments relate to the impacts of climate change (e.g. sea level rise or an increase in extreme weather events), and the actions taken to address or avoid those impacts.

Climate change projections have been incorporated into the modelling that underpins the Floodplain Management Plans and designs of new flood protection projects, and is therefore an integral component of the associated designs and operational works.

8. The decision-making process and significance

No decision is being sought in this report.

This report provides an update on progress made with implementing the floodplain management projects and confirms that we are meeting the service improvement plans set out in the Council's Long Term Plan.

8.1 Engagement

Engagement on this matter is unnecessary.

9. Recommendations

That the Committee:

1. ***Receives*** *the report.*

2. ***Notes*** *the content of the report.*

3. ***Recommends*** *that a copy of the report be sent to the regions TA's*

Report prepared by:	Report approved by:	Report approved by:
Alistair J N Allan Team Leader, FMP Implementation	**Graeme Campbell** Manager, Flood Protection	**Wayne O'Donnell** General Manager, Catchment Management

Attachment 1 Hutt FMP Summary Progress Table
Attachment 2 Otaki FMP Summary Progress Table
Attachment 3 Waikanae FMP Summary Progress Table
Attachment 4 LWVDS Development Work Summary Progress Table
Attachment 5 Pinehaven FMP Work Summary Progress Table

Attachment 1 to Report 18.356

Hutt FMP Summary Progress Table

Work Area	Plan Achievements		Programme	
Structural	**Completed to June 2017**	**Completed 2017/18**	**Proposed for 2017/18**	**Proposed in 2018/2028 LTP**
Non-structural measures				
District Plan measures	The proposed UHCC District Plan change 42 amended to include Mangaroa and Pinehaven flood hazard.	Follow up work with the UHCC plan change		Complete UHCC plan change 42
Emergency Management Measures	A review of flood warning services has commenced	Further improvements to flood warning services proposed with the improvements in flood forecasting information	Upgrades to gauging and monitoring networks	Upgrades to gauging and monitoring networks
Voluntary Actions	Ongoing Providing hazard information	Ongoing Providing hazard information	Ongoing Providing hazard information	Ongoing Providing hazard information
Structural Measures				
River Mouth to Kennedy Good Bridge				
Ava to Ewen Project				Project is complete
Boulcott/Hutt stopbank	Land transfers completed including landscaping works			Project is complete
RiverLink City Centre Upgrade Project	Completed Preliminary Design Progressed land acquisition, progressed preliminary design, improved alignment between HCC, GWRC and NZTA.		Commencement of Notice of Requirements and Consenting	Completion of RiverLink Project
Estuary to Ava Bridge			Strategic land purchase if land owners offer to sell	Commencement of concept designs for Ava to Estuary stopbank upgrade works
Kennedy Good Bridge to Silverstream Bridge				

Belmont Edge protections and Norfolk Street flood gate	Completed edge protections to reduce erosion risk	Repairs to edge protections and enhancement planting		Project is complete
Principal stopbanks from KGB to Pomare and associated channel works				Complete Manor Park Stopbank upgrades and channel works

Silverstream to Maoribank				
Whirinaki Crescent (LB)				Project is complete
Ebdentown rock lining	Completed edge protections and planting works			Project is complete
Principal stopbanks from Trentham to Maoribank and associated channel works				No budget yet (post 2028)
Maoribank to Gemstone Drive				
Maoribank Riverbed stabilisation				Project is complete Further investigation works may generate additional erosion protection needs
Bridge Road edge protections				Project is complete
Akatarawa/Gemstone stopbanks				No budget yet (post 2028)
Environmental Strategy and FMP/HRES review				
Ranger Service	Continue with ranger service	Continue with ranger service	Continue with ranger service	Continue with ranger service
Enhancement works				
Ava to Ewen				Project is complete
Belmont				Project is complete
Whirinaki Crescent				Project is complete
Bridge Road/Ebdentown				Project is complete

Boulcott/Hutt				Project is complete
Hutt River Trail				
Estuary Bridge Underpass	Completed			Project is complete
Planting Native Trees	Completed planting of natives associated with completed construction projects	Planting continued	Continue planting natives	Continue planting natives
HRFMP progress Review				No budget allocated for review in 2018-2028 LTP
HRES Review (Hutt River Environmental Strategy Action Plan)	Review of HRESAP and reissued draft to stakeholders and partners. Added action plan component	GWRC endorsed HRESAP		Review is complete. Action plan has been incorporated into 2018-2028 LTP

Attachment 2 to Report 18.356

Otaki FMP Summary Progress Table

Work Area	Plan Achievements		Programme	
Structural	**Completed to June 2017**	**Completed 2017/18**	**Proposed for 2018/19**	**Proposed in 2018/2028 LTP**
Chrystalls				
Stopbank	Completed 2000			
Extended Stopbank	Construction and land purchase completed		Assist with upgrade to Chrystalls stopbank	Assist with upgrade to Chrystalls stopbank
Rangiuru Floodgates	Completed 2002			Project is complete
Lower Waitohu Stream Project includes South Waitohu and Convent Road improvements	Developed flood mitigation options and progressed with land entry negotiations	Progress land entry negotiations	Progress with land entry negotiations	Complete stream channel improvements and low stopbanks near Convent Road
North Bank Improvements				Project is complete
House Raising				
Lethbridge (02)				Provide house raising assistance to identified at risk properties
Rangiuru (22)				Provide house raising assistance to identified at risk properties
South Waitohu (06)	One house raising assistance enquiry received	Progress house raising assistance enquiry	Progress house raising assistance enquiries	Provide house raising assistance to identified at risk properties
Mangapouri Stream				No budget yet
Culverts (by KCDC)	3 Culverts			No further budget
Stream widening				No budget yet
South Bank Stopbank				Project is being reviewed as part of Otaki FMP review
Harpers Stopbank			Review business case	Project is being reviewed as part of Otaki FMP review
Lutz Upper and Lower Stopbank	Completed 1999			
Katihiku Floodgates				Project is being re-viewed as part of Otaki FMP review
Seaward Extension				Project is being reviewed as part of Otaki FMP review
River Management				
Katihiku	Concept designs completed			Project is being reviewed as part of Otaki FMP review

Gas Line	Concept designs completed			Project is being reviewed as part of Otaki FMP review
Batching/Campbells	Lethbridge edge protections completed			Project is being reviewed as part of Otaki FMP review
Bridges	Completed in 2009/10			Project is complete
Ballast/Tracey	Repairs to Traceys Groynes			Project is complete
Chrystalls Bend	Completed 1994	Assist PP2O project to design upgrade Chrystalls Extended stopbank as mitigation of SH1 construction effects	Assist PP2O project to design upgrade Chrystalls Extended stopbank as mitigation of SH1 construction effects	Assist PP2O project to design upgrade Chrystalls Extended stopbank as mitigation of SH1 construction effects
Hughes	North Bank only Concept designs completed			Project is being reviewed as part of Otaki FMP review
Hughes/Lutz	North Bank only Concept designs completed			Project is being reviewed as part of Otaki FMP review
Taylor/Mansell	North Bank only Concept designs completed			Project is being reviewed as part of Otaki FMP review
Lower Gorge				Project is being reviewed as part of Otaki FMP review
Non-structural				
Non-structural in KCDC DP	Completed 1997 with updates in 2004 and 2009			Plan Change forecast to commenced by KCDC for 2018-2028 LTP period
GWRC Advice	Ongoing	Ongoing	Ongoing	Ongoing
Community Preparedness	Ongoing	Ongoing	Ongoing	Ongoing
Environmental Strategy				
Mouth	Weed clearing completed on north bank	Planting and maintenance Ongoing	Ongoing	Ongoing
Chrystalls Bend	Completed 1995 Further enhancement completed 2011			
Walkway through Winstones	Completed 2004		Assist PP2O project with designs for Chrystalls Extended stopbank upgrade and walkway improvements	Assist PP2O project with designs for Chrystalls Extended stopbank upgrade and walkway improvements
Walkway to Chrystalls	Completed including the section under SH1 and rail bridge		Assist PP2O project with designs for Chrystalls Extended stopbank upgrade and walkway	Assist PP2O project with designs for Chrystalls Extended stopbank upgrade and walkway

			improvements	improvements
Walkway to Rahui				Continue with land entry negotiations
Environmental Strategy	Prepared 1999		Commence review following completion of FMP review	Complete review following completion of FMP review
Friends initiatives	Ongoing support	Ongoing support	Ongoing support	Ongoing support
FMP Review				
FMP review	Review commenced		Complete Review	Complete review

Attachment 3 to Report 18.356

Waikanae FMP Summary Progress Table

Work Area	Plan Achievements		Programme	
Structural	**Completed to June 2017**	**Completed 2017/18**	**Proposed for 2018/19**	**Proposed in 2018-2028 LTP**
Kauri-Puriri Works				
Stopbank	Completed 1997			
Greenaway Road Raising	Completed 1997			
Remove Riverside Lodge	Completed 1997			
Chillingworth Stopbank	Completed 1997			
Jim Cooke Park Stopbank reconstruction	Completed construction of stopbank upgrades	Landscaping and	Complete environmental enhancement and mitigation planting	
Otaihanga Road Raising				
Stage 1	Completed 2000			
Stage 2	Deferred			
Stage 3	Completed 2003			
House Raising				
73 Makora Rd	Completed 2006			
11 & 13 Toroa Rd	Completed 2000			
15 Toroa Rd	Completed 2006			
21 Makora Rd	Completed 2006			
61 Makora Rd	Deferred			
1 -17 Makora Rd	1 house raised (Boating Club)			
Lion Park Ringbank				No budget forecast in 2018-2028 LTP
Waikanae Beach				
Golf Course Stopbank				
Lengthen Fieldway Bridge				
River Management				
Mouth				
Otaihanga	Rock edge protection 220 m completed			
El Rancho	Completed 1997			
Greenaway Road				
Jim Cooke Park	Completed 2008			
River Glade	Completed 2000			
Kebbels	Completed 2000			
Edgewater Park	Completed 2000			
State Highway One	Completed 2000			

Non-structural				
Non-structural in KCDC District Plan	Completed 1997 with updates in 2004 & 2007		Prepare information to assist future plan change	Update as required
GWRC Advice	Ongoing	Ongoing	Ongoing	Ongoing
Community Preparedness	Ongoing	Ongoing	Ongoing	Ongoing
Environmental Strategy				
Pukekawa Reserve	Completed 1997			
SH1 to Maple Lane	Completed 2000			
Jim Cooke Park	Footbridge completed	Progress with landscaping and environmental enhancement works	Complete enhancement planting plan. Including removal of dangerous trees	
General	Tree clearing and track maintenance	Tree clearing and track maintenance	Tree clearing and track maintenance	Supporting Friends initiatives
Ecological Strategy	Prepared 1999	On going	On going	On going
Environmental Strategy	Published the reviewed strategy		Implementation Add action plan addendum to environmental strategy	On going
FMP Review				
FMP Review	Completed			

Attachment 4 to Report 18.356

LWVDS Development Work Summary Progress Table

Work Area	Plan Achievements		Programme	
Structural	**Completed to June 2017**	**Completed 2017/18**	**Proposed for 2018/19**	**Proposed in 2018/2028 LTP**
Ruamahanga River				
Stopbank shifting	80%		10%	100%
Top up stopbank	50%		Complete	
Tauherenikau River				
Stopbank upgrade	100%			
Turanganui River				
Stopbank upgrade	100%			
Tauanui River				
Stopbank construction/shifting	60%	100% Completed	40%	Project is complete
River Management				
Ruamahanga River				
Waiohine to Waihenga - Willow buffer zone Bank Protection Fencing	100% 100%	80%	5%	Complete
Waihenga to Tuhitarata – Removal of overburden from berm		40%		This work to be undertaken with future FMP stopbank shifting work
Tuhitarata to Lake Onoke – Boulder rip rap Planting	 100%	85%	Complete	Complete
Tauherenikau River Willow buffer zone Fencing	 100% 100%			
Tributaries Willow buffer zone Land purchase Whakawhiriwhiri	 100% 100%	20%	80% - continued landowner entry negotiations may further delay completion	Complete
Non-structural				
No non-structural work				
Environmental Enhancement (Native Planting)				
Ruamahanga River	90%	5%		Complete
Whakawhiriwhiri Stream			Continued landowner entry negotiations may further delay	Complete

			completion	
FMP Review				
FMP review				Complete review – review is likely to be postponed due to completion of the Te Kauru and Waiohine FMPs

Attachment 5 to Report 18.356

Pinehaven FMP Work Summary Progress Table

Work Area	Plan Achievements		Programme	
Structural	**Completed to June 2017**	**Completed 2017/18**	**Proposed for 2018/19**	**Proposed in 2015/2025 LTP**
1. Pinehaven bypass culvert to Sunbrae Drive		Design for construction and consents	Design for construction and consents	Complete
2. Sunbrae Drive to Pinehaven Road		Design for construction and consents	Design for construction and consents	Complete
3. Pinehaven Road to Pinehaven Reserve		Design for construction and consents	Design for construction and consents	Complete
4. Upper Catchment				Complete
5. Strategic land purchase	3 of 3 full properties purchased		Secure land entry requirements to enable structural works, may require additional partial property purchase.	Land purchase specified in FMP is complete
Non-structural				
Plan Change 42		Plan Change 42 completed by UHCC	Support UHCC through PC42 appeals process	Complete – required prior to commencement of structural works
Upper catchment private crossing improvements – community led project				To be scheduled in 2021-31 LTP
Environmental Enhancement				
Willow park enhancements				Complete
Pinehaven Reserve enhancements		Commenced community led enhancement works within Pinehaven Reserve	Support community project initiatives	Complete - Community led project
FMP Review				
FMP review				To be scheduled in 2021-2031 LTP

greater WELLINGTON
REGIONAL COUNCIL
Te Pane Matua Taiao

Report	**2018.402**
Date	11 September 2018
File	CCAB-10-565
Committee	**Environment Committee**
Author	**Penny Fairbrother, Senior Science Coordinator**

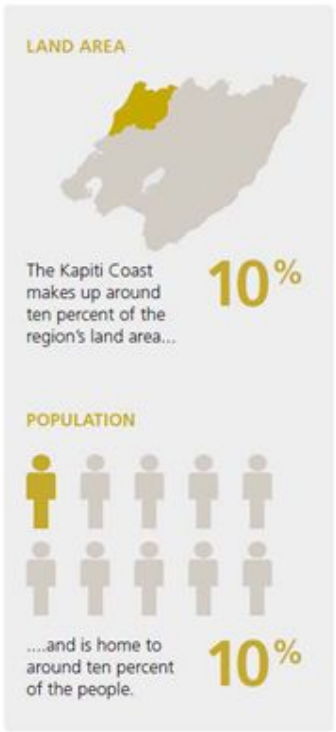
Are we meeting our environmental outcomes in the Kāpiti Coast catchment?

1. Purpose

To discuss the state of the environment in the Kāpiti Coast catchment, particularly with respect to whether we (GWRC) are achieving our desired environmental outcomes.

2. Background

Home to the towns of Otaki, Waikanae, Paraparaumu and Paekakariki, the Kāpiti Coast makes up around ten percent of the region's land area (694km^2) and is home to around ten percent of the people.



The Kāpiti Coast boasts long sandy beaches and is a popular holiday destination. The two major rivers are the Otaki and Waikanae, which flow from their headwaters in the Tararua Ranges out to the west coast. These rivers have cut deep valleys in the Tararua foothills and deposited large alluvial gravel fans which form the base of the coastal lowland system.

Groundwater is found virtually throughout the entire area, and is divided into four major zones;

- Otaki (or Waitohu)
- Te Horo
- Waikanae
- Raumati

The mild climate, fertile soils and good freshwater resources support a huge range of horticultural activities in this area.

3. What are the environmental outcomes we are trying to achieve?

The Environment and Catchment Management groups have come up with some shared outcomes that are the driving basis for our work. These are shown in **Figure 1** below.

All outcomes are inextricably linked, but some key points to note are:

- In terms of our operational activities, they are largely directly working towards achieving the two outcomes *Resilient community* (**refer section 5 of this report**) and *Healthy environment* (**refer section 6 of this report**).
- *Maintaining or improving water quality* does not happen in isolation. Water quality is in fact driven by everything we do "Te uta te kai" (from the mountains to the sea). The diagram represents the fact that improving water quality is not something that can happen in isolation, but will be a result of everything else we do – most importantly, how we manage our land-based activities.
- To achieve all this, we (GWRC) cannot do this alone. Everyone has their part to play, so we must ensure that we have *engaged communities, participating communities, trusting partnerships* and *iwi are true partners.*
- Not all of the outcomes can be evaluated by traditional science measures. Determining whether we are being successful in achieving the community, partnership and iwi outcomes will require further qualitative assessment however, some brief comments have been made in **section 7** of this report.

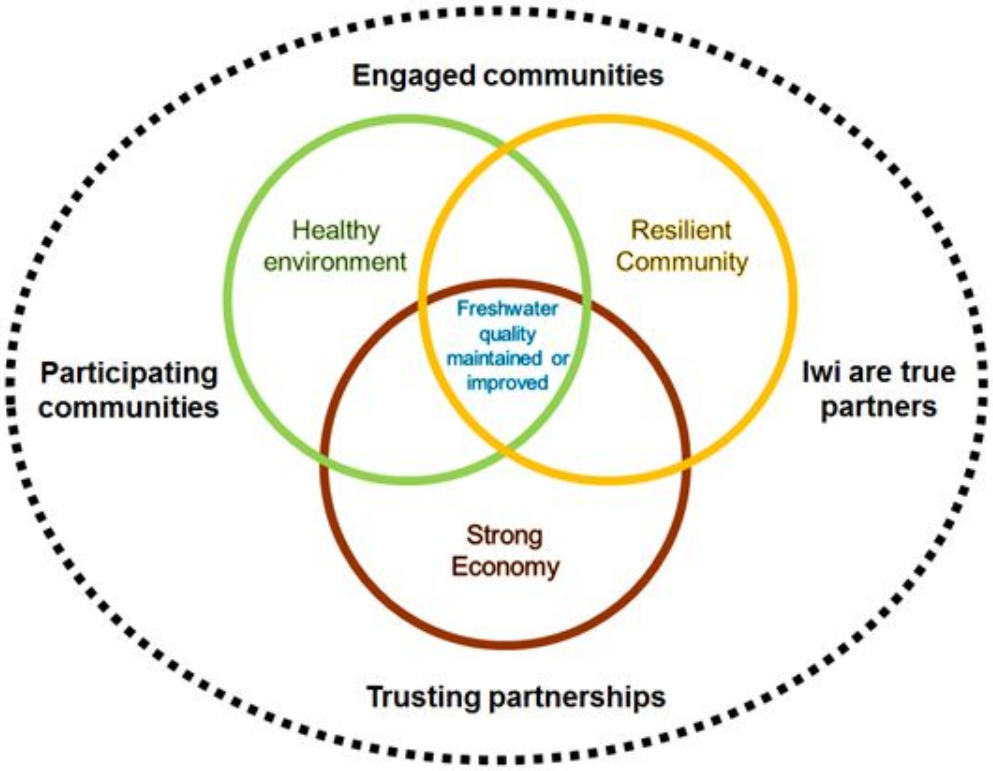


Figure 1. Environment and Catchment Management shared outcomes

4. Policy Context

The National Policy Statement for Freshwater Management (NPS-FM) was introduced in 2011, revised in 2014 and updated again 2017. Each iteration has tightened the national direction around freshwater quality, but the key message is that the overall quality of freshwater should be maintained or improved. The 2017 amendments strongly direct that water quality needs to be suitable for swimming more often.

GWRC's Regional Policy Statement (RPS) identifies regionally significant issues around the sustainable management of the region's natural and physical resources. The quality of water in rivers, streams, lakes, wetlands and groundwater is considered an issue of significance in the RPS (chapter 3.4). Both regional and district plans are required to give effect to the RPS.

The proposed Natural Resources Plan (pNRP) was developed in accordance with the Resource Management Act 1991 (RMA) and will replace the five existing Regional Plans. It sets out the objectives, policies and methods (including rules) for the use of the region's natural and physical resources.

Of particular interest for the Kāpiti catchment are the 2017 amendments to the RMA that raised the prominence of natural hazards.

Section 6 of the RMA sets out matters of national importance that decision-makers must recognise and provide for, and previously there was no reference to managing the risks from natural hazards in this section. Section 6 has been amended to add 'the management of significant risks from natural hazards'. The intent of this change is to provide an explicit mandate for decision-makers to manage risks from natural hazards and supports:

- Sections 30 and 31 of the RMA, which prescribe natural hazard management as functions of both regional councils and territorial authorities

- An amendment to section 106 of the RMA, which requires consideration of all risks from natural hazards in subdivision consent applications.

5. Environmental Outcome – Resilient Community

5.1 What does this mean?

This is about ensuring our communities are healthy, safe, prosperous and prepared. The key things we do in this regard are:

- Ensuring security of water supply for drinking and other needs
- Protection of homes and land against flooding and other natural hazards
- Working with communities to cope with the impacts of climate change
- Work with local councils to ensure air quality meets national standards and guidelines.

5.2 Ensuring security of water supply for drinking and other needs

5.2.1 What the science is saying…

Rainfall and water levels

Figures 2 to 6 show monthly rainfall totals for the 2017/18 year compared to the long-term averages at Otaki, Waikanae, Paraparaumu, Paekakariki and in the Tararua's. These results show:

- 2017/18 rainfall totals, i.e., the amount of rain received over the entire year, was above average at all sites
- Some months were very wet and some months were very dry
- Notable wet months were July, August and February, with February totals at some sites reaching up to 300 percent of the average
- The three months from October to December 2017 were very dry, particularly in Otaki, Waikanae and Paraparaumu
- The long-term averages show that January, February and March are generally the driest months on the coast.

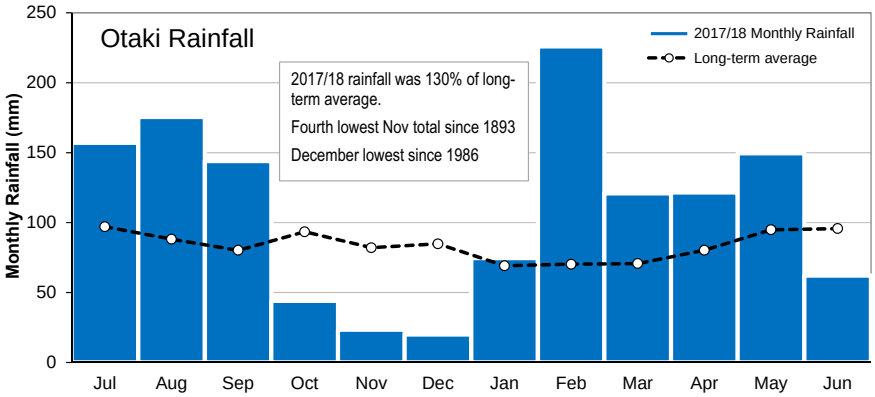


Figure 2. 2017/18 monthly rainfall totals for Otaki

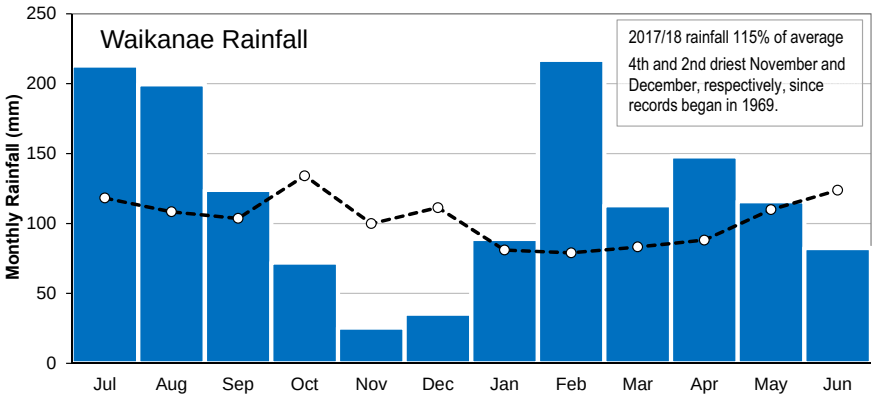


Figure 3. 2017/18 monthly rainfall totals for Waikanae

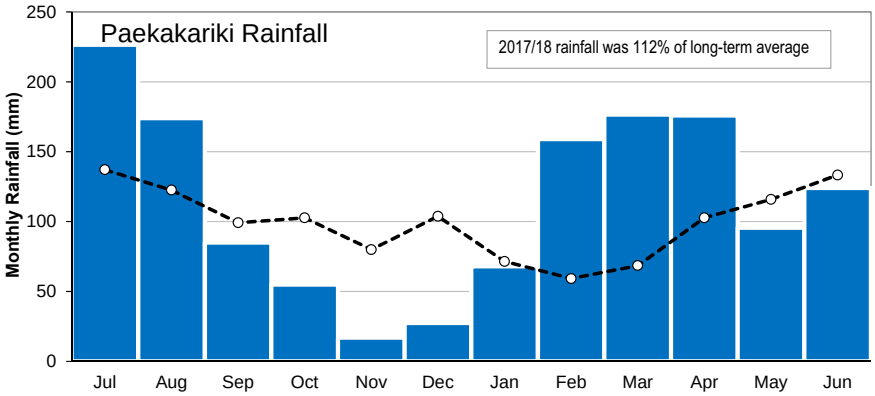


Figure 4. 2017/18 monthly rainfall totals for Paekakariki

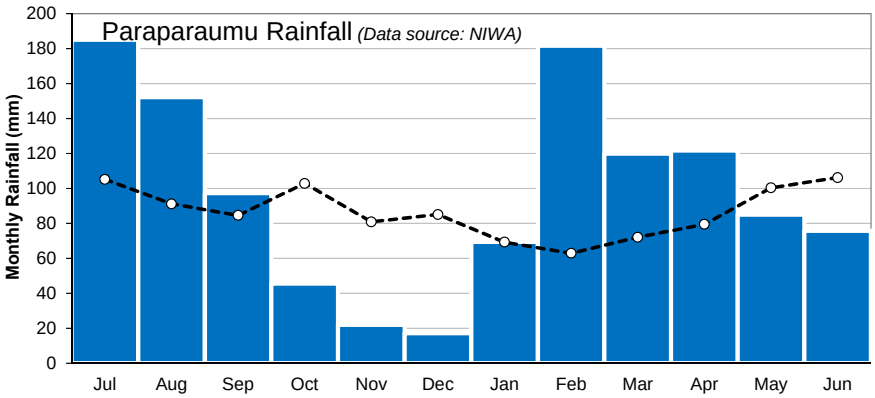


Figure 5. 2017/18 monthly rainfall totals for Paraparaumu

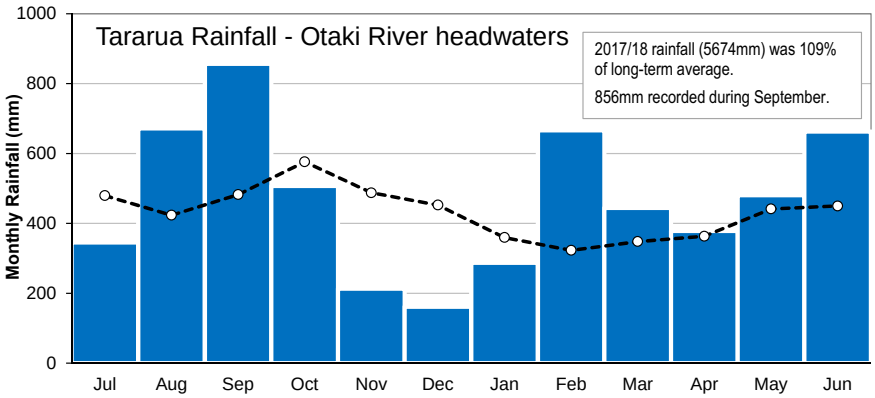


Figure 6. 2017/18 monthly rainfall totals in the Tararua Ranges

Figures 7 and 8 show monthly river flows in the Waikanae and Otaki rivers for the 2017/18 year. These results show:

- As for rainfall, river flows were also slightly above average across the whole year
- August and September recorded especially high flows, particularly in the Waikanae River
- The November to January period saw very low flows in both rivers.

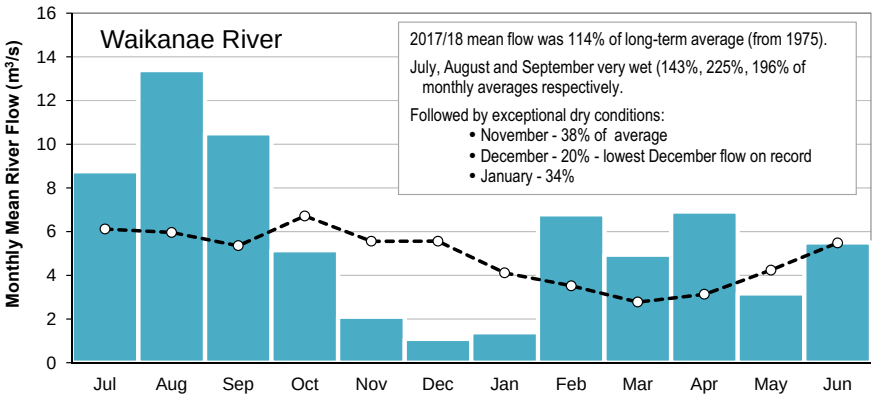


Figure 7. 2017/18 Monthly River flows for the Waikanae River

The Waikanae River provides public water supply for the Waikanae, Paraparaumu and Raumati areas. While dry conditions in early summer caused the Waikanae River to drop to very low levels, the river recharge scheme meant that restrictions were not imposed on abstracting water for public supply.

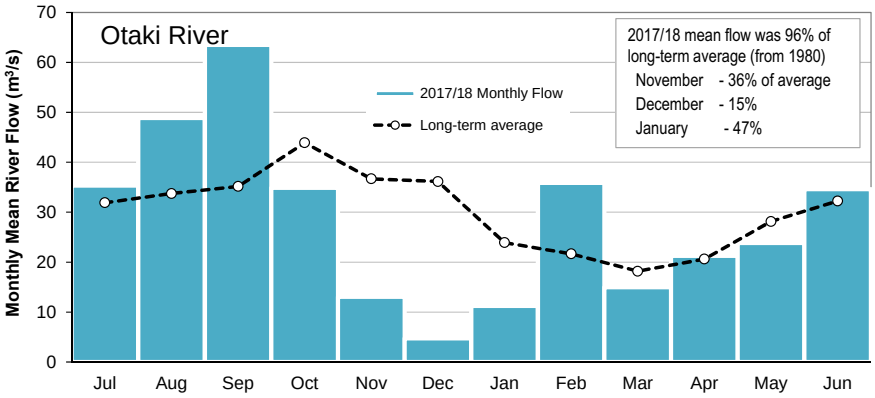


Figure 8. 2017/18 Monthly River flows for the Otaki River

The Otaki River is closely linked to groundwater sources used to supply Te Horo and Otaki.

Figures 9 and 10 show monthly groundwater levels in the Otaki and Raumati groundwater zones. These display a similar trend to the measured rainfall and river flows, with levels that were well above average in August and September and quite low during the period December-February.

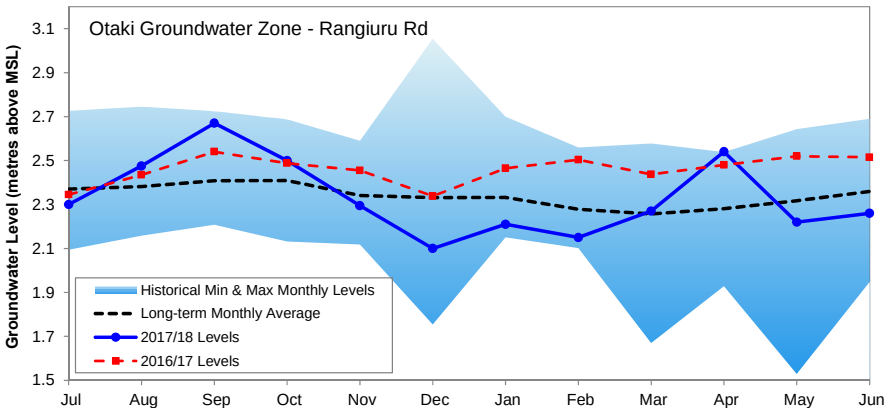


Figure 9. Groundwater levels in the Otaki groundwater zone

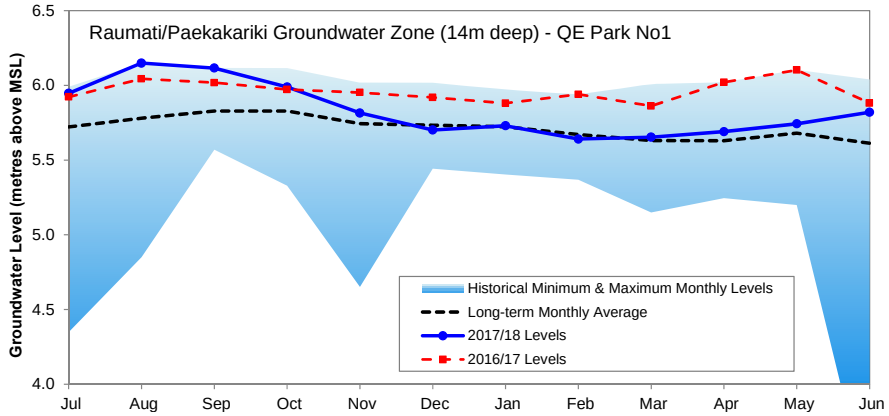


Figure 10. Groundwater levels in the Raumati groundwater zone

Water supply for the areas of Otaki, Te Horo and Paekakariki come from groundwater sources.

5.2.2 What are we doing about it?

We know that dry summers can put major pressure on water supply and managing demand in dry periods is critical. This is particularly so up on the coast – ask any Kapiti Coast resident and they'd say it's not unusual for summer (particularly late summer) to be pretty dry, and that restrictions in summer on outdoor water use (i.e., washing cars or boats, watering the garden or lawn) are fairly commonplace.

In 2014 Kapiti Coast District Council introduced water meters and charges to encourage people to reduce their water use. Water consumption across the

district has reduced by more than 26% since these water meters were introduced.

GWRC manages effects on the environment during dry periods through monitoring minimum flows or aquifer pressures, and applying water level restrictions on consent holders when required.

Water allocation

The amount of water allocated through resource consents on the Kapiti Coast area has been relatively stable over the past few decades. Public water supply is the largest user of surface and ground water, accounting for about two thirds of all water use. Of the remaining consented water use, about half is allocated to horticultural activities. Irrigation of pasture for stock is the next largest user.

All consents have conditions that require the holders to reduce or cease taking water based on a minimum flow level or aquifer pressure. These are in place to protect ecological health (in the case of rivers, streams and wetlands), or in the case of aquifers, irreversible salt water intrusion.

There are four water courses on the Kapiti Coast with specified allocation amounts in the pNRP; the Waikanae and Otaki rivers, and the Mangaone and Waitohu streams. Figure 11 shows the allocation status of each.

The Waikanae River is considered fully allocated (which simply means the existing allocation is higher than the default allocation amount in the pNRP). Existing allocation is below default allocation amounts in the pNRP in the other three water courses, i.e., water is still available to allocate.

Rivers that are fully allocated (such as the Waikanae) warrant the most careful consideration through the whaitua process; these rivers should not at this stage be considered “over-allocated”. Further technical evidence is required to better determine the appropriate allocation status.

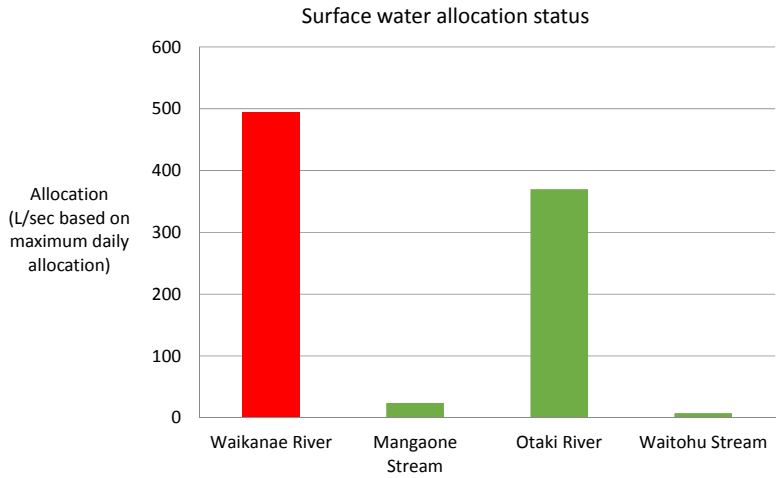


Figure 11. Surface water allocation status for rivers and streams on the Kapiti Coast. Red indicates the water course is fully allocated and green indicates further water is available to be allocated.

With respect to groundwater, there are four aquifers in the area with specified allocation amounts in the pNRP. The Waikanae and Raumati aquifers are the most heavily used and close to being fully allocated. Considerably more groundwater is still available to allocate from the Te Horo and Waitohu aquifers.

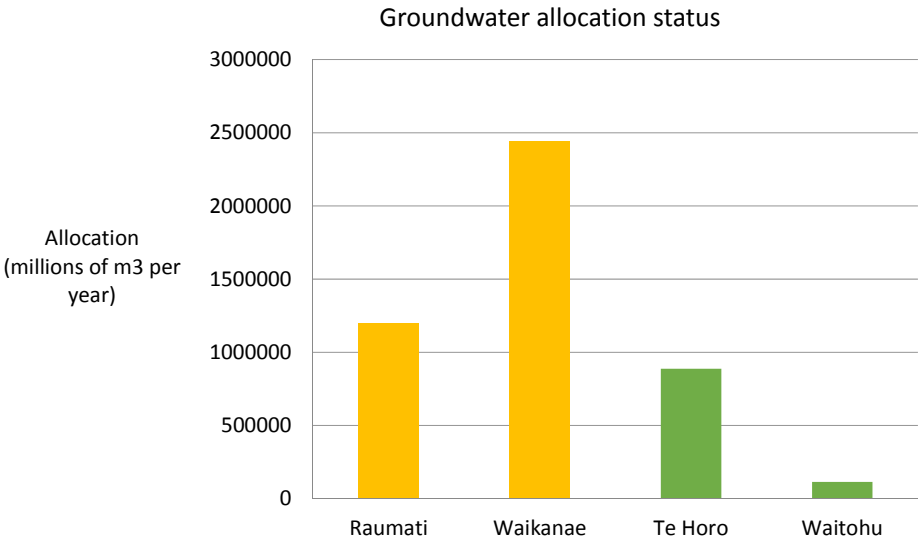


Figure 12. Groundwater allocation status for aquifers on the Kapiti Coast. Orange indicates the aquifer is close to being fully allocated and green indicates further water is available to be allocated.

The pNRP deals with over-allocation in a number of ways, including:

- *Prohibited activity for 'new' water* – under the pNRP, if adopted as currently written, any consent for a 'new' water take in a fully allocated

catchment will be a prohibited activity. This does not apply to renewals of existing consents or where it is demonstrated as being essential for the health needs of people or stock drinking water.

- *Efficiency* – All renewals and new consents are required to demonstrate that the amount applied for is reasonable and will be used efficiently. In addition consent holders are increasingly using advanced technology such as soil moisture technology to ensure they are only irrigating when it is actually required.
- *Water metering* – All allocated takes over 5L/s are required to meter their actual water usage. Water meter records will help determine the actual needs of the consent holders and more closely align allocated takes with actual usage.
- *Attrition* - Allocation will be clawed back over time as consents are surrendered or renewed for lesser amounts (due to water meter records or efficiency tests showing less water is needed).

5.3 Protection of homes and land against flooding and other natural hazards

5.3.1 What the science is saying…

We monitor a number of rivers and streams for flood warning purposes. The table below shows the number of times flood warning alarms were activated over the previous three years.

Site	2015/16	2016/17	2017/18
Otaki River	4	8	1
Waikanae River	5	6	2
Waitohu Stream	0	1	0
Mangaone Stream	1	1	0
Totals	**10**	**17**	**3**
Comment	Around average rainfall	Wetter than normal year	Slightly above average rainfall
Any significant flood events?	**29 October**: Waikanae River 4-yr return	**17 September:** Waikanae River 4-yr return **10 and 15 November:** Waikanae River 3-yr and 6-yr return **2 February**: Otaki River 8-yr return Waitohu Stream 5-yr return Waikanae River 14-yr return	

The previous few years have seen the Waikanae River experience a number of high flow events. In 2016/17 it experienced four major flood events over the spring/summer period – something that hasn't been seen since 1977.

A recent study undertaken by NIWA on regional climate change projections shows the western side of the region is likely to become wetter (up to ten percent more rainfall per year by 2090), and extreme rainfall events are likely to become more extreme and more common. This essentially means that storms are going to be bigger and more frequent, with less rain in between. This pattern is only going to increase the risk from flooding.

5.3.2 What are we doing about it?

In this area, we manage flood protection schemes for both the Otaki and Waikanae rivers.

1. The Otaki River Floodplain Management Plan (Otaki FMP) was established in 1995 and covers the stretch of the river from Otaki Gorge to the sea.
2. The Waikanae River Floodplain Management Plan (Waikanae FMP) was established in 1997 and covers the stretch of the river from just west of Waikanae township to the sea.

The plans set out a combination of structural and non-structural measures to manage flood risks, and are accompanied by environmental strategy documents responding to the community's aspirations for the rivers. We are well advanced through implementing the structural measures, and have delivered on most of the non-structural measures which include planning controls (through district plans) that restrict development in vulnerable areas.

Most recently the Jim Cooke Park stopbank upgrade project was completed, improving flood protection for Waikanae to a 1-in-100 year level event.

The Waitohu Stream Project (part of the Otaki FMP) is attempting to address frequent flooding to properties adjacent to Convent Road and Old Coach Road. The project has been challenging due to the need to undertake works on private land.

Ongoing annual operations and maintenance activities are carried out to:

- Manage riverbed levels
- Respond to erosion that puts assets at risk
- Maintain the safety and quality of resilience assets, i.e., riparian planting.

The consents that relate to these works are currently being renewed, using a new approach including a stronger partnership with iwi. A recently signed joint management agreement will see planning and delivery in the Otaki catchment carried out with Nga Hapu o Otaki and Ngati Raukawa. Activities in the Waikanae catchment are being carried out through a consultative model with Te Atiawa ki Whakarongotai.

Outside of the managed areas, the care and maintenance of watercourses is the responsibility of the landowner or local authority. However under the watercourses agreement with local authorities we undertake work to maintain clear flood ways. This is limited to the removal of obstructions in the river or

stream channel and does not provide for erosion repairs or work to protect private properties or assets.

The understanding of these responsibilities creates an ongoing tension between GWRC, the communities adjacent to these watercourses and KCDC. Large parts of low lying coastal and dune areas have been developed, and continue to be targeted, for urban development. This has resulted in an increased service demand because of their vulnerability.

To assist landowners who are responsible for looking after rivers and streams outside of a managed area, we aim to ensure landowners are aware of what they can do 'as of right', i.e., without a resource consent. Where consent is required, we offer one hour of free pre-application advice and can make a site visit to discuss the best way to achieve the outcome the landowner is looking for. The landowner may also be able to access our "isolated works" funding which subsidises up to 30 percent of the cost of flood or erosion protection works that serve a community benefit outside of a FMP area.

5.4 Working with communities to cope with the impacts of climate change

5.4.1 What the science is saying…

Climate change is undoubtedly the biggest environmental challenge we face and will affect everyone in the region.

By 2090 the Kāpiti Coast area is expected to be 1-2.7 degrees warmer. There will be more rainfall (up to 10 percent increase annually), with an even greater increase in extreme rainfall events, which are projected to become more extreme and more common.

Westerly storms coming from the Tasman Sea will get significantly worse, dumping heavier rain and stronger winds. The combined effect of more rainfall and increased winds will significantly increase the risk of flooding and slips. Sea level rise will aggravate the problem in coastal areas, drastically increasing the risk of inundation.

Indeed the biggest threat to the coast is the combined effects of increased storms, high tides and sea level rise. The IPCC projections predict a sea level rise between 36cm and 98cm by 2100. However, the latest research now shows this prediction to be conservative. Taking into account the instability of the Antarctic ice sheet, these figures increase to between 68cm and 1.75m.

Figure 13 below shows the areas around Paraparaumu Beach and Otaihanga that could be permanently inundated under a sea level rise of 1.5m. **Clearly the Kāpiti Coast is very vulnerable to coastal inundation, and we need to prepare for it now while we still have time.**

Figure 13. Map showing areas around Paraparaumu Beach and Otaihanga that could be permanently inundated by the end of the century (dark red) under a sea level rise of 1.5m

These projections are based on a range of different climate change scenarios, depending on future global emissions of greenhouse gases. While some of the effects of climate change are now inevitable due to the amount of greenhouse gases that have been emitted in the past, it is possible for the global community to avoid the worst impacts of climate change by rapidly reducing emissions over the coming years.

5.4.2 What are we doing about it?

One of our first responses was to develop the Climate Change Strategy[1] which aligns and coordinates climate change actions across GWRC's responsibilities and operations, and ensures consideration of climate change is a core component of our decision making.

Alongside the work we are doing to reduce our own emissions and influence emissions reductions across the region, we are also focussing on better understanding the **implications** of climate change impacts.

The NIWA report *Wellington Region climate change projections and impacts* (available at www.gw.govt.nz/climate-change) and other studies we have commissioned have contributed significantly to that understanding. These also help inform stakeholders such as KCDC as they work with communities to understand and decide how best to respond to the challenges posed by climate change.

For the Kāpiti Coast, the most important considerations are sea walls and the relocation of infrastructure from at risk areas. Through the newly created Climate Change Working Group, which involves all territorial authorities in the region, we have been holding workshops with councillors, stakeholders and

[1] http://www.gw.govt.nz/assets/Climate-change/GWRCClimateChangeStrategy7-10-15.pdf

experts in order to understand the risks and discover joint strategies that will make the coastal area more resilient to the impacts of climate change.

We have also been working internally to discuss adaptation and mitigation strategies for the coast. For example, a recent workshop at Queen Elizabeth Park with park managers discussed the concept that '**Parks are a natural solution to climate change'**, highlighting their role in increasing our resilience and sequestering CO_2. We also discussed (for Queen Elizabeth Park) which types of infrastructure will need to be relocated away from the sea and how this could be done.

5.5 Work with local councils to ensure air quality improves and meets national standards and guidelines

5.5.1 What the science is saying…

Air quality is not monitored on a regular basis on the Kapiti Coast however; a couple of previous investigations have shown that the main pressure on air quality on the Kapiti Coast is smoke from home fires.

Monitoring carried out in Raumati South during 2010 found elevated winter levels of particulate matter from home fires. Arsenic was also detected and was likely a result of treated timber being burnt.

In August 2012 a night of intensive mobile monitoring was conducted in order to detect air pollution "hot spots". This confirmed that winter air quality is likely to be poorest in Raumati South, but there is also the potential for home fires to degrade air quality at Paraparaumu Beach.

It is speculated that the poorer air quality in Raumati South is due to the fore-dune ridge blocking the dispersal of wood smoke out to the sea, leading to a build-up of air pollution in a topographical 'basin'.

Figure 14: Air pollution from home fires affecting Raumati South (2009)

5.5.2 What are we doing about it?

To help our communities have warm, dry houses GWRC offers financial assistance (interest bearing targeted rate) to rate payers with properties built before 2000 for home insulation.

We have also recently launched the *Better Burning* campaign www.gw.govt.nz/better-burning, which is designed to encourage behaviour change that will lead to more home fires being "smoke-free".

6. Environmental Outcome – Healthy and Productive Environment

6.1 What does this mean?

This is about ensuring our environment is healthy and meets the needs of current and future generations. The key things we do in this regard are:

- Ensure soil quality is maintained or improved and erosion is reduced
- Protect terrestrial environments against pests and enhance native biodiversity
- Protect, manage and restore wetlands
- Protect freshwater bodies and coastal waters against pollution.

6.2 Ensure soil quality is maintained and improved and erosion is reduced

6.2.1 What the science is saying…

Soil quality on the Kapiti Coast is variable.

Overall soil health at a site is determined using a number of indicators which can be grouped into three broad categories:

- Physical condition (bulk density, macroporosity)
- Chemical condition (pH, carbon and nutrients)
- Trace elements (i.e., cadmium, copper and lead).

The number of indicators not meeting the target range determines the soil health grade (figure 15) for each site.

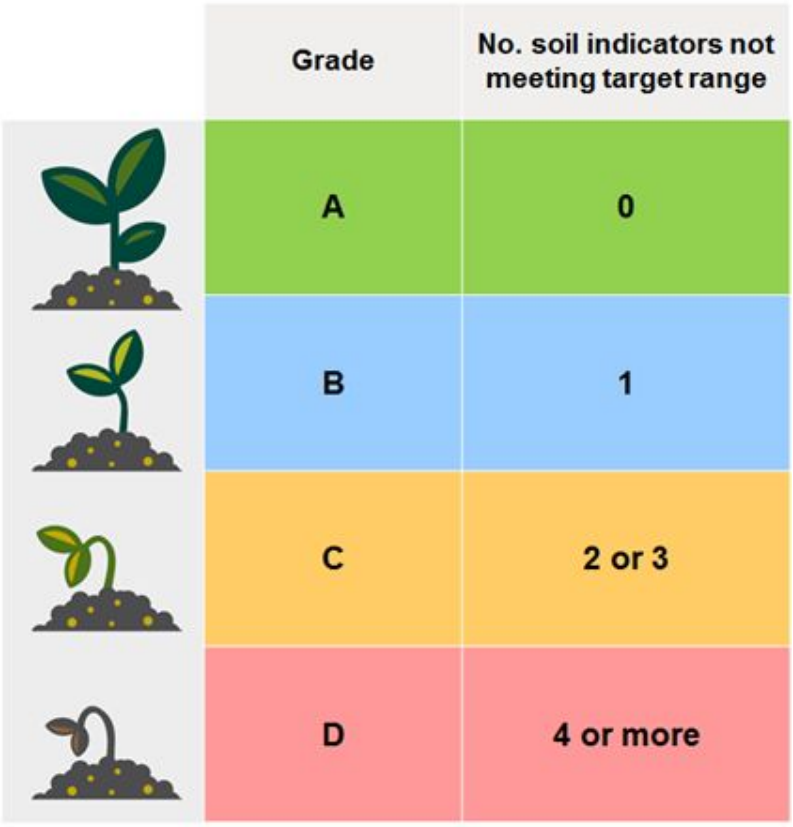


Figure 15: Soil health grades

Different types of sites are measured in different years, i.e., all the dairy sites are measured one year and then market gardening sites the next, etc. Sites are typically re-measured every three years. Figures 16-18 show the soil health grades for dairy, market gardening and drystock sites over the last five years.

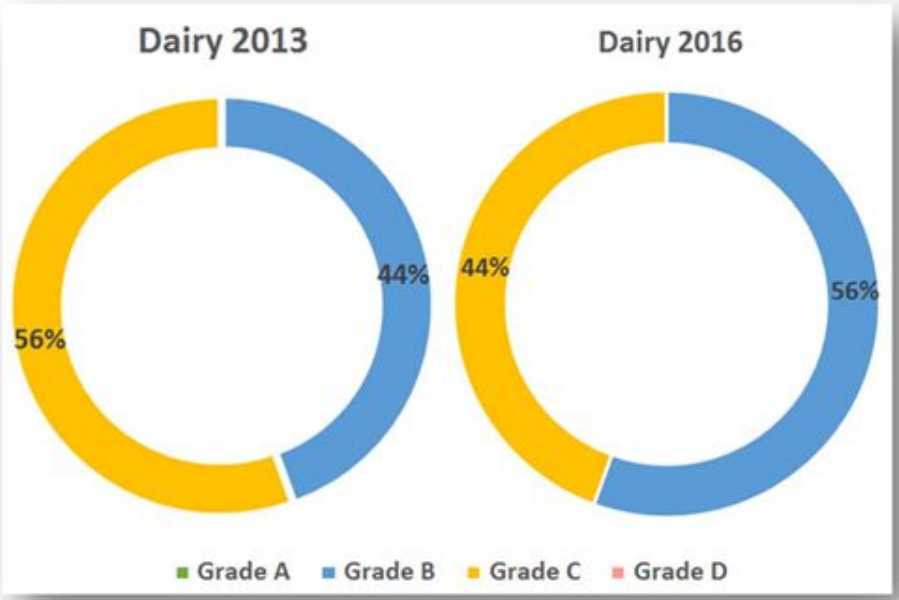


Figure 16: Soil health grades for dairy sites (9 sites) for years ending 30 June 2013 and 30 June 2016

Soil quality at these dairy sites is generally quite good with all sites being graded B or C. Note that while there has been an increase in the number of sites with a B grade, we cannot scientifically conclude that there has been an overall improvement in soil quality.

What is interesting is which indicators frequently fail to meet the target range. For these sites:

- All nine sites exceeded the upper limit of the target range for Olsen P (a measure of phosphorus)
- The majority of sites had **significantly** high levels of Olsen P, i.e., two to four times the upper limit
- Three sites (33%) also had elevated levels of nitrogen.

What this tells us:

- These sites have elevated levels of nutrients (particularly phosphorus) which could be a result of over-fertilisation
- Any sediment from soil erosion is likely to be carrying phosphorus and contributing to nutrient enrichment of surrounding waterways
- The physical condition of these soils is quite good, i.e., they do not appear to be suffering from compaction.

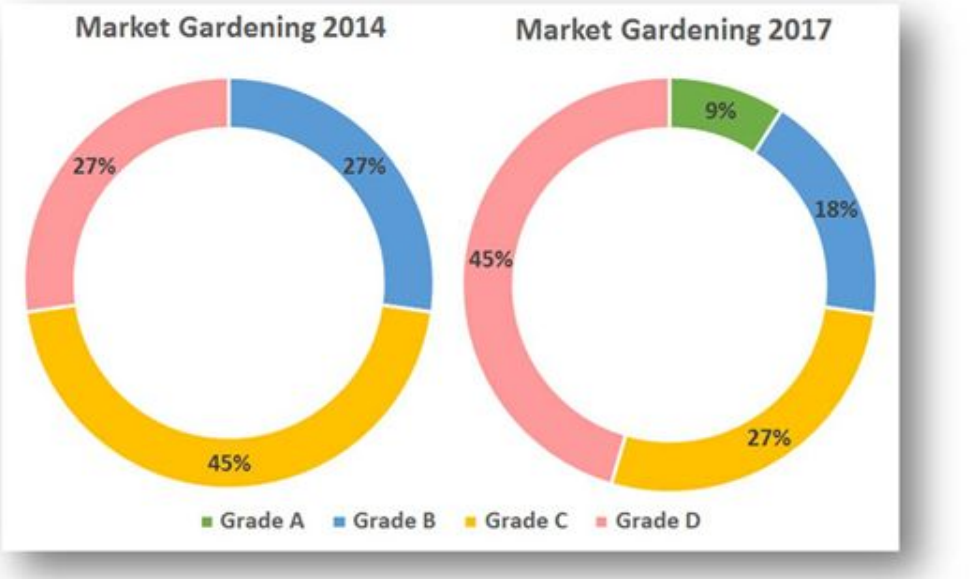


Figure 17: Soil health grades for market gardening sites (11 sites) for years ending 30 June 2014 and 30 June 2017

Soil quality at these market gardening sites is variable. Note that while there has been an increase in the number of sites with a D grade, some of this is attributable to the inclusion of a new indicator (introduced in 2016/17) called "aggregate stability" – for which many sites performed very poorly. We cannot therefore scientifically conclude that there has been an overall decline in soil quality.

What is interesting is which indicators frequently fail to meet the target range. For these sites:

- Nine out of the eleven sites (82%) exceeded the upper limit of the target range for Olsen P (a measure of phosphorus)
- The vast majority of these had **significantly** high levels of Olsen P, i.e., three to five times the upper limit
- Six sites (55%) failed to meet the target range for carbon (were under the lower limit)
- Three sites (27%) did not meet the target range for macroporosity and/or bulk density
- Eight sites (73%) did not meet the target range for aggregate stability (were under the lower limit).

What this tells us:

- Many of these sites have **highly** elevated levels of nutrients (particularly phosphorus) which could be a result of over-fertilisation
- Any sediment from soil erosion is likely to be carrying phosphorus and contributing to nutrient enrichment of surrounding waterways

- Soil carbon levels are low at many sites, meaning they have depleted levels of organic matter (which is important for retaining moisture and nutrients, and maintaining good soil structure)
- Several sites are showing signs of compaction
- Many sites (those with low aggregate stability scores) have low structural stability and are therefore more prone to breakdown, erosion and dispersal by wind and water.

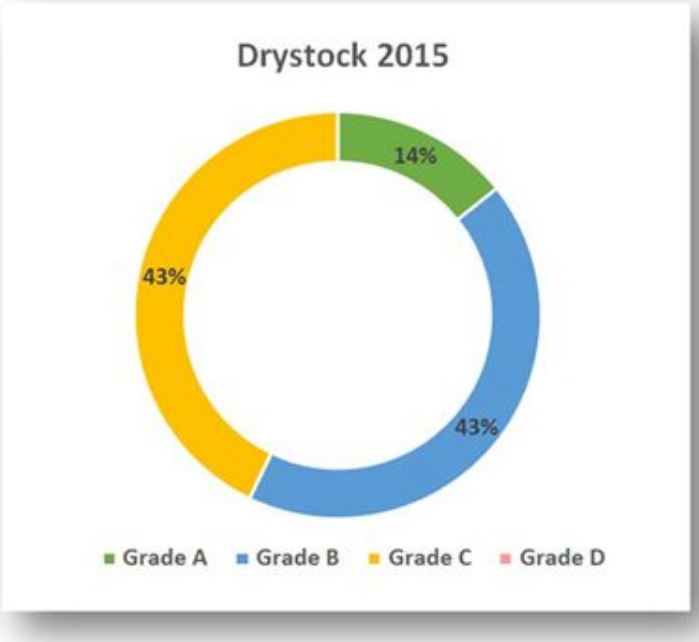


Figure 18: Soil health grades for drystock sites (7 sites) for year ending 30 June 2015

Soil quality at these drystock sites is very good with most sites being graded A or B.

What is interesting is which indicators frequently fail to meet the target range. For these sites:

- Six out of the seven sites (86%) exceeded the upper limit of the target range for Olsen P (a measure of phosphorus)
- Two sites (29%) also had elevated levels of nitrogen.

What this tells us:

- These sites have elevated levels of nutrients (particularly phosphorus) which could be a result of over-fertilisation
- Any sediment from soil erosion is likely to be carrying phosphorus and contributing to nutrient enrichment of surrounding waterways

- The physical condition of these soils is quite good, i.e., they do not appear to be suffering from compaction.

Overall it is the market gardening sites which are in the worst condition. Many sites have high levels of nutrients which will be contributing to nutrient enrichment of surrounding waterways. Further, the structure of the soil itself is being degraded at many sites – this will ultimately lead to soil breakdown, higher levels of erosion and reduced productivity.

Figure 19: Example of compacted soil at a market gardening site. Compaction occurs when the spaces within the soil are reduced or compressed, which can result in waterlogging, increased runoff and reduced productivity.

6.2.2 What are we doing about it?

GWRC manage a Farm and Environment Plan (FEP) Programme, the vision of which is "Farmers use best practices to help solve farming and water quality problems in their catchment".

The current programme focusses on intensively farmed land, such as dairy farms, and we are currently working with 12 farmers in the Kapiti Coast area. The programme provides financial incentives for on-ground works (such as fencing and riparian planting) to improve water quality and environmental outcomes. Other mitigations such as effluent management and strategic grazing of critical source areas to improve soil and water quality are also being promoted.

We aren't currently working with any market gardeners in the area, however we are having discussions with Horizons Regional Council (who have much experience in this area) about ways and approaches to managing this type of activity.

6.3 Protect terrestrial environments against pests and enhance native biodiversity

6.3.1 What the science is saying…

A national monitoring and reporting system for terrestrial biodiversity has been developed and implemented in the Wellington Region. The system involves gathering data on plant, bird and pest animal species from plots located on an 8km x 8km grid. Monitoring began in 2014/15, and figures 20-22 below show results from the first four years of monitoring.

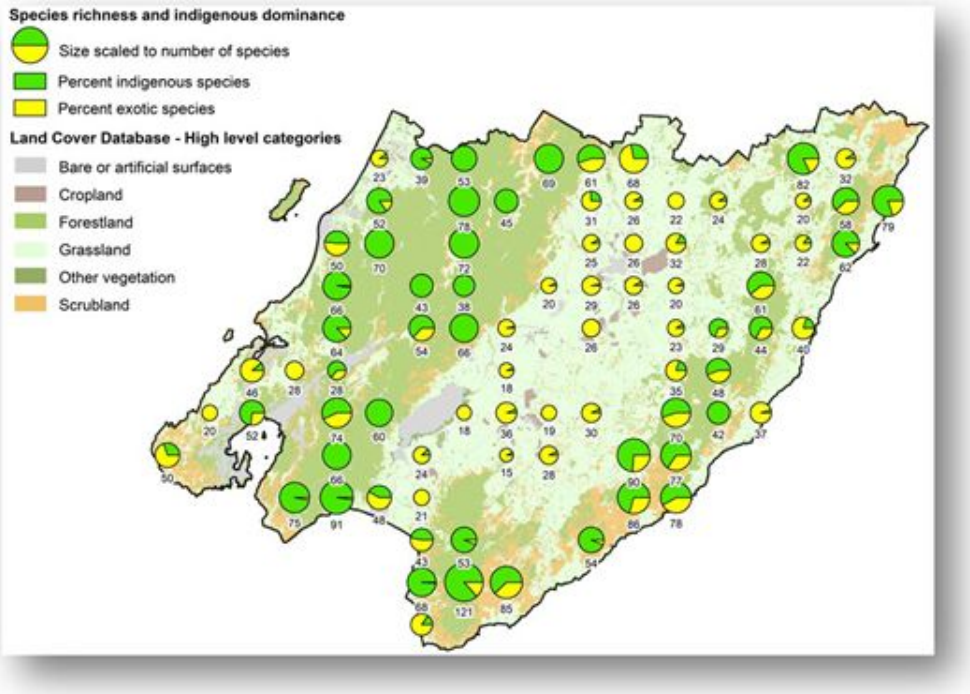


Figure 20. Plant species richness and indigenous dominance – upland sites tend to be dominated by indigenous plant species, however the number of exotic species increase in the lowland areas.

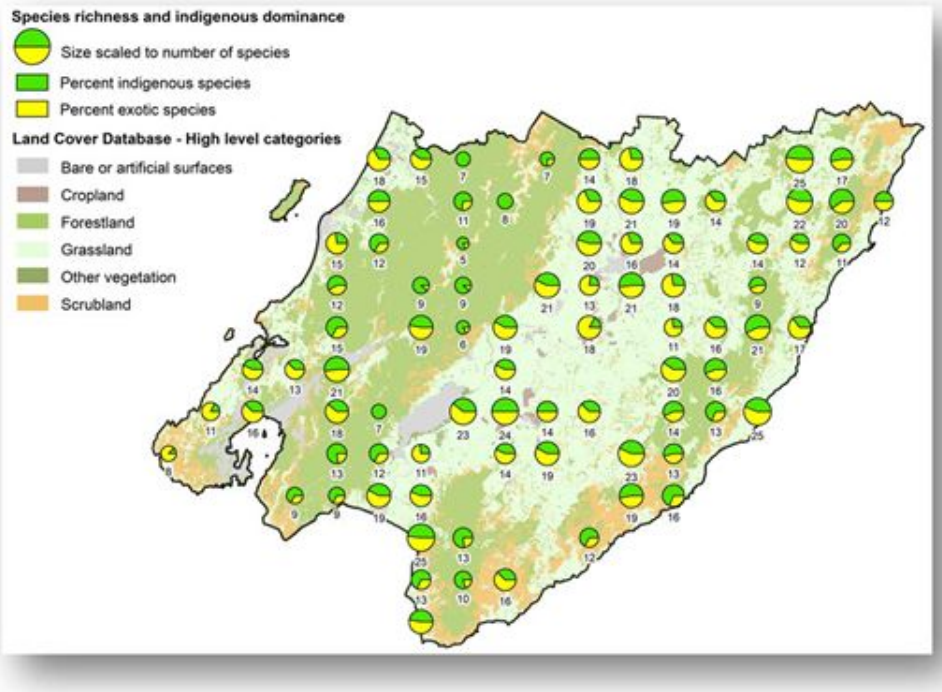


Figure 21. Bird species richness and indigenous dominance – upland sites have fewer species, mostly indigenous forest birds, whereas the lowlands support a higher number of bird species with different habitats.

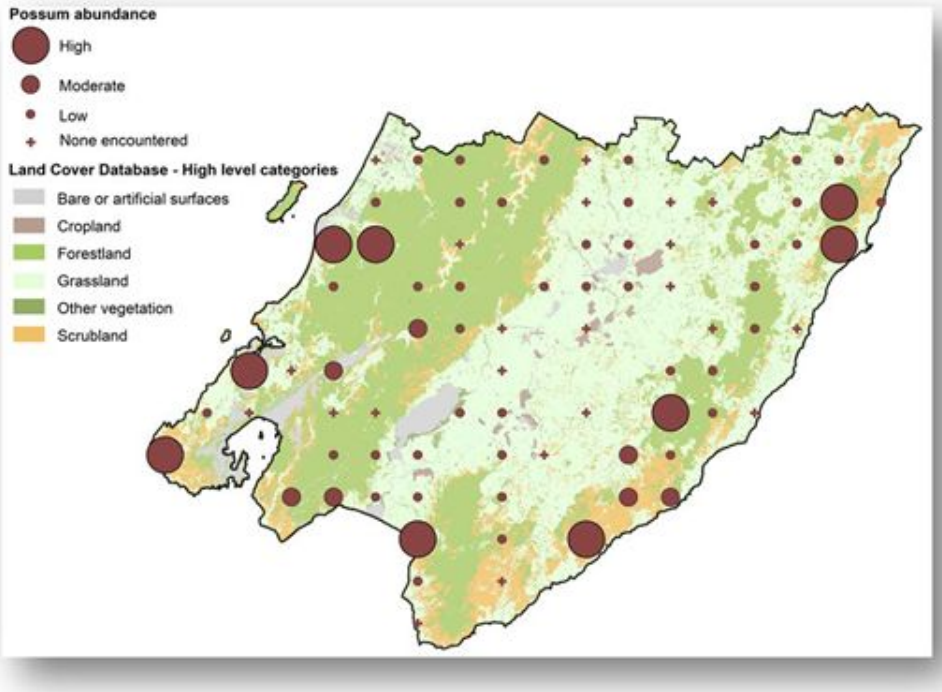


Figure 22. Possum densities on the Kapiti Coast are generally low, particularly in the uplands where they are controlled.

(a) River bird surveys

Riverbed nesting birds such as banded dotterels, pied stilts and black-fronted dotterels are the species most likely to be adversely affected by flood protection activities.

Annual river bird surveys of the Otaki and Waikanae rivers were therefore carried out over the three summers between 2012 and 2015, as part of the development of an Environmental Code of Practice and Environmental Monitoring Plan by the Flood Protection Department.

These surveys provide a baseline against which any future changes in population sizes and species diversity can be compared. The Otaki River proved to be the most significant river for birds with a total of 48 species and the highest densities recorded. Nine of these species are ranked *Threatened* or *At Risk*. The surveys will be undertaken again between 2020 and 2023.

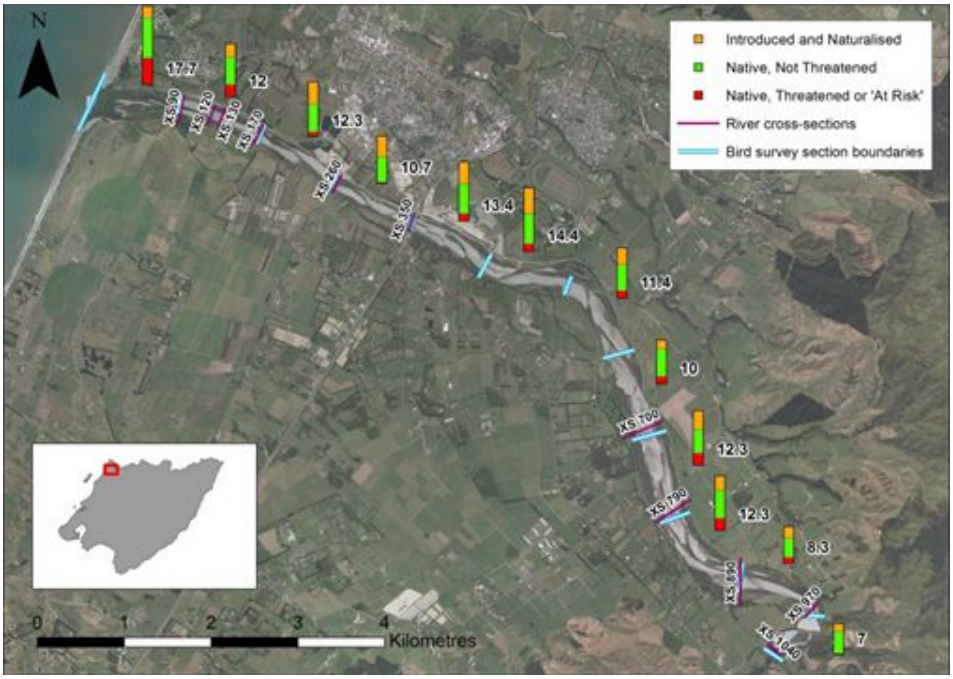


Figure 23. Map of the Ōtaki River showing spatial patterns in bird species diversity. The coloured bars and adjacent values represent the mean number of species detected along each 1km section in the 2012-2015 surveys.

(b) Coastal dune condition

Habitat condition surveys of the dunes in the Peka Peka Coast KNE site conducted in the summer of 2017/2018 found that around two thirds of the plant species in the dunes were exotic, making up over 70 percent of the vegetation cover.

By comparison, around two thirds of the plant species in the dunes to the north of this site were exotic, but represented slightly less (around 60 percent) of the vegetation cover.

Healthy dune ecosystems play an important role in protecting against coastal storms. The exotic plant species that have invaded these systems are reducing the resilience of these ecosystems, an issue set to worsen with rising sea levels.

Figure 24. Peka Peka dunes on the Kapiti Coast

(c) Land cover

Based on the 2012 Land Cover Database almost two thirds (63%) of the coast remains under indigenous land cover. However little remains of the indigenous forests that occurred on the lowlands, such as kahikatea/pukatea forest of which there is only around two percent left.

Figure 25. Example of remnant kahikatea/pukatea forest on the Kapiti Coast

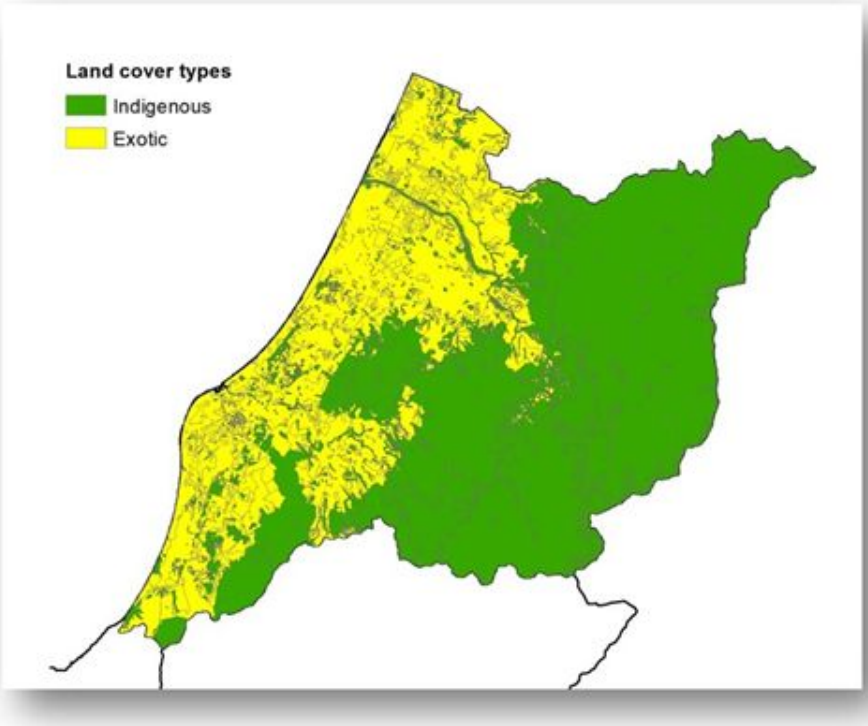


Figure 26. Distribution of indigenous and exotic land cover on the Kapiti Coast shows that little remains of the indigenous forests that used to occur on the lowlands.

6.3.2 What are we doing about it?

The GWRC Biodiversity Strategy guides our efforts to protect and enhance biodiversity. We work through a mix of controlling pest plants and animals at key sites, working with the community on restoring key sites, incentivising private landowners to protect biodiversity on their properties, and working with schools and organisations to educate the community about the importance of protecting biodiversity.

The Kapiti Coast (south of the Otaki River) receives possum control through the TB free NZ programme, which is expected to continue for the next ten years.

Our biosecurity work is guided by the GWRC Pest Management Strategy 2002-2022 and involves the control of unwanted plants and animals for environmental, economic and social reasons. Most of our biosecurity activities in the catchment revolve around KNEs. We also provide pest control services to local authorities at sites of local significance and in local reserves (refer table below).

The Kapiti Coast has always been a hotspot for rabbit populations in the region. The Biosecurity department undertakes rabbit control through KNE plans, as well as cost recovery operations for landowners and KCDC at selected sites.

Pest control areas on the Kapiti Coast funded by KCDC/GWRC	
Bluff Hill	Devil's Elbow
Haruati Swamp	Lower Waikanae bush fragments
Lake Wairongomai	Nga Manu Wetland Complex
O-Te-Pua Pukehou	Otaki Coast
Paekakariki Escarpment/Ames St	Queen Elizabeth Park
Te Hapua Wetland Complex	Te Horo Gravel Fragments
Te Rama	Waikanae River Bush Block
Waitohu Dunes and Estuary	Waterfall Road Bush
Kaitawa Reserve	Waikanae River Corridor
Otaki Estuary	Waikanae Reserves
Raumati Escarpment	Pharazyn Reserve
Nikau Reserve	Te Harakeke

Our KNE programme seeks to protect some of the best examples of original (pre-human) ecosystem types in the Wellington Region. It does this by managing, reducing or removing threats to their ecological values. KNE sites are managed in accordance with KNE operational plans prepared in collaboration with landowners, mana whenua and other partners.

The Kapiti Coast contains 16 KNE sites (refer table below), covering approximately 1,000 hectares.

KNE site	**Area (hectares)**
Haruātai / Pareomatangi	22
Te Harakeke Wetland Complex	108
Lake Waiorongomai and Stream	20
Lower Waikanae Forest Remnants	6
Nga Manu Wetland Complex	63
O te Pua / Paru a Uku Wetlands	47
Otaki Coast	114
Paekākāriki Escarpment (part)	
Peka Coast	38
Queen Elizabeth Park	166
Te Hapua Wetland Complex	66
Te Horo Forest Remnants	24
Waikanae River Complex	95

Waitohu Coast	31
Waterfall Road Bush	93
Akatarawa (part)	

We also support the work of the Queen Elizabeth II (QEII) National Trust to secure the long-term protection of natural features on private land. We provide up to $50,000 per year to protect and enhance native biodiversity on QEII covenanted sites across the region. Management activities include fencing to exclude stock and establishment of pest plant and animal control. On the coast approximately 63 sites (totalling) 339ha have been legally protected in perpetuity under a QEII covenant.

6.4 Protect, manage and restore wetlands

6.4.1 What the science is saying…

There are 49 wetlands on the Kapiti Coast that have been scheduled as *significant* (46) or *outstanding* (3) in the pNRP, with a combined area of 387ha.

Three wetlands on the coast are surveyed each year for the presence of wetland birds and fish. They do not appear to have high fish values, but mudfish were recorded for the first time at one of the sites.

Sixty six spotless crake were recorded across the Te Hapua, Te Harakeke and O te Pua wetland complexes, indicating a healthy population in the lower North Island. Only one marsh crake was recorded, but this is not considered unusual as their stronghold is traditionally the South Island.

Figure 27. Spotless crake at Te Hapua wetland

6.4.2 What are we doing about it?

Nineteen of these wetlands (with a combined area of 221ha) are actively managed as part of the KNE Programme. These wetlands are on both private and public land and receive long-term support from the programme for activities which can include pest plant control, pest animal control and/or revegetation.

Of the remaining 30 wetlands, eleven are wholly owned and managed by either the Department of Conservation (DOC), New Zealand Transport Authority (NZTA), Kapiti Coast District Council (KCDC) or Queen Elizabeth II National Trust (QEII).

Of the 19 scheduled wetlands that are on private land, we have conducted site visits to ten to determine the presence of stock (which are required to be excluded from wetlands) and introduce our Wetland Programme.

Through our Wetland Programme we work with private landowners to protect and/or restore natural wetlands by providing:

- Advice and training on restoration
- Incentives for restoration activities including fencing to prevent stock access, planting, and pest animal/plant control.

Three of the wetlands on private land now have restoration management plans and are receiving funding via the Wetland Programme for restoration activities.

6.5 Protect freshwater bodies and coastal waters against pollution

6.5.1 What the science is saying…

(a) Rivers and streams

Freshwater quality in rivers and streams on the Kapiti Coast is variable and a good example of how water quality is affected by land use as well as stream bed type.

Water quality and ecology is rated *Excellent* or *Good* at four of the seven monitored sites. All of these sites are hard-bottomed and located in areas where the predominant land cover is indigenous forest.

In contrast, the three sites rated as *Poor* or *Fair* are all soft-bottomed and located in urban or pastoral areas.

Site Name	Dominant Land Cover	Substrate Type	Water Quality Grade	MCI Quality Class	Periphyton/algae cover (maximum)
Mangapouri Stream at Bennetts Rd	Urban	Soft	Poor	Fair	Not measured
Waitohu Stream at Norfolk Cresent	Pasture	Soft	Fair	Fair	Not measured
Otaki River at Pukehinau	Indigenous forest	Hard	Excellent	Excellent	9
Otaki River at mouth	Indigenous forest	Hard	Excellent	Good	31
Mangaone Stream at Sims Road Bridge	Pasture	Soft	Poor	Poor	Not measured
Waikanae River at Greenaway Road	Indigenous forest	Hard	Excellent	Good	43

Waikanae River at footbridge	Indigenous forest	Hard	Good	Excellent	2

Looking at these sites through the National Objective Framework (NOF) lens (see table below) we can see that all sites meet the national bottom line for ammoniacal nitrogen and nitrate nitrogen.

Four of the sites meet the bottom line for *E. coli*. Three sites don't meet the bottom line. This is probably a reflection of the surrounding land use (urban or pasture) as well as the fact that they are streams and therefore more readily affected by pollution, i.e., they don't have as much "dilution power" as larger rivers.

Of the two sites that were assessed for periphyton, both meet the national bottom line.

	NOF Attribute State			
Site Name	**Ammoniacal nitrogen**	**Nitrate Nitrogen**	***E. coli***	**Periphyton**
Mangapouri Stream at Bennetts Rd	A	B	E	Not yet assessed
Waitohu Stream at Norfolk Cresent	A	A	E	Not yet assessed
Otaki River at Pukehinau	A	A	A	Not yet assessed
Otaki River at mouth	A	A	A	A
Mangaone Stream at Sims Road Bridge	A	B	E	Not yet assessed
Waikanae River at Greenaway Road	A	A	B	A
Waikanae River at footbridge	A	A	A	Not yet assessed

We also need to look at these sites through a pNRP lens. Table 3.4 in the pNRP outlines (using biological indicators) what a river would look like if it was in a "good" or "healthy" state, i.e., it is fairly aspirational in nature.

Objective 25 of the pNRP states that where the objectives in Table 3.4 are not met, fresh water bodies are to be improved over time to meet the objective(s). It also states (policy 70) that where a fresh water body does not meet the objectives, point source discharges are to be managed in a way that does not make it any worse.

The table below shows just one site currently meets the invertebrate objective as per Table 3.4 in the pNRP. There is one other site that doesn't have enough data to calculate the required statistic, but based on last year's score it would also meet the objective.

There are two further sites (Otaki River at mouth and Waikanae River at Greenaway Road) that are listed as significant and therefore have a very high target to meet the objective. If they were not listed as significant the Waikanae site would meet the objective and the Otaki site would be within 1 point of meeting.

Site Name	River Class	Listed as significant?	MCI (3 year rolling median)	MCI target	Meeting pNRP objective?
Mangapouri Stream at Bennetts Rd	6	No	88	≥100	No
Waitohu Stream at Norfolk Cresent	5	No	84	≥100	No
Otaki River at Pukehinau	1	Yes	135	≥130	Yes
Otaki River at mouth	4	Yes	109	≥130	No
Mangaone Stream at Sims Road Bridge	5	No	61	≥100	No
Waikanae River at Greenaway Road	4	Yes	112	≥130	No
Waikanae River at footbridge	2	Yes	Insufficient data to calculate, however based on 2016/17 MCI score (141) it would meet the pNRP objective		

River classes:

1 = Steep, hard sedimentary

2 = Mid-gradient, coastal, hard sedimentary

3 = Mid-gradient, soft sedimentary

4 = Lowland, large, draining ranges

5 = Lowland, large, draining plains and eastern Wairarapa

6 = Lowland, small

(b) Lakes

Lake Waitawa is the only monitored lake in this area. Prior to 2010, little was known about the state of water quality in Lake Waitawa, although anecdotally it was considered poor with a history of algal blooms.

Investigations in 2009/10 and then again in 2014/15 verified that water quality in the lake was severely degraded and it was classed as *Supertrophic* (or very high in nutrients).

It was assessed again in February 2016 using the nationally accepted LakeSPI (Submerged Plant Index) methodology, which takes into account the diversity and quality of the native plants and the impact of invasive weed species.

Lake Waitawa is considered to be in *Poor* condition. It falls in the bottom quarter of all lakes that have been assessed using this method, with a ranking of 197 out of 259.

Figure 28. Lake Waitawa is in poor condition and can be prone to algal blooms

(c) Estuaries and Beaches

Estuaries are unique ecosystems that often support high biodiversity values. However they are particularly vulnerable to pollution as they are the sink into which our rivers and streams drain. They are also often subject to direct point source discharges such as stormwater and constructed wastewater outfalls.

Since the 1960s, the land around **Waikanae Estuary** has been transformed from a coastal wilderness to a densely populated urban area. Luckily, conservationists helped establish Waikanae Estuary Scientific Reserve in 1987 to protect the remaining area.

The estuary provides important habitat for birds, aquatic plants and is a valuable breeding ground and nursery for fish. In fact, more species of coastal and aquatic birds, including a large number of migratory species, visit Waikanae Estuary than any other place in the region.

The overall condition of Waikanae Estuary is considered to be *Fair*. High rates of sedimentation continue to be the main issue, however our monitoring shows that sediment can deposit (or even erode) at different rates throughout the estuary and can vary greatly from year to year.

The RPD measures the depth to which the sediment is well oxygenated and can support a good population of animals. It's the equivalent of having a healthy layer of topsoil in your garden. The RPD seen here is a result of too much mud and fine mud particles filling in the pores in the sediment.

2016/17 mean sedimentation rate (mm)	Overall sedimentation rate (mm/yr)	RPD (cm)	Mud content (%)
-1.8	23.2	2.9	13.2

Figure 29. Too much sedimentation and a build-up of fine mud are affecting the health of Waikanae Estuary.

Peka Peka Beach is in an *Excellent* condition and does not appear to be facing any major threats to its ecological health. It was last monitored in 2015 and is due for monitoring again in 2020.

RPD (cm)	Mud content (%)	Macroinvertebrate enrichment index
>15	<1.5	<3.3

(d) Groundwater quality

We monitor eleven bores on the Kapiti Coast – refer figure below for the 2016/17 monitoring results.

Groundwater zone	Bore use	*E. coli* detected	Median nitrate	Nitrate trend*
Otaki	Irrigation	YES	3.450	None
Otaki	Dairy use	NO	1.730	None
Otaki	Irrigation	NO	9.200	None
Te Horo	Irrigation	NO	0.001	NA
Te Horo	Irrigation	NA	0.010	NA
Te Horo	Domestic	NO	0.002	None
Te Horo	Drinking water, domestic and stock	NO	2.700	▼
Te Horo	Irrigation	NO	0.001	NA
Waikanae	Irrigation	YES	1.040	None
Waikanae	Irrigation	NO	3.000	None
Raumati	Irrigation	NA	0.023	None

KEY

For *E. coli*:
YES = Counts ≥1cfu/100mL
NO = Counts <1cfu/100mL
NA = Not assessed

For median nitrate:
Low = <3mg/L
Elevated = 3-7mg/L
Highly elevated = 7-11.3mg/L

For nitrate trends:
▼ = Meaningful decrease in nitrate concentration
None = No meaningful trend
NA = Not assessed

Figure 30. 2016/17 groundwater quality monitoring results

Two bores tested positive for *E. coli* however neither of these are used for drinking water supply.

One bore in the Otaki groundwater zone has nitrate concentrations in the highly elevated range (but still below the drinking water standard of 11.3mg/L). This bore is in an area of intensive horticultural use and has had high nitrate concentrations for a number of years.

Another bore in the Otaki groundwater zone has had elevated levels of nitrate for the last several years. While this is not an issue from a drinking water perspective, the groundwater in this zone is closely connected to the Otaki River and could therefore be contributing to nitrate levels in the river.

Figure 31. Groundwater that has elevated levels of nitrate may not be a problem from a drinking water perspective, but could be contributing to nitrate levels in connected surface water bodies.

(e) Recreational water quality

From a recreational water quality perspective, water quality is generally pretty good over the summer, except in poor weather conditions. Heavy rain flushes contaminants from urban and rural land into water and can affect water quality for up to two days afterwards.

Despite being relatively wet, swimming water quality on the coast during the 2016/17 summer was still good most of the time. Only two samples out of 293

(1%) exceeded the guideline for safe swimming, and both of these were rainfall related. In the 2017/18 summer, 15 samples out of 293 (5%) exceeded the guideline and 12 of these were associated with rainfall.

Although toxic algae can occur in the Otaki and Waikanae rivers, for the last two seasons the levels recorded have been very low and no formal public health warnings were issued.

6.5.2 What are we doing about it?

(a) Working with local authorities and landowners on consenting processes

The main pressures on water quality are a result of the adverse impacts from stormwater and wastewater discharges.

KCDC have held consents for **stormwater discharges** to freshwater and marine environments since 2006. The initial focus was on collecting information to determine which stormwater discharges did not meet permitted activity requirements, and to improve the quality of the discharges that don't.

The pNRP has now introduced a two-stage consenting regime for stormwater discharges, which under rule 50 are a *Controlled Activity* requiring a global consent (in order to promote a holistic approach to stormwater management). In May 2018 we granted the Stage 1 consent for the Kapiti Coast district. The focus of this stage is to fill any knowledge gaps and determine the scale and intensity of effect so that a long term management plan can be developed.

Wastewater is also a player in the water quality picture in this area. The quality of discharges from the wastewater treatment plants at Otaki and Paraparaumu are generally excellent.

In 2016, the resource consent to discharge wastewater to land from the Otaki wastewater treatment plan was renewed. The consent includes a requirement to undertake a study and implement measures to optimise performance.

Our current focus is providing pre-application advice to KCDC on the renewal of the resource consent for the Paraparaumu wastewater treatment plant which currently discharges to the Mazengarb Stream. The pNRP provides clear policy direction that the discharge of wastewater to land is promoted over discharges to water, and that discharges to freshwater are minimised and improved.

Through our Flood Protection department we also provide advice to KCDC on how to reduce impacts on floodplain and natural wetland areas that have an ability to mitigate the effects of flooding. This has flow on effects by retaining these areas in a form more suited for sediment and pollutant management.

Forest Lakes Camp (which is on privately owned land) discharges wastewater from the camp to a wetland which then enters Lake Waitawa. An application to renew the resource consent has been received and we are currently working with the camp on options to help achieve better outcomes for the lake's water quality.

(b) The Riparian Programme

The Riparian Programme supports landowners to achieve water quality and biodiversity outcomes, and to be ready to comply with new rules in the pNRP around stock access to waterways.

The programme was developed in response to Method 12, a non-regulatory provision in the pNRP which directs GWRC to provide assistance to landowners in managing stock access to waterways. This method complements the rules and policies around livestock access and riparian management.

It involves the provision of advice (including assistance with developing Riparian Management Plans) as well as financial incentives for landowners to manage the margins of streams and lakes on their properties (including fencing, plating and pest plant control). Part of the programme is also to work with landowners to identify waterways that meet the definitions for Category 1 and 2 surface water bodies.

(c) Enabling landowners to do the right thing

Our Land Management department provides a programme to rural landowners to enable them to help protect waterways and groundwater from the impacts of erosion and pollutants from farming practices. The programme includes providing advice and financial incentives on:

- Good farming practices
- Riparian restoration
- Wetland restoration
- Poplar and willow planting to stabilise erosion prone land
- Optimising effluent systems to irrigate on to low risk soils
- Identifying Critical Source Areas on farms and mitigating their risks.

(d) Leading by example

GWRC manages Queen Elizabeth Park in the Kapiti area. The park includes the lower catchments of the Wainui Stream near Paekakariki and the Whareroa Stream, and a range of wetlands. Despite generally poor aquatic health both streams are scheduled as significant to local iwi and as having significant indigenous ecosystems.

Since 2012, all branches and tributaries of these streams have been progressively retired from grazing, with fencing largely completed. The Poplar Ave, remnant bush and wetlands, and the railway wetlands are all identified as significant natural wetlands, while a number of other wetlands have also been retired from grazing and are the focus of weed control and planting.

Around 360ha of the park's 650ha is under a farm grazing licence, with smaller areas licenced for horse grazing. Parks is guided by an existing Sustainable Land Use Plan and specialist advice from our Land Management team in developing licence conditions and assessing proposals for land use and development under the licence.

In retired areas of the park, including wetlands and riparian margins, Parks invests annually in materials and planning to support a substantial volunteer

restoration effort on the park. Around 13,000 trees are planted annually by volunteers with another 17,000 by contractors.

7. Working with community and iwi

7.1 What does this mean?

This is about ensuring:

- We have a true and trusted partnership with iwi at all levels including governance, decision-making and implementation
- Our communities know what we do, understand how they can contribute, and are positively engaged and participating.

Some of the key things we do in this regard are:

- Te Upoko Taiao – Natural Resources Plan Committee
- Cultural health monitoring
- Involvement of kaitiaki in resource consenting processes
- Mahi Waiora
- Whaitua committees.

7.2 Te Upoko Taiao – Natural Resources Plan Committee

The formation of Te Upoko Taiao enabled all matters pertinent to the regional plan review process to be reviewed and discussed by Council and mana whenua together. The result is that the pNRP both integrates mana whenua perspective and also specifies mana whenua values in objectives, policies, methods and schedules throughout the document.

7.3 Cultural health monitoring

A current project, the Regional Kaitiaki Monitoring Framework, is developing a framework for undertaking cultural health monitoring in partnership with mana whenua. This works towards meeting our obligations to iwi under the NPS-FM and the pNRP.

This means working with local iwi to identify mana whenua values and needs. By taking the specific needs of the mana whenua of the area and co-developing monitoring strategies we aim to encourage and support long-term cultural monitoring by kaitiaki. The framework will also address how cultural information can be reported.

7.4 Involvement of kaitiaki in resource use processes

Driven by method 26 under the pNRP, our current processes and practices for interacting on non-notified consents are evolving. In a joint forum with iwi partners we developed a list of things that need to change in the way we interact with iwi on consents.

We are now entering a phase in the project where we will be piloting some of these changes. Examples of the changes include workshops, training, secondments, improving pre-application engagement, reviewing our feedback loops and joint compliance monitoring.

7.5 Mahi Waiora

Under the pNRP there will be changes to the rules around what landowners can do on their land (in particular the exclusion of stock from waterways and the protection of scheduled wetlands) and we need to make sure they're ready and able to do the right thing.

Mahi Waiora is a new approach to how we work with landowners to improve water quality. It's about bringing together the Environment Management and Catchment Management groups so we can provide clear support and advice to landowners, helping them manage their land in a sustainable way.

7.6 Whaitua committees

The whaitua process forms the basis of how we intend to implement the NPS-FM. The NPS-FM includes minimum standards for freshwater that councils must seek to achieve, and requires overall water quality in a region to be maintained or improved. This is partly achieved via the setting of limits for each catchment.

Whaitua committees are made up of representatives from mana whenua, local authorities and the community and are tasked with developing catchment-specific recommendations (including limits) for the management of land and fresh water resources.

The Wellington and Hutt Valley Whaitua Committee is currently being established. The Kāpiti Coast whaitua will be the next to be set up, most likely during 2019.

8. Are we meeting our environmental outcomes on the Kapiti Coast?

The Kapiti Coast environment paints a picture of extremes with:

- Just over half of the entire land area (hills/ranges) virtually untouched, and the rest (coastal lowlands) almost 100 percent modified
- Two big, beautiful rivers surrounded by a number of small, dirty streams
- An estuary so biologically significant it has been given "reserve" status yet continues to be plagued by sedimentation
- Pristine beaches but one of the most degraded lakes in the country
- A climate that is the envy of much of the rest of the region, yet is the most susceptible to climate change
- Dry summers but prone to flooding in winter/spring.

"Generally, there is a lot of truth value in stepping back, observing, then logically generalising the extremes of what you see"

Criss Jami – Poet, writer, philosopher

So how do we logically generalise the extremes of what we are seeing? Through compiling this report, there were three major issues that clearly stood out as being of most concern for this catchment:

a) Climate change

Under current predictions of sea level rise, parts of the Kapiti Coast (particularly Paraparaumu Beach and Otaihanga) could be permanently inundated by the end of the century. However, this will happen slowly allowing time to adapt.

The biggest threat to the coast will be the combined effects of more intense storms, high tides and sea level rise. Westerly storms coming from the Tasman Sea will get significantly worse, bringing heavier rain and stronger wind. So imagine a future where the seas are higher, the tide is coming in and a major storm hits. This scenario will drastically increase the risk of inundation, damage to property and even loss of life.

Further, the coastal dune systems, the first line of defence against such a scenario, have been reduced in extent from urban development and invasion of exotic plant species are also reducing the resilience of these ecosystems.

b) Soil quality, particularly at market garden sites

We monitor a total of 27 sites on the coast. **Twenty four (90%) of these sites have excessive levels of phosphorus** meaning any sediment from soil erosion is likely to be carrying phosphorus and contributing to nutrient enrichment of the surrounding waterways.

When it comes to market garden sites, the problem is a bit more dire than just excessive phosphorus levels. Many sites have depleted levels of organic matter as well as low structural stability, meaning they are more prone to desiccation, breakdown and erosion. Once it reaches a certain level, this type of soil degradation is extremely hard to reverse.

c) Water quality, particularly small streams

The small streams of the coast are in a bad state. These streams include:

- The Mangapouri and Waitohu streams (just north of Otaki)
- The Mangaone Stream (just south of Otaki)
- The Ngarara Stream (just north of Waikanae)
- The Whareroa Stream (runs through Queen Elizabeth Park)

They are all located in predominantly urban or pastoral areas and, without exception, all exhibit poor water quality and degraded ecosystem health.

We cannot afford to be complacent about the Otaki and Waikanae rivers either. While they currently have good water quality and ecosystem health, they are both showing signs of degradation at their bottom end – as demonstrated by neither the Otaki River at mouth or Waikanae River at Greenaway Road sites meeting the invertebrate objective in the pNRP. Further, the health of Waikanae Estuary is being affected by high rates of sedimentation.

The Kapiti Coast Whaitua Committee (due to be established next year) will not only have to understand the environmental contrasts of this area, but also be willing and able to grapple with the tensions created by the different values that will be held by various stakeholders and the community that live there.

9. Communication

No communications are necessary. The subject matter of this report will be used to inform discussions with the yet-to-be established Kāpiti Coast Whaitua Committee.

10. Consideration of Climate Change

The matters addressed in this report have been considered by officers in accordance with the process set out in the GWRC Climate Change Consideration Guide.

Climate change mitigation (emissions reduction) and adaptation (adapting to impacts such as sea level rise) is further discussed in Section 5.4 of this report.

11. The decision being sought

No decision is being sought in this report.

The report is solely for the Environment Committee's information. A comprehensive understanding of the state of the environment, key pressures and issues, as well as what GWRC are doing to achieve our desired environmental outcomes, will help underpin future decision-making by the committee.

12. Recommendations

That the Committee:

1. ***Receives*** *the report.*

2. ***Notes*** *the content of the report.*

Report prepared by:	Report approved by:	Report approved by:
Penny Fairbrother Senior Science Coordinator	**Nigel Corry** Environment Group Manager	**Wayne O'Donnell** Catchment Management Group Manager

greater WELLINGTON
REGIONAL COUNCIL
Te Pane Matua Taiao

Report	**2018.407**
Date	10 September 2018
File	CCAB-10-566
Committee	**Environment**
Author	**Jake Roos, Acting Climate Change Advisor**
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Climate Change Implementation Plan – progress report

1. Purpose

To provide the Committee with an overview of progress in implementing the Greater Wellington Climate Change Strategy Implementation Plan.

2. Background

The Council adopted the Greater Wellington Climate Change Strategy (the Strategy) and Implementation Plan in October 2015. The Strategy is designed to coordinate climate change actions across Greater Wellington's responsibilities and operations, acting as a guide for climate resilience activities and providing clear strategic direction on Greater Wellington's intentions and priorities in this respect.

The Implementation Plan contains a list of performance measures, and a table of actions designed to achieve the strategic objectives and policies set out in the Strategy.

This report provides a summary of progress against the performance measures and the actions, enabling the Committee to consider how Greater Wellington is progressing towards achieving the objectives, policies and vision of the Strategy.

3. Comment

The three overarching objectives set out in the Strategy are:

Objective one - Mitigation
Greater Wellington will act to reduce greenhouse gas (GHG) emissions across all its areas of influence, including its own operations, helping to create the conditions for a smart, innovative, low-carbon regional economy.

Objective two - Adaptation

Risks from climate change related impacts are managed and resilience is increased through consistent adaptation planning and actions based on best scientific information.

Objective three – Awareness
Community awareness of climate change mitigation and adaptation solutions increases and organisations and individuals know what they can do to improve the long term resilience and sustainability of the region.

3.1 Policies and actions

The policies designed to give effect to the objectives are set out in **Attachment 1** to this report along with the actions designed to achieve them. Commentary is provided against each action. Additional actions that emerged during the time since the Strategy was adopted are also listed.

One of the most notable actions this year was the release of the climate change report that we commissioned from NIWA in 2017 for the Wellington Region. This included high resolution projection maps of climate variables and commentary on impacts of climate change for the region.

Following the release of this report, Greater Wellington, along with the region's city and district councils established a Wellington Region Climate Change Working Group (WRCCWG). Greater Wellington convenes and chairs the group, which comprises a councillor from each councils across the region and three iwi appointees nominated by Ara Tahi.

The WRCCWG provides a forum for councils and iwi to network, discuss issues, share information and where appropriate, achieve a consistent approach across all jurisdictions on climate change mitigation (reducing greenhouse gas emissions) and adaptation (preparing for impacts such as sea level rise, drought and enhanced natural hazards effects). The Group is supported by a newly established staff 'Low Carbon Transition Steering Group' (mitigation) and the Natural Hazards Strategy Working Group.

Initiatives promoting active travel and ride sharing are having a proven effect with Greater Wellington programmes achieving significant reach across the region. For example, the 2018 Aotearoa Bike Challenge saw 2405 participants from 286 workplaces cycle a total of 385,809kms during February 2017, saving an estimated 80.6 tonnes of CO2-equivalent.

Movin' March, the active travel month promotion to schools was a bigger success than ever. This year 91 schools registered, meaning a total engagement of 25,000 students region wide (an increase of 30% from 2017). 59,294 active trips were logged during the month, with an assumed average of 1km per trip. If each kilometre of active travel replaced a car trip, it is estimated that this saved approximately 12.4 tonnes of CO2 equivalent[1].

[1] Based on the 2016 MfE carbon calculation figure of 0.209

Greater Wellington's role in enabling forests in the region to draw CO2 down from the atmosphere (carbon sequestration) is significant. Possum control and Key Native Ecosystem (KNE) programmes help maintain the carbon sequestration capacity of forests located within the 129,000 ha under Greater Wellington control (the KNE programme 58 sites across the region of mostly forest ecosystems and regional possum control covers over 92,800 ha of the region). Trees planted through biodiversity and parks programmes along with erosion control initiatives have resulted in thousands of new trees being planted each year.

The organisation continues to implement the Climate Change Consideration Process, which requires all new initiatives and all Council and Committee decisions to include a climate change assessment. This ensures that Greater Wellington has a consistent, organisation wide system in place that enables officers to assess the emissions associated with an activity and to consider how the changing climate could affect our functions and services in the future. Similar considerations are now also used in our project management processes and were used during the activities review phase of our Long Term Planning process.

During the year the Treasury Management Policy was updated and included a section on divestment of any direct investment in fossil fuels and preventing any future investment where practical. Letters were written to our main banks to advise them of the Climate Change Strategy, and pointing out our objectives, which included a demonstration of low emission across all our council activities and divestment of any direct investment in fossil fuel extraction industries. The letter also sought an update from the banks seeking their approach to reducing the risk associated with direct and indirect financial involvement with fossil fuels.

More detail is provided in the commentary for individual actions in **Attachment 1.**

3.2 Performance measures

When the Strategy was adopted in 2015, the Implementation Plan included a number of performance measures. These are provided in **Attachment 2** to this report along with commentary about progress that has been made against them.

In some instances, officers have found that the performance measure was not the best fit for purpose, and in other cases, the relevant data is not updated regularly, and so reporting performance against such measures is not always possible. In some cases it is not possible to demonstrate a trend as the actions that have been taken are not quantifiable from year to year. A review of the Climate Change Strategy is scheduled for the 2018/19 year, and more appropriate performance measures will be developed as part of this process.

4. Communication

No external communication is proposed as an outcome of the consideration of this report.

5. Consideration of climate change

No decision is being sought in this report. The matters addressed in this report have been considered by officers in accordance with the process set out in the Greater Wellington's Climate Change Consideration Guide. Because this report addresses the actions of Greater Wellington's Climate Change Strategy directly, climate change assessments are not required.

6. The decision-making process and significance

No decision is being sought in this report.

7. Engagement

Engagement on the matters contained in this report aligns with the level of significance assessed In accordance with the significance and engagement policy, no engagement on the matters for decision is required.

Since the Strategy was adopted, a webpage on the Greater Wellington website has been kept up to date with information about our climate change related activities (www.gw.govt.nz/climatechange).

8. Recommendations

That the Committee:

1. ***Receives** the report.*

2. ***Notes** the content of the report.*

Report prepared by:	Report prepared by:	Report approved by:
Jake Roos Active Climate Change Advisor	**Nicola Shorten** Manager, Strategic Planning	**Luke Troy** General Manager, Strategy

Attachment 1: Climate Change Strategy Actions – summary of progress to date
Attachment 2: Climate Change Strategy Performance Measures – summary of progress to date

Climate Change Strategy Implementation Plan: Summary of progress to date on *Actions*

Colour key: **----** Actions to be undertaken by Greater Wellington in conjunction with other partners

Policies	Actions 2015-2017		Examples/modes of delivery	Status of Action *at Oct 2015*	Lead departments	Summary of progress
1.1 Seek to remove barriers to the use and development of renewable energy and improved energy efficiency in the region	1.1.A	Partner with other councils and agencies to support community-driven innovations in renewable energy	Scale up Smart Energy Challenge	Not yet started	Strategic Planning	Greater Wellington convenes the Wellington Region Electric Vehicle Working Group (REVWG) which is comprised of officers from councils across the region with participation from central government agencies and the private sector. The group operates as a coordinating mechanism for the promotion of electric vehicles (EV) generally, and in relation to the development of charging infrastructure. Low Carbon Challenge 2017 – Greater Wellington supported the Low Carbon Challenge again in 2017). One of the six successful projects was a renewable energy project – The Kapiti Biodiesel Collective.
	1.1.B	Give particular regard to the benefits from renewable energy when considering resource consents and notices of requirement, and when making a change, variation or conducting a review of the regional plan	Resource Consents Process	Underway and ongoing	Environmental Policy, Environmental Regulation	The benefits from renewable energy are recognised in both the Regional Policy Statement (RPS) and Proposed Natural Resources Plan (PNRP): - Policy 7, RPS directs regional and district plans to recognise the benefits of energy generated from renewable energy resources - Policies P12 to P14 of PNRP recognise the benefits of renewable energy generation activities Advocacy is provided through submissions on district plan changes and notified district council resource consents for these processes to give effect to the RPS.
	1.1.C	Develop a framework to support and promote renewable energy generation, energy efficiency measures, and a secure and resilient transmission and distribution via the Regional Policy Statement and Regional Plan	Regional Policy Statement and Regional Plan	Underway	Environmental Policy	Refer 1.1.B The Regional Natural Hazards Management Strategy, which supports the resilience aspect of this action through its focus on risk reduction, has been adopted by all Councils in the Western part of the region.
	1.1.D	Improve household energy efficiency through providing a rating framework such as the Warm Greater Wellington home insulation scheme	Warm Greater Wellington home insulation scheme	Underway and ongoing	Finance	The Warm Greater Wellington scheme continues to provide the region-wide loans for insulation in houses built prior to the year 2000. In Wainuiomata and Masterton only, where air quality is poorer, loans for clean heating are also offered. The baseline measure for the programme was 1,376 applications (2014). 1,121 applications were received in 2017/18. This year, a Healthy Homes Working Group has been established, including Greater Wellington and a broad range of organisations that all play a role in promoting, providing, regulating, funding, researching or advocating for warm, dry housing in the

Policies	Actions 2015-2017		Examples/modes of delivery	Status of Action *at Oct 2015*	Lead departments	Summary of progress
						Wellington Region.
	1.1.E	Explore opportunities for renewable energy generation and storage in the Wellington region		Underway	WRS Office	Officers keep a watching brief and will participate in relevant industry initiatives.
1.2 Promote and provide attractive and accessible low emission transport in our own fleet and in future public transport contracts	1.2.A	Encourage active travel (e.g. walking, cycling, scootering) through school and workplace travel programmes	Aotearoa Bike challenge, Movin' March, Go by Bike Day, Walk to Work Day, Pedal Ready cycle skills training	Underway and ongoing	Sustainable Transport	Greater Wellington's Sustainable Transport team coordinate a range of initiatives designed to promote active travel. Key initiatives include: The Aotearoa Bike Challenge: during the 2018 Aotearoa Bike Challenge, 2405 participants from 286 workplaces cycled a total of 385, 809kms during February, saving 80,634kgCO2-e (or 80.6 tCO2-e). Movin' March: this active travel month promotion to schools was a bigger success than ever. This year 91 schools registered, meaning a total engagement of 25,000 students region wide (an increase of 30% from 2017). 59,294 active trips were logged during the month, with an assumed average of 1km per trip. If each kilometre of active travel replaced a car trip, it is estimated that this saved approximately 12.4 tCO2-e, (based on the 2016 MfE carbon calculation figure of 0.209). Pedal Ready cycle skills training: this programme continues to prepare current and future generations for a low carbon future. In the 2018 year nearly 5000 children and adults undertook Grade 1 (off road) skills training. Of those, nearly 1200 (1121 children and 77 adults) went on to learn to ride on local roads, improving their skills for journeys to local shopping centres, schools and employment.
	1.2.B	Support carpool and car share initiatives	Smart Travel Mevo Roam CityHop	Underway and ongoing	Sustainable Transport	Greater Wellington has worked with Auckland Transport and other regional councils since 2012 to provide a carpooling/ridesharing platform. In 2017 nine of these councils collectively purchased a new platform 'Smart Travel'. This platform has different functionality, including offering rewards and incentives for cycling, walking, public transport and carpooling/ridesharing. Nationally over 3600 people have registered with Smart Travel. Two new public car share services, Mevo and Roam have joined CityHop in Wellington City, to provide an alternative to long term leasing or car ownership for businesses and residents. The Sustainable Transport team promote these options to their network of businesses.

Policies	Actions 2015-2017		Examples/modes of delivery	Status of Action *at Oct 2015*	Lead departments	Summary of progress
	1.2.C	Increase public transport patronage through improvements to the regional passenger transport network	Wellington Regional Land Transport Plan and Public Transport Plan	Underway and ongoing	Public Transport	Metrics relevant to this action are provided in the Annual Monitoring Report and demonstrate an overall trend of increasing public transport patronage http://www.gw.govt.nz/assets/2016-17-Annual-Monitoring-Report-for-RLTPWeb.pdf The 2017/18 Annual Monitoring report is currently being collated, and annual patronage metrics are showing consistent increases in patronage across the rail network as well as increases in bus patronage in Wellington City.
	1.2.D	Investigate use of sustainable (low carbon) fuel sources for passenger services		Underway and ongoing	Public Transport	This action was primarily progressed through Greater Wellington's Public Transport Operating Model (PTOM) bus procurement process, which incentivised operators to provide low emission bus fleets. This resulted in the introduction of eight new fully electric buses into the fleet in July 2018 as part of a commitment by Tranzurban Ltd to phase in 32 electric buses by 2021. Conversion of the existing trolley bus fleet to battery power is also being investigated by NZ Bus Ltd, assisted by a grant ($763,000) from EECA.
	1.2.E	Work towards full electrification of the regional bus fleet		Underway	Public Transport	Like 1.2.D, this action was primarily progressed through the GWRCs approach to the Public Transport Operating Model (PTOM) bus procurement process, incentivising operators to provide low emission bus fleets.
	1.2.F	Advocate for land use development that is well-integrated with transport infrastructure and supports a compact, well-designed and sustainable regional form		Underway	Corporate Planning, Environmental Policy	Notable examples include: • The co-design and consultation process for the RiverLink project (which will deliver better flood protection, better lifestyle and improved transport links for the people of central Lower Hutt) • Let's Get Wellington Moving scenarios have been developed to support good urban form and a more liveable city. Submissions were made to: • MBIE regarding the Urban Development Authorities proposal • The Productivity Commission regarding the Better Urban Planning report. • Wellington region's territorial authorities regarding 2017/18 Annual Plan Consultation Documents and District Plan reviews Greater Wellington's above submissions emphasised the benefits of better integration between land use and infrastructure planning, and of well-designed intensive development in urbanised areas.
1.3 Encourage cleaner production and disposal practices in business and agriculture	1.3.A	Work with businesses to improve energy efficiency and reduce environmental impact	Take Charge Business Pollution Prevention programme	Underway and ongoing	Environmental Regulation	Greater Wellington does not operate an energy efficiency advisory function for businesses (see action 1.1.D for info on the Healthy Homes initiative for the residential sector). Work of this kind is primarily progressed by the Energy Efficiency and Conservation Authority through the EECA Business Programme. Greater Wellington is developing a regional '2050 Calculator' which will identify

Policies	Actions 2015-2017		Examples/modes of delivery	Status of Action *at Oct 2015*	Lead departments	Summary of progress
						potential long term emissions reductions at a sector level. The calculator is intended to assist the Wellington region to transition towards a low carbon economy between now and the middle of the century. Greater Wellington's pollution prevention programme, Take Charge, is currently on hold.
	1.3.B	Promote agricultural efficiency measures by working with farmers		Underway and ongoing	Land Mgmt	Agricultural efficiency is discussed with landowners when developing Farm Environment plans, and during work with rural community groups focused on soil conservation and water quality improvements. Farm dumps locations are now being targeted through farm plan programme to bring them in to line with rules in the proposed Natural Resources Plan.
	1.3.C	Work through the Regional Waste Forum to continually improve waste practices and increase recycling	Regional Waste Forum	Underway and ongoing	Strategic Planning	Participation in the Regional Waste Forum continues.
1.4 Demonstrate a commitment to low emissions across all our corporate activities and investments	1.4.A	Implement actions in the GWRC Corporate Sustainability Action Plan relating to council buildings and installations, employee travel, waste and resources, and policies and procurement	GWRC Corporate Sustainability Action Plan	Underway and ongoing	Corporate Planning	Council buildings and installations: Following the Kaikoura earthquake, 2016, meaningful gains in energy efficiency of the Council's main offices can only be made by relocating or rebuild. Sustainability and building systems considerations for procurement documentation have been developed. Employee travel: Walter Street and Shed 39 are equipped with shower facilities and secure bike storage that encourage active travel modes. Waste and resources: Waste system audits have been undertaken and completed to support waste systems and employee waste sorting knowledge improvement. A recent staff survey shows that a consistently high 90% of staff recycle 'always and whenever possible' and now 79% compost 'always and whenever possible', a 15% increase on last year. Policies and procurement: Procurement system is currently undergoing review and sustainability matters have been included as part of this review.
	1.4.B	Develop emissions reductions targets using the 2014/15 GWRC carbon inventory as a baseline. Measure and report future emissions increases or decreases.	GWRC Corporate Sustainability Action Plan	Underway and ongoing	Corporate Planning	Corporate emissions reduction targets were developed and adopted in principle by in early 2016. The targets adopted were 'investment targets', as opposed to those that could be achieved via a 'business as usual' approach. The emissions reduction targets are 2019/20 =10%; 2024/25 = 25%; 2029/30 = 45%; 2045/50 = 70%. Corporate emissions are increasing. There was a significant increase in emission volumes following the Kaikoura earthquake due to changes in office locations. While these organisational changes and calculation method improvements make it difficult to precisely compare the current footprint to the base year (2014/15), the trend is

Policies	Actions 2015-2017		Examples/modes of delivery	Status of Action *at Oct 2015*	Lead departments	Summary of progress
						clearly one of rising emissions. Long term office accommodation uncertainty continues to limit emission reduction investment choices at this time.
	1.4.C	Divest the council from any direct investment in fossil fuel extraction industries and investigate existing non direct investment with a view to preventing future investment where practical.		Underway and ongoing	Treasury	During 2017 The Treasury Management Policy was updated and included a section on divestment of any direct investment in fossil fuels and preventing any future investment where practical. Letters were written to our main bank counterparties to advise them of the Climate Change Strategy, and pointing out the objectives of this Strategy which included a demonstration of low emission across all our council activities and divestment of any direct investment in fossil fuel extraction industries. The letter also sought an update from the banks seeking their approach to reducing the risk associated with direct and indirect financial involvement with fossil fuels. The monitoring work continues.
1.5 Support and coordinate tree planting and ecological restoration projects and protect carbon sinks from the impacts of invasive species	1.5.A	Support provision of legal protection of forest land which can sequester carbon and safeguard natural ecosystems against development		Underway and ongoing	Biodiversity	Greater Wellington has continued to operate a QEII covenant support programme (delivered by the Biodiversity department) which makes $50k funding available annually to QEII to support the fencing off of areas being legally protected in perpetuity by QEII covenants. Greater Wellington funds 40% of the cost of fencing, QEII funds 30% and the landowner funds the other 30%. The majority (but not all) of these areas are indigenous forest remnants. Ten new covenants were registered in the Wellington region this year totalling 74 ha in land area.
	1.5.B	Maintain regional park and forest land in covenant for at least 50 years as part of the Permanent Forest Sink Initiative	Permanent Forest Sink Initiative	Completed	Parks	Following independent assessment of the 442ha registered in the Permanent Forest Sink Initiative, a Mandatory Emission Return was lodged with MPI for the 2013-2017 period, claiming a total 48,293 NZUs. As a result, approximately $878,000 was recognised as a gifted Parks asset in the YE 30 June 2018 financial accounts.
	1.5.C	Advocate and provide incentives for tree planting and promote restoration of wetlands	Wellington Region Erosion Control Initiative, Riparian Programme Wetland Programme	Underway and ongoing	Land Mgmt.	The Wellington Region Erosion Control programme continues to be delivered over the whole region. The target for 2017/18 is 450 hectares of erosion prone land to be planted in trees, and 507 hectares were planted. In addition, 186 hectares protected for native reversion. The Akura nursery has an estimated 28,000 willow poles available each year for erosion control planting. This programme is part funded through Ministry of Primary Industries Hill country Erosion fund. The Riparian and wetland programmes support landowners to exclude stock from waterways and significant wetlands. Planting of seedlings and restoration plans form part of these programmes.
	1.5.D	Consider policy 1.5 when implementing Sustainable Land Use and Soil Conservation Plans		Underway and ongoing	Land Mgmt.	Policy 1.5 is considered as standard practice

Policies	Actions 2015-2017		Examples/modes of delivery	Status of Action *at Oct 2015*	Lead departments	Summary of progress
	1.5.E	Protect native forest and vegetation by maintaining large scale pest animal management programmes	Regional Pest Management Strategy	Underway and ongoing	Biosecurity	The Regional Possum Predator Control Programme aims to control predators which are a serious threat to our native and plantation forests, and this helps maintain the forests carbon sequestration capacity. The planned 2017/18 programme was delivered in full (92,800 hectares). The annual target, to maintain low numbers of possums (less than 5% Residual Trap Catch), has been achieved. The Key Native Ecosystem programme aims to protect areas that are important for native plants and animals in the Wellington region. Through this programme possums, mustelids and rats are controlled in 58 sites. The annual target for possums (less than 5% Residual Trap catch) has been achieved. The annual targets for mustelids and rats (less than 2% and 10% Tracking Tunnel Index) have been largely met.
	1.5.F	Work with community groups to facilitate and support tree planting and ecological restoration activities		Underway and ongoing	Biodiversity, Parks	The Te Awarua-o-Porirua Harbour and Wairarapa Moana Community Restoration Funds have helped community groups enhance and protect biodiversity in their local area by providing resources to plant native plants and carry out restoration activities. Through the Te Awarua-o-Porirua Harbour Catchment project, the Biodiversity department has worked with Porirua schools to plant 900 plants at Bothamley Park and 2160 plants at Te Awarua-o-Porirua Harbour. We also worked with Aotea Conservation volunteers to plant 800, Growing Places Trust to plant 777, and Whitireia Park Restoration Group to plant 310 plants. We funded the assert-Tatou Trust nursery to grow and supply 5260 plants to other projects. Through the Wairarapa Moana Wetlands project, the Biodiversity department has worked with the South Wairarapa Biodiversity Group to plant 2000 plants at Okorewa Lagoon, and Friends of Ōnoke Spit to plant 400 plants at Ōnoke Spit. During the year Parks has continued to work with a range of community groups across the network. The following sites have been prepared and/or planted with the support of volunteers and/or private trusts: - Queen Elizabeth Park - dune swamp, coastal dunes (alongside Te Ara o Whareroa), north-eastern peatland - Belmont Regional Park – Maara Roa (Cannons Creek), Stratton St & Hill Rd entrances - Battle Hill Farm Forest Park – Horokiri Stream - Whitireia Park coastal escarpment, Te Onepoto Stream - East Harbour Regional Park - Parangarahu Lakes & Baring Head - Kaitoke Regional Park – Te Marua Bush Volunteers also carry out significant nursery work to supply plants to the regional parks.

Policies	Actions 2015-2017		Examples/modes of delivery	Status of Action *at Oct 2015*	Lead departments	Summary of progress
2.1 Consider the effects of climate change as an integral part of planning and decision-making	2.1.A	Develop a policy of assessing possible climate change implications of all projects/ proposals in council papers, reports and project plans		Completed. Implementation ongoing	Democratic Services	This policy and process (set out in the Greater Wellington Climate Change Consideration Guide) was completed in May 2017 and continues to be implemented.
	2.1.B	Fully consider the effects of climate change when assessing resource consent applications and notices of requirement		Ongoing	Environmental Regulation	Environmental Regulation's process for considering the effects of climate change predated the adoption of the Climate Change Strategy, as these were already set out in the Resource Management Act 1991. The RMA requires that all decisions have particular regard to the effects of climate change on natural and physical resources. Since the adoption of the Strategy, the existing techniques and information used have been enhanced by increased knowledge about the importance of adaptive pathways planning and updated information about the effects of climate change.
	2.1.C	Where possible incorporate the aims, objectives and actions identified in this Strategy into regulatory and planning processes		Ongoing	Environmental Policy, Environmental Regulation, Corporate Planning	The aims, objectives and actions in this strategy are consistent with those set out in the Regional Plan, the Regional Policy Statement and the proposed Natural Resources Plan. The 2018 - 2028 Long Term Plan considered and incorporates climate change at an individual activity level. Greater Wellington continues to advocate for the inclusion of aims, objectives and actions consistent with those in this strategy in planning documents of which it has influence alongside central and regional stakeholders, for example the Regional Land Transport Plan and the Regional Public Transport Plan.
	2.1.D	Assess whether climate change implications have been adequately considered when reviewing existing policies		Ongoing	All departments	A process was implemented in May 2017. The process is set out in the GWRC Climate Change Consideration Guide and is triggered via the council and committee reporting process, corporate planning (annual plan and long term plan) processes and the Project Management Office process.
	2.1.E	For each activity or hazard being considered, identify whether it is vulnerable to climate change, what the relevant climate factors are and, if appropriate, evaluate risks and priorities and weigh these against other risks and opportunities		Underway and ongoing	All departments	Departments incorporating an assessment to determine whether the proposed activities are vulnerable to climate change. This is part of the climate change consideration guide, which is available on the intranet site and forms part of several Greater Wellington templates and processes (see 2.1D above).
2.1 continued	2.1.F	Identify climate change risks to GWRC's functions and services and their estimated consequences and costs, as well as actions to mitigate each risk in GWRC's Risk Register		Underway	Strategic Planning	Progressing this action requires two key components to be established. Firstly, a process for considering the effects of climate change that could be applied consistently across the organisation. This has been achieved via the process which is set out in the Greater Wellington Climate Change Consideration Guide. Secondly, updated projections of how climate change related impacts could manifest within the region, presented in a meaningful format. Greater Wellington

Policies	Actions 2015-2017		Examples/modes of delivery	Status of Action *at Oct 2015*	Lead departments	Summary of progress
						commissioned a report from NIWA which 'downscales' the national projections (derived from IPCC modelling) and provides data for a range of variables to the end of the century. The report and its associated data (the variables) was released in August 2017. The data can be analysed using GIS, which will enables officers to identify climate change risks to our functions and services. The implications of those impacts were included in the trends and assumptions for our Long Term Plan 2018-28. During the 'activity review' phase of the Long Term Planning process, all of Greater Wellington's existing and proposed activities were required to consider the implications of (and on) climate change. That process will include estimating consequences and costs, as well as identifying actions to mitigate each risk.
2.2 Increase long-term adaptive capacity through the use of adaptive planning tools and techniques	2.2.A	Construct adaptation pathways maps in order to contrast and compare different flood management options in the region		Underway	Flood Protection, Strategic Pl.	Adaptive pathways planning have been adopted as a core approach to the development of flood plain management plans. For example the approach was utilised in the Hutt City River Link project.
	2.2.B	Use adaptive planning concepts to understand and evaluate the potential long-term consequences of different policy actions	Sustainable Delta Game workshops	Underway	Strategic Planning	In previous years, Greater Wellington supported the development of the Sustainable Delta game (facilitated by Victoria University in conjunction with Deltares in the Netherlands), and two game versions with NZ settings were produced. One is situated in a coastal environment and the other for a river environment. The games are used for training purposes and to introduce stakeholders to the concept of adaptive planning. The game has been played multiple times both internally and with external stakeholders. Greater Wellington also sponsored, and helped design (along with other regional councils) a New Zealand version of the educational game Aqua Republica. The game teaches a holistic approach to catchment management, including the ability to manage climate change, implement adaptive planning and respond to changing demands from stakeholders.
	2.2.C	Support research into new technologies and new methods of adaptation to minimise risks from a changing climate		Not yet started	Strategic Planning	Greater Wellington has participated in events put on by the Deep South Science Challenge, and supported several bids, including: - An update to the High Intensity Rainfall Design System flood modelling tool, undertaken by NIWA - National flood risks and climate change (Riskscape): Emergent exposure of flood inundation hazards under future climate change in New Zealand, undertaken by NIWA - NZ SeaRise: Improved sea-level rise projections for New Zealand to better anticipate and manage impacts, from Victoria University

Policies	Actions 2015-2017		Examples/modes of delivery	Status of Action *at Oct 2015*	Lead departments	Summary of progress
2.3 Identify key information requirements relating to climate change effects	2.3.A	Obtain up to date projections of climate change effects downscaled to the regional, catchment and local area level and apply this information consistently across all climate-relevant council plans and operations*		Underway and ongoing	Environmental Science	The research component for this work stream is now complete, with a new climate change GIS mapping tool released on 3 September 2018 available to all staff (https://mapping1.gw.govt.nz/gw/ClimateChange/). This tool is providing council with the most updated climate change projections for each whaitua, down to the local level. Other downscaling and interpretation has been incorporated into flood hazard mapping across the region; and has also been conducted for the Ruamahanga and Porirua Whaitua and is being applied to work in those areas as applicable.
	2.3.B	Provide sound technical input on the likely impact of localised climate change effects on regional resources, meteorological hazards and ecosystems to improve the overall robustness and adaptability of policy and operational approaches		Underway and ongoing	Environmental Science	Activity of this type is ongoing and has been enhanced by the NIWA Regional Downscaling mentioned above at action 2.3.A. Key projects in which Environmental Science have provided climate change related input include the development of the Natural Hazards Management Strategy, the Collaborative Modelling Projects for the Porirua and Ruamahanga catchments and the Water Wairarapa project. Other relevant initiatives include the Parks Network Plan, which is incorporating climate change in every aspect of its review process. This is happening under assistance from ESCI, promoting the concept 'Parks are our natural solution', due to their role in sequestering CO2 from the atmosphere.
	2.3.C	Develop an ongoing environmental monitoring programme that can be sustained over the long term to help assess regional climate change threats and vulnerabilities	E.g. Driver-Pressure- State-Impacts- Response (DPSIR) model to provide context for climate change threats	Underway and ongoing	Environmental Science, Biodiversity	Our seasonal climate webpage is supporting the council with real-time monitoring of climate anomalies, and potential threats such as droughts and extreme weather events (http://graphs.gw.govt.nz/#dailyClimateMaps). Research is underway to be able to provide climate change impacts attribution, so that we know exactly how much climate change is impacting each council activity (e.g. attribution studies of weather extremes).
2.4 Implement planning and policy measures that increase long-term resilience to climate change impacts	2.4.A	Integrate climate change mitigation and adaptation into regional spatial planning, including public investment and the management of private development		Not yet started	Strategic Planning	Regional Spatial planning initiative has not been progressed.
	2.4.B	Ensure that climate change is a prominent feature in the development of the Regional Natural Hazards Strategy	Regional Natural Hazards Strategy	Underway	Environmental Policy	Achieved - climate change is a prominent feature and is integrated throughout the strategy
	2.4.C	Map the major watercourses/floodplains in the region with allowances for climate change based on the best available data		Underway	Flood Protection	Climate change projections based on Ministry for the Environment guidance are incorporated into all Flood Plain Management plans.

Policies	Actions 2015-2017		Examples/modes of delivery	Status of Action *at Oct 2015*	Lead departments	Summary of progress
	2.4.D	Undertake modelling to assess potential effects of sea level rise on freshwater abstraction	Sustainable Yield Modelling for Waiwhetu Aquifer	Underway and ongoing	Water Supply, Environmental Science	The Sustainable Yield Model (SYM) used for water supply strategic planning was upgraded in 2015/16 to include the ability to assess the effects of sea level rise on aquifer abstraction.
	2.4.E	Assess future water storage requirements for Wellington region's water supply in the context of projected climate change effects		Underway	Water Supply, Environmental Science	As part of the 2015/16 Sustainable Yield Model (SYM) upgrade NIWA also provided downscaled hydroclimate datasets consistent with the IPCC 5th assessment. Modelling was completed in 2016/17 using the upgraded SYM to assess the timing for the next major water source upgrade as well as the storage requirements and other upgrades needed to mitigate the effects of climate change through to the end of the century.
3.1 Share knowledge	3.1.A	Participate in national and international forums where there are opportunities to connect with other local government organisations so that experiences and learnings can be shared	Climate Change Impacts and Implications Research Programme (MBIE), Transforming Cities Thematic Research Initiative (University of Auckland), ICLEI	Underway and ongoing	Multiple departments	Officers have participated in multiple forums, and working groups, provided feedback on several central government, crown research and private sector initiatives and documents. This year, this has included: - EV World Industry Symposium 2018 - LGNZ Climate Change Symposium 2018 - MfE Climate Change Adaptation Guidance workshop 2018 - Deep South Science Challenge Climate Ambassadors workshop 2018 - Forest and Bird Climate 2050: Discussing Wellington's Future
	3.1.B	Identify successful local government examples of adaptation actions and evaluate their suitability for addressing climate risks in the Wellington region		Underway and ongoing	Strategic Planning	Officers keep a watching brief and participate in relevant seminars and training opportunities. Greater Wellington has learnt about the community-led coastal adaptation planning process undertaken in the Hawkes Bay by a coalition of agencies, and is seeking to use the same methods in the Wellington Region. This is being co-ordinated through the Wellington Region Climate Change Working Group that Greater Wellington facilitates and involves working collaboratively with the territorial authorities at an operational and political level.
	3.1.C	Commission, facilitate or otherwise support region-specific research into climate change impacts and implications where it relates to council roles and functions and where knowledge gaps exist, and make this information widely available		Underway and ongoing	Multiple departments	Greater Wellington has commissioned a number of studies that are publically available: - AECOM 2016 Greenhouse gas inventory for the Wellington region - NIWA 2012 Sea-level variability and trends: Wellington Region - NIWA 2011 Joint-probability of storm tide and waves on the open coast of Wellington - NIWA 2012 Assessing the storm inundation hazard for coastal margins around the Wellington region - NIWA 2017 Climate Change and variability in the Wellington region. Climate change modelling is also incorporated into most flood hazard risk maps which can be accessed via the GWRC Flood Hazard website

Policies	Actions 2015-2017		Examples/modes of delivery	Status of Action *at Oct 2015*	Lead departments	Summary of progress
						http://mapping.gw.govt.nz/GW/Floods/
	3.1.D	Publicise and celebrate climate change and resilience success stories in the region to inspire positive behaviour change		Underway and ongoing	Communications	Greater Wellington's major climate change story this year was the launch of the report on Climate Change and variability in the Wellington region. There was a media event associated with the release of the report and numerous stories were published as a result.
	3.1.E	Regularly measure and publish up to date information on greenhouse gas emissions in the Wellington region.	Victoria University of Wellington Summer Scholar Research Programme, Worcester Polytechnic (USA) Interactive Qualifying Project	Underway and ongoing	Flood Protection, Public Transport, Environmental Science	In collaboration with other councils in the region Greater Wellington commissioned AECOM to produce a regional GHG inventory in 2014. The inventory was updated in 2016, and councils' have recently agreed to update this again in 2019.
	3.1.F	Develop an online platform to serve as an information repository and a means to connect with others on climate change responses regionally and nationally		Ongoing	Strategic Planning	A climate change section of the Greater Wellington website was established in 2016 and is regularly updated with relevant information. Other initiatives such as the Climate Change Impacts and Implications programme have established websites where necessary, linked to the Greater Wellington site.
3.2 Advocate, empower and collaborate	3.2.A	Encourage and support communities and individuals to make their own contributions to combating climate change	competitions, open days, GWRC-led projects, and social support tools	Underway and ongoing	Multiple depts.	Activities of this type span both Mitigation and Adaptation and include: • The Regional EV Working Group (see action 1.1.A) • Councillor and officer participation in numerous forums in which the need for emissions reductions and adaptation planning are emphasised • Multiple submissions in which the need for emissions reductions and adaptation planning are emphasised (including re the updated EECA Strategy and the ETS review)
	3.2.B	Strengthen ties with the insurance sector to help improve the market penetration of natural disaster insurance and realise the potential of insurance pricing and other financial products for risk-awareness, prevention and mitigation and		Underway	WRS office	Tim Grafton from the Insurance Council of New Zealand recently spoke to the Wellington Region Climate Change Working Group Insurance industry perspective on managing climate change-related risks. As part of the development of the Wellington Regional Investment Plan a study around the ongoing issue of insurance for natural disasters (including flooding and earthquake) is being considered.

Policies	Actions 2015-2017		Examples/modes of delivery	Status of Action *at Oct 2015*	Lead departments	Summary of progress
		for long-term resilience in infrastructure investment and business decisions				
	3.2.C	Advocate for stronger measures to address climate change drivers and impacts with central government and other relevant parties		Underway and ongoing	ELT, councillors	Advocacy of this type has been expressed in several forums, and via submissions in which the need for emissions reductions and adaptation planning are emphasised. This has included submissions on the Carbon Zero consultation, the productivity report on transitioning to a low carbon economy and LGNZ sector position on climate change.
	3.2.D	Engage university students in climate change projects through sponsoring student study programmes and internships. Involve schools in climate change projects and explore Enviroschools as a possible mode of delivery.	Sustainable Transport team are working with Enviroschools on a sustainable transport curriculum resource. This is being launched 2017 and will be part of Movin' March 2018.			Officers from the Environment Science department have taught climate change at local schools in the Lower Hutt area, accompanied by a practical demonstration of climate measurements. A rain gauge has been installed at a school in Karori, which will help the students understand the climate fluctuations, and gain awareness of climate change. Strategy group took on an intern in early 2018 to work with the Sustainable Transport team on travel planning, with a particular focus on reducing emissions from the commute to work. The Sustainable Transport team have worked with Enviroschools to produce and launch the Active Travel Action curriculum resource. This toolkit is available to all schools and uses student inquiry methodology to take action in response to climate change and implement sustainable active travel practices.
	3.2.E	Work with the community and with stakeholders to facilitate behaviour change.				Highlights in this space include the work progressed by Greater Wellington's Sustainable Transport team (see action 1.2.A and B)
	3.2.F	Take an active leadership role, fostering public debate and awareness through, for example, hosting talk series', symposia, forums and other public events.				Greater Wellington has not hosted any public events on climate change this year. The 2017 NIWA Climate change and variability report for the Wellington region was well publicised, and information was provided. Further work on this has meant that the information can be explored using an interactive online mapping tool on the Greater Wellington website Greater Wellington facilitating the Regional EV Working Group, which is a forum

Policies	Actions 2015-2017		Examples/modes of delivery	Status of Action *at Oct 2015*	Lead departments	Summary of progress
						comprising a range of organisations and EV matters are discussed.

Additional actions

Some actions that were not listed in the October 2015 Implementation plan evolved during the period since the strategy was adopted.

Policy most relevant to additional action	Actions		Examples/modes of delivery		Lead departments	Summary of progress
3.2 Advocate, empower and collaborate	Adtnl 01	Convene a working group consisting of representatives of councils and relevant stakeholders with an interest in electric car infrastructure, to promote the installation of a network of fast charging stations in the Wellington region.	Form a regional working group		Strategic planning	GWRC established a Regional Electric Vehicle Working Group (REV-WG) in 2016 and continues to convene it. REVWG is comprised of officers from councils across the region with participation from central govt. agencies and the private sector. The group operates as a coordinating mechanism for the promotion of electric vehicles (EV) generally, and in relation to the development of charging infrastructure. REV-WG meets quarterly and is open to sector stakeholders and interested parties from throughout NZ. REV-WG activity is summarised in six monthly updates which are published on the GWRC website.
	Adtnl 02	Establishing and convening a Wellington Regional Climate Change Working Group.	Form a regional working group		Strategic planning	Greater Wellington, along with the regions city and district councils established a Wellington Region Climate Change Working Group (WRCCWG) in late 2017. Greater Wellington convenes and chairs the group, which comprises a councillor from each councils across the region and three iwi appointees nominated by Ara Tahi. The WRCCWG provides a forum for councils and iwi to network, discuss issues, share information and where appropriate, achieve a consistent approach across all jurisdictions on climate change mitigation (reducing greenhouse gas emissions) and adaptation (preparing for impacts such as sea level rise, drought and

Policy most relevant to additional action	Actions		Examples/modes of delivery		Lead departments	Summary of progress
						enhanced natural hazards effects). The WRCCWG is supported by a newly established staff 'Low Carbon Transition Steering Group' (mitigation) and the Natural Hazards Strategy Working Group.
1.2 Promote and provide attractive and accessible low emission transport in our own fleet and in future public transport contracts	Adtnl 03	Demonstrate leadership in regard to electric vehicles and reduce emissions from the GWRC corporate vehicle fleet by undertaking to replace existing vehicles with electric vehicles when they are due for replacement.	Change corporate vehicle purchase policy to prioritise electric vehicles		Strategic planning	Greater Wellington's corporate vehicle purchase policy was amended in 2016 and now prioritises the purchase of electric vehicles. A business case must be provided to justify the purchase of a vehicle with an internal combustion engine.

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Climate Change Strategy Implementation Plan: Summary of progress to date - *Performance Measures*

Objectives	Performance measures	Level of GWRC control or influence	Trend at 2017/18	Comment for 2017/18 Summary of Progress
Mitigation	Reduced energy consumption (kilowatt hours per capita)	GWRC cannot directly control energy consumption in the region but can exercise indirect influence through supportive policies in the RPS (policies 7, 9, 10, 11, 45, 55, 56, 57, 65 and 67) as well as providing a rating framework and promoting community awareness.	Data not available	The 2016 Regional GHG inventory provides time series data from 2001 to 2015 and demonstrates that per capita emissions from energy (stationary energy and transport emissions combined) reduced from 5 tCO2-e in 2001 to 4 in 2015. The total amount of electricity consumed within the region reduced by 1% between 2001 and 2015. It is interesting to note that since 2013 electricity use in the region decreased by 6%. Transport emissions increased by 2% between 2001 and 2015 and represented about 39% of gross emissions in the Wellington region in 2015. Petrol related emissions decreased by 8% over the period, yet diesel emissions increased by 19%. During the 2000/01 to 2014/15 period, the regional population increased by 13 percent. Note that this data is from 2015, the same year the climate change strategy was adopted. Councils' have recently agreed to update this again in 2019.
	Reduced private vehicle kilometres travelled per capita	GWRC can influence through improvements to the regional public transport network as expressed through the Regional Public Transport Plan, policies in the RPS (9, 10) and the Regional Land Transport Plan, as well as advancing a regional integrated approach to spatial planning	Data not available	The 2016/17 Annual Monitoring Report shows that vehicle kilometres travelled (VKT) for the region has increased by 14% from 2001 to 2016. During this time the population has grown by 15%, public transport mode share has increased from 26% to 35% and active mode trips have gone up from 16% to 20%. Over the last ten years the trend for VKT per capita has shown little change overall, with some fluctuations year to year.
	Increased (%) active and public transport mode share	GWRC can influence through improvements to the regional public transport network as expressed through the Regional Public Transport Plan, objectives in the Regional Land Transport Plan and promotion of active transport through school and workplace travel programmes.	Data not available	The proportion of pedestrians crossing into Wellington City compared to other transport modes (cycling, cars, and public transport) has fluctuated from 16% to 19% since 2001 but the five year trend indicates an overall decrease over this period. The average number of cyclists (morning peak) has increased by only 1% in the last five years, (2012 to 2017). The mode share for cyclists has marginally increased over this period from 2.5% to 2.6% and the five year trend-line reflects this with an almost flat trend line.

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Objectives	Performance measures	Level of GWRC control or influence	Trend at 2017/18	Comment for 2017/18 Summary of Progress
				In 2017 the mode share for public transport is 34.7%, a 6.8% increase since the previous year. http://www.gw.govt.nz/assets/2016-17-Annual-Monitoring-Report-for-RLTPWeb.pdf
	Increased energy efficiency of public transport fleet	Within the control of GWRC and public transport providers Kiwi Rail, Mana-Newlands and NZ Bus	Data not available	The new Public Transport Operating Model came into law in 2013. PTOM is a new way of procuring and delivering train, bus and harbour ferry services. It aims to build long-term commercial partnerships between regional authorities and public transport operators, to improve services and grow patronage. Greater Wellington aims to deliver a high quality service to customers that encourages them out of cars and onto public transport, especially in peak times. Our approach to PTOM bus procurement was the first in New Zealand to incentivise operators to provide low emission bus fleets and will accelerate the replacement of older diesel buses with newer vehicles with better fuel economy and therefore reduced emissions. Greater Wellington's contracts are designed to ensure that operators provide well-maintained vehicles at all times and the PTOM contract with Tranzit includes the phase in of 32 electric buses from July 2018.
	GWRC's corporate emissions are measured and reported and a reduction in council emissions is demonstrated	GWRC has significant control over emissions generated through its own activities and, to a lesser degree, its investments	tCO2-e reduced by 3.8% between 2014/15 and 2015/16 (1171 to 1126 tCO2-e)	Corporate emissions are measured and reported in Greater Wellington's annual reports. Emissions reduction targets were developed and adopted in principle by in early 2016. The targets adopted were 'investment targets', as opposed to those that could be achieved via a 'business as usual' approach. The emissions reduction targets are 2019/20 =10%; 2024/25 = 25%; 2029/30 = 45%; 2045/50 = 70%. Corporate emissions are increasing. There was a significant increase in emission volumes following the Kaikoura earthquake due to changes in office locations. While these organisational changes and calculation method improvements make

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Objectives	Performance measures	Level of GWRC control or influence	Trend at 2017/18	Comment for 2017/18 Summary of Progress
				it difficult to precisely compare the current footprint to the base year (2014/15), the trend is clearly one of rising emissions. Long term office accommodation uncertainty continues to limit emission reduction investment choices at this time.
	Steps are taken to divest GWRC of investment in fossil fuel and coal companies	Within GWRC control	An appropriate metric to demonstrate a trend does not exist – work is ongoing	Greater Wellington has no direct investments in fossil fuel extraction industries. During 2017 The Treasury Management Policy was updated and included a section on divestment of any direct investment in fossil fuels and preventing any future investment where practical. Letters were written to our main banks to advise them of the Climate Change Strategy, and pointing out the policy of divestment of any direct investment in fossil fuel extraction industries. The letter also sought an update from the banks seeking their approach to reducing the risk associated with direct and indirect financial involvement with fossil fuels.
	Increased rates of afforestation and reforestation in ways that enhance carbon sequestration and indigenous biodiversity	GWRC has a significant role in biodiversity management in the region, as well as owning and managing large areas of park and forest land. GWRC can also exercise some influence over tree-planting activities on private land through the work of the Land Management department	An appropriate metric to demonstrate a trend does not exist – work is ongoing	Refer to actions 1.5E and 1.5F in Attachment 1.
Adaptation	A policy of assessing climate change implications of all council projects/proposals is implemented	Within GWRC control		This policy and process was implemented in May 2017. The process is set out in the Greater Wellington Climate Change Consideration Guide and is triggered via the council and committee reporting process. Corporate planning (annual plan and long term plan) processes and the Project Management Office processes also use the consideration guide.
	Increased participation in adaptation planning workshops among officers and councillors	Within GWRC control		Officers have participated in the Adaptive Pathways game and an organisation wide competition for the aqua republican game was conducted in early 2017 (for more info about these initiatives see action 2.2.B in Attachment 1). Greater Wellington has agreed in principal a proposal to establish a regional community-council partnership approach to develop a coastal adaption programme in response to the impacts from climate change, sea level rise and related coastal hazards. This programme of work is being overseen by the Wellington Regional Climate Change Working Group.

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Objectives	Performance measures	Level of GWRC control or influence	Trend at 2017/18	Comment for 2017/18 Summary of Progress
	Downscaling of climate projections to the regional and local level is completed and this information is used to inform strategic planning	This is contingent on the delivery of work being undertaken by the Ministry for the Environment and NIWA		Regional level downscaling for all relevant variables (other than sea level rise) was commissioned in early 2007 and was completed and released in August 2017. This work has supported a range of adaptation activities across all departments, and was used for activity reviews and planning during the Long Term Planning process 2018-28.
	Improved resilience of infrastructure to climate change impacts, informed by outcomes from the UN-Habitat Making Cities resilient campaign*	GWRC can improve the resilience of its own infrastructure assets and can exercise some influence over the climate-resilience of regional infrastructure through policies in the Regional Policy statement		The implementation of the Climate Change Consideration process ensures that Greater Wellington will progressively adopt an adaptive pathways planning approach to its management of infrastructure. The methods used will evolve over time and will incorporate not just the work that came out of the UN-Habitat Making Cities resilient campaign, but a range of other initiatives including the Deep South Science Challenge and the Victoria University led Impacts and Implications programme.
	Reduced vulnerability of communities to climate-related events	GWRC can exercise some influence on community preparedness and resilience, largely through the Wellington Region Emergency Management Office (WREMO)		The Wellington Region Natural Hazards Management Strategy has been prepared by Greater Wellington in partnership with the region's city and district councils (except Wairarapa councils) and WREMO. The Strategy seeks to provide a regional framework for consistent approaches to natural hazards management in district and regional plans, asset management plans and long term plans. The Strategy aims to assist councils when considering natural hazards in their district and in their efforts to manage risks, enhance resilience, and prepare for emergencies. It is expected that the Strategy will enhance land use and subdivision planning in any future District Plan reviews.
Awareness	Increased knowledge is derived through participation in regional, national, and international climate change	Within GWRC control		Staff and Councillors have been participating in forums, workshops and seminars discuss resilience and climate change adaptation as available and appropriate.

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Objectives	Performance measures	Level of GWRC control or influence	Trend at 2017/18	Comment for 2017/18 Summary of Progress
	forums			
	More climate change and resilience focussed stories are shared with the community	Within GWRC control		Notable news articles include the late 2015 "How sea level rise will affect the Wellington region and possible solutions". In the 2017/18 year, Greater Wellington's major climate change story was the launch of the report on Climate Change and variability in the Wellington region. There was a media event associated with the release of the report and numerous stories were published as a result.
	Increased mobilisation of venture capital for development of new enterprises in the region supporting mitigation and adaptation	GWRC can have some limited influence in this area, mainly through the work of the Wellington Regional Strategy office and WREDA		WREDA yet to demonstrate action in regards to climate change.
	Increased number of cross-council climate resilience collaborations in the region	Within GWRC control, though is contingent on the ability and willingness of other councils to collaborate		Greater Wellington, along with the regions city and district councils established a Wellington Region Climate Change Working Group (WRCCWG) in late 2017. Greater Wellington convenes and chairs the group, which comprises a councillor from each of the region's councils and three iwi appointees nominated by Ara Tahi. The WRCCWG provides a forum for councils and iwi to network, discuss issues, share information and where appropriate, achieve a consistent approach across all jurisdictions on climate change mitigation (reducing greenhouse gas emissions) and adaptation (preparing for impacts such as sea level rise, drought and enhanced natural hazards effects). The WRCCWG is supported by a newly established staff 'Low Carbon Transition Steering Group' (mitigation) and the Natural Hazards Strategy Working Group.
	Collaborations established with the finance sector to design and implement new financing tools that redistribute investment/performance risk and make regional investment in mitigation and adaptation	The ability to initiate connections lies largely within GWRC control, though design and implementation of new financing tools lies largely outside of GWRC control		Effective implementation of initiatives of this type will require some degree of central government influence. In the 2016/17 year officers provided information in response to the Minister's Technical Working Group on Climate Change Adaptation working group's initial questionnaire and welcomed the opportunity to participate further, including facilitating regional connections as opportunities evolve.

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Objectives	Performance measures	Level of GWRC control or influence	Trend at 2017/18	Comment for 2017/18 Summary of Progress
	more feasible and attractive			
	Ongoing collaborations are established with tertiary institutions to engage students in climate change research projects	This is largely within GWRC control, though does rely on availability of students and partnership opportunities with learning institutions		Officers have had an active participation with the Victoria University led Climate Change Impacts and Implications programme, providing research inputs and collaborating on the development of community engagement tools relating to flooding, adaptive planning and coastal risks..

* The United Nations office for Disaster Risk Reduction. 2012. Making Cities Resilient Campaign – Strategy 2012-2015

If there is no entry in the "Trend at 2017" column, an appropriate metric to demonstrate a trend does not exist, and the work is ongoing

greater WELLINGTON
REGIONAL COUNCIL
Te Pane Matua Taiao

Report	**2018.411**
Date	11 September 2018
File	CCAB-10-570
Committee	**Environment**
Author	**Jake Roos, Acting Climate Change Advisor**

Emissions Trading Scheme Consultation

1. Purpose

To introduce the current consultation on the NZ Emissions Trading Scheme (NZ ETS), this also encompasses changes to the Permanent Forest Sinks Initiative (PFSI), and to seek approval for a submission on the consultation.

2. Background

The NZ ETS is presently New Zealand's only legislative tool for reducing greenhouse gas (GHG) emissions. It has not been effective at doing this, with the Ministry for the Environment stating in 2016 that it had not made any measureable difference to emissions. Reform of the scheme is required so that it can help the country meet our climate change targets. Greater Wellington has expressed its views on the ETS in the past, most recently to the Productivity Commission for their 'Low Emissions Economy' report.

There are two documents or sets of proposed improvements to the NZ ETS:

- The first set of improvements proposes to strengthen the NZ ETS framework so that it is a credible and well-functioning scheme that contributes to reducing GHG emissions.

- The second set relates to forestry and proposes changes to reduce complexity and other barriers to forestry owners being part of the scheme in order to promote more participation and afforestation. As part of this, it is proposed that all forests presently registered in the PFSI are moved into a new category in the ETS for permanent post-1989 forests. Greater Wellington presently has 440Ha of its forest-land in the PFSI.

A decision about whether agriculture will be included in the NZ ETS is not part of the consultation. This decision will be made next year.

Submissions are due by 5.00pm on Friday 21 September 2018.

Officers have considered the proposals, and recommended responses to the questions being asked can be found in **Attachment 1**.

3. Comment

Both consultation documents (http://www.mfe.govt.nz/consultation/ets) include a detailed and technical suite of possible changes, each of which submitters are invited to express their views on. The government indicates its preferred option in most cases. There are thirty seven questions about the ETS framework and sixty questions about forestry. It is not proposed that Greater Wellington express a position on every one of these questions.

For the NZ ETS framework consultation, it is proposed to respond only to the key questions posed in the consultation summary. Broad support of the government's proposed changes is suggested.

For the forestry consultation, responses have been targeted at those questions that relate most closely to Greater Wellington's existing interests (for example, in the PFSI), and to the questions that relate most strongly to making the NZ ETS an effective tool for driving the establishment of new forests, and in particular permanent forests.

Summary of the NZ ETS framework consultation

The government proposes that supply of emissions units into the NZ ETS is limited by a cap on the overall number, and that these emissions units are auctioned to determine their price. In the past, the main supply of units into the NZ ETS came from overseas, but an oversupply of low integrity units is partly what has made the scheme ineffective. Emitters are still mainly relying on the units they stockpiled from when these international units were available, and new provisions for unit supply must be made before this stockpile is used up.

Auctioning a fixed number of units each year will not replace the existing price ceiling mechanism, where units can be bought at a fixed price from the Government (presently for $25/tonne). The fixed price offer should be significantly higher than the trading or auction price of emissions units, but that is not the case at the moment. The consultation asks if this price ceiling should be raised prior to 2020.

Sale of these fixed-price units will be in excess of any cap on total emissions, so represents a real-world emissions budget 'blow out' – therefore their use should only be triggered if the trading or auction price is rising so high it threatens the viability of the scheme as a whole. That is why the government is also proposing an interim step of a 'cost containment reserve', which is a supply of units from within the overall cap which gets released when a certain price is reached at auction.

A price floor in the NZ ETS is not put forward as an option in the consultation. A price floor has the advantages of giving certainty to investors in emissions reducing measures (including forests) of their minimum level of returns, which is helpful even if it is never used.

There are also questions in the consultation about the use of international emissions units, the phasing out of the free allocation of emissions units to trade exposed industries and regarding public disclosure of the emissions returns of scheme participants.

No views have been expressed in response to whether funds raised from the auction of emissions units should be earmarked for a specific purpose.

Summary of the consultation on Forestry in the NZ ETS

The main proposed changes are:

1) To introduce 'average-age' accounting to determine the allocation of emissions units. This will reduce the uncertainty, risk and administration costs that arise under the present 'carbon-stock' method, where owners of forests in the NZ ETS must pay back the emissions units associated with the tree they harvest at the time they are harvested. Using averaging, they would instead earn fewer units (associated with the average age of their forest) but would not be required to pay any units to the government at harvest.

2) To create new category in the NZ ETS for permanent post-1989 forests and move all forests presently registered in the PFSI into it. The Greater Wellington presently has 440Ha of its forest-land in the PFSI. Emissions units would continue to be allocated according to the carbon stock method, so this would not result in owners of PFSI forests (including Greater Wellington) having to pay any emissions units back. The Government is proposing to move the legislation for permanent forests from the Forests Act to The Climate Change Response Act (CCRA). In doing so it would include legal provisions to ensure the permanence of the forests, doing away with the need for separate covenants to be created for each.

Both of these measures are intended to reduce the barriers to entry of forests into the NZ ETS and thereby encourage afforestation. The recommended responses in the attached draft submission are supportive of these proposals.

4. Communication

No external communication is proposed as an outcome of the consideration of this report. When a response is approved by Council, its answers will be submitted to the government by the most suitable method.

5. Consideration of climate change

The matters requiring decision in this report have been considered by officers in accordance with the process set out in the Greater Wellington Climate Change Consideration Guide.

5.1 Mitigation assessment

Officers have considered the effect of the matter on the climate. Officers recommend that the matter will, in the longer term, have an effect on the

emission of greenhouse gases, as that is what the Emissions Trading Scheme and the concerns.

Officers note that the matter does affect the Council's interests in the Emissions Trading Scheme (ETS) and the Permanent Forest Sink Initiative (PFSI), as explained in the previous sections.

5.2 Adaptation assessment

Officers have considered the impacts of climate change in relation to the matter. Officers recommend that the impacts of climate change have no direct bearing on the matter, other than that the mitigation of greenhouse gas emissions will reduce these impacts.

6. The decision-making process and significance

6.1 Significance of the decision

Officers have considered the significance of the matter against the requirements of Part 6 of the Local Government Act 2002, taking into account the Council's significance and engagement policy and decision-making guidelines. Due to the nature of this decision, officers recommend that the matter be considered to have low significance.

A formal record outlining consideration of the decision-making process is not required in this instance.

6.2 Engagement

Engagement on the matters contained in this report aligns with the level of significance assessed. In accordance with the significance and engagement policy, no engagement on the matters for decision is required.

7. Recommendations

That the Committee:

1. ***Receives** the report.*

2. ***Notes** the content of the report.*

3. ***Agrees** that a consultation response based on the recommended answers detailed in **Attachment 1** to this this report be submitted.*

4. ***Delegates** to the Chair the ability to make minor editorial amendments to the submission.*

Report prepared by:	Report approved by:	Report approved by:
Jake Roos Acting Climate Change Advisor	**Nicola Shorten** Manager, Strategic Planning	**Luke Troy** General Manager, Strategy

Attachment 1: Recommended responses to selected questions from 'Improvements to the NZ Emissions Trading Scheme' and 'A Better ETS for Forestry' consultation documents.

Greater Wellington Regional Council draft response to Emission Trading Scheme Consultation 2018

'Improvements to the NZ Emissions Trading Scheme' consultation

It is proposed that feedback to the summary of proposals is given, as set out in italics below.

Summary of coordinated decision-making proposals

- The Government proposes to introduce an annual process for setting and announcing NZ ETS unit supply volumes over a five-year rolling period. This will set an overall limit (i.e., a cap) on the number of units supplied into the NZ ETS market, and allow this to be managed over time.

- The Government seeks feedback on what factors should be considered when setting unit supply volumes, and whether there needs to be any restrictions on how and when decisions are made.

Recommended response: Support the introduction of a cap. Unit allocation in the NZ ETS must be aligned with the national carbon budget.

Summary of auctioning proposals

- The Government proposes to auction New Zealand Units (NZUs) using a single round, sealed bid, uniform price auction format.

- This type of auction is considered to minimise complexity, protect against market integrity risks, and support market efficiency. This proposal takes into account that a secondary market for NZUs already exists.

- It is proposed that all New Zealand Emissions Trading Register (NZ ETR) account holders are eligible to participate in auctions. This is to encourage wide participation and maximise the opportunity for competitive bidding.

- The Government also seeks views on whether auctions should be held weekly, monthly, quarterly, or annually. The Government does not prefer weekly or annual auctions.

- Feedback is also sought on whether auction proceeds should be earmarked for a specific purpose.

Recommended response: To be confirmed.

Summary of price ceiling proposals

- The Government proposes to replace the current price ceiling in the NZ ETS, the $25 fixed price option (FPO), with a different price ceiling called a cost containment reserve (CCR).

- A CCR is a type of price ceiling that is incorporated into an auction mechanism. The units held in the reserve are auctioned once the price ceiling is reached (trigger price). A CCR is proposed because it balances price risks for NZ ETS participants with fiscal risks for the Government.

- It is proposed that the CCR price ceiling is managed through the coordinated decision-making process. This would include setting the amount of units to be held in the CCR and the level of the price ceiling for each year. It is likely the initial level of the price ceiling for the CCR would be set at a value higher than $25 and increase over time. (Note that the settings themselves will be consulted on at a later date.)

- The Government seeks feedback on what happens if the CCR price ceiling is struck or other significant events occur (such as a decision to link the NZ ETS with another carbon market). This is because these situations could mean that previously determined price ceiling settings may no longer be appropriate.

- While the FPO will remain in place until at least 2020, the Government is aware that its $25 price level may not be appropriate throughout this period of time. Consequently, it is considering making adjustments to the FPO price level before 2020.

Recommended response: Greater Wellington supports increasing the price ceiling before 2020.

Summary of international unit limit proposals

- The Government will limit the number of international units NZ ETS participants can use if the scheme reopens to international carbon markets. This is an important component of a cap on emissions.

- Any international units used would be required to meet high standards of environmental integrity.

- In the future, there are two modes through which international units could be made available to NZ ETS participants. (Note the Government already has powers in the NZ ETS legislation to enable and limit both modes.) This could occur:
    - directly through market participants purchasing, trading and surrendering international units themselves; and/or
    - indirectly via the Government purchasing international emission reductions and auctioning NZUs.

- The Government seeks feedback on what impacts the different modes might have on participants and the NZ ETS market.

- The Government seeks feedback on whether different types of participant should have different quantitative limits, if they are able to access international units directly.
- The Government proposes that the limit on international units in the NZ ETS is managed through the coordinated decision-making process. This would involve an annual announcement of the limit for the following five years.

Recommended response: We support limitations on the quality and quantity on international emissions units that can be used in the NZ ETS. The government should be required to seek and respond to the advice of the Climate Commission regarding use of international units. Use of international emissions units must not be at the expense of taking feasible domestic actions to reduce emissions.

Summary of industrial allocation phase-down proposals

- The Government seeks feedback on how decisions to phase-down industrial allocation should be made. Over time, more units will be provided through industrial allocation than necessary to mitigate the risk of emission leakage, and this will put pressure on New Zealand's emissions budgets.

- Options they seek feedback on include:
    - set a test or condition that would trigger a phase-down during 2021-2030
    - establish a decision making process to determine industrial allocation rates over time
    - make an upfront decision to start phasing-down industrial allocation from 2021.

- The Government seeks feedback of the impact of reducing industrial allocation in the range of 1–3 per cent per year on firms and the market.

Recommended response: The government should begin a phase down of industrial allocation of emissions units from 2021, seeking and responding to the advice of the Climate Commission regarding the rate.

Summary of market information proposals

- The Government has established a dedicated NZ ETS website. The purpose of the website is to make it easier to access NZ ETS-related information, to support informed decision making by participants.

- The Government seeks feedback on the content and usability of this website, this can be provided on our website.

- The Government also seeks feedback on whether it should make individual participant emissions data and compliance information publicly available.

Recommended response: We support the disclosure of emissions data and compliance information. Transparency and public scrutiny are important tools for helping ensure the integrity of the NZ ETS and to encourage good behaviour and emissions reduction action on the part of participants.

Summary of compliance and penalties proposals

- The Government seeks feedback on options to improve the NZ ETS compliance regime.

- The Government proposes to introduce a set of strict liability infringement offences for lower-level non-compliance.

- The Government also seeks feedback on whether to change the $30 per unit penalty applied to a person who fails to surrender or repay units by the due date.

Recommended position: We support strengthening of measures to ensure compliance with the NZ ETS.

'A Better ETS for Forestry' consultation

Recommended responses to selected questions

1. Do you agree with the Government's preferred option to require all people who register new forests in the ETS to use averaging accounting? If you disagree could you please provide your reasons why? What do you think will be the main impact of this option for you or other land owners?

Recommended response: Yes

2. Out of the three options presented regarding averaging accounting and existing forests could you please select your preferred option? Could you please explain why it is your preferred option? What do you think will be the main impacts of this option for you or other land owners? If there are other options you think we should consider please list them.

Recommended response: Option 3: a one-off, one-way transition between accounting schemes. This allows forest owners the option of staying with a stock-based accounting if for any reason that they prefer it, but does not allow for the number of forest owners exercising using this option to expand, which will reduce administration and complexity.

3. Do you agree with the Government's option regarding transition considerations in a move to averaging accounting? If you don't agree could you please explain why? What do you think will be the main impact of this option for you or other land owners? If there are other options you think we should consider please list them.

Recommended response: Yes. There will not be a direct impact on Greater Wellington we only have permanent forests (in the PFSI).

4. Do you agree with the Government's preferred option to continue to require all ETS post-1989 forestry participants with land below 100 hectares to use default look up tables and those with land over 100 hectares to use the FMA approach to measure carbon storage in their forests? If you disagree could you please provide your reasons why? What do you think will be the main impacts of this option for you or other land owners?

Recommended response: Yes, it is important to check carbon stock estimates are accurate to ensure the scheme has integrity: namely that the amount of emissions sequestration claimed to be occurring is real. An investigation should be undertaken to determine what level of error in emissions reduction figures is happening as result of forests below 100Ha not being subject to field measurement. If it is material, revision of the threshold downwards should be considered.

10. Do you agree with the Government's preferred option for ongoing reporting requirements? What do you think will be the main impacts of this option for you or other land owners? If there are other options you think we should consider please list them.

Recommended response: Forest owners reporting any changes at end of each mandatory emissions reporting period (MERP) is our preferred option. There should be random checks including field measurement to ensure changes are being accurately reported.

12. Do you think removing temporary adverse event emissions liabilities will reduce insurance premiums and incentivise people to register more forests in the ETS?

Recommended response: Yes.

13. Do you agree with the Government's preferred option to introduce offsetting for ETS forestry participants with post-1989 forest land who use averaging? If you disagree could you please provide your reasons why? What do you think will be the main impacts of this option for you or other land owners? If there are other options you think we should consider please list them.

Recommended response: Yes.

15. Do you agree with the Government's preferred approach to introduce a new activity into the ETS for permanent post-1989 forests? If you disagree could you please provide your reasons why? Could you also tell us how you expect this change will affect you or other land owners?

Recommended response: Yes.

16. Do you agree with the Government's preferred approach to use the existing stock change accounting process for permanent forests? If you disagree could you please provide your reasons why? Could you also tell us how you expect this change will affect you or other land owners?

Recommended response: Yes, we agree

18 Do you agree with the restrictions proposed for permanent forests? If you disagree could you please provide the reasons why? Could you also tell us how you expect this change will affect you or other land owners?

Recommended response: Yes, but naturally payment of emissions units should reflect the carbon stock of the forest in a circumstance such as where the species making up a permanent forest are gradually changed.

19. Do you agree that 50 years is an appropriate non-harvest period for ETS registered permanent forests? If you disagree could you please provide the reasons why? Could you also tell us how you expect this change will affect you or other land owners?

Recommended response: Yes, but the rule should be that a forest owner can only withdraw if they repay the units they have earned though, or the excess units compared to average-age accounting if they are switching to the non-permanent ETS forest category.

20. Do you agree with the Government's preferred option of not offering a covenant for permanent forests registered in the ETS? If you disagree could you please provide the reasons why? If there are other options you think we should consider please list them.

Recommended response: Yes, though QEII covenants should be promoted (but not required) within the process. There is a risk of protections being lost across large areas of permanent forest at a stroke if the provisions for ensuring permanence in the Climate Change Response Act (CCRA) are changed by a future government. Covenants, being individual legal instruments for specific areas of land, are not as vulnerable to large scale reversal.

23. Do you agree with the Government's three choices for dealing with permanent forests registered in the ETS when the 50-year permanence clause ends? If you disagree could you please provide the reasons why? If there are other options you think we should consider please list them

Recommended response: Yes. If the forest owner does not respond expressing a preference for one of the options, or does not repay the required units associated with exit from the permanent category within a certain timeframe, the forest should continue to be registered in the permanent category (non-harvest) for another 25 years.

26. Out of the three options presented for participants to exit the ETS permanent forest category prior to the end of the 50-year non-harvest clause which do you prefer? Could you please explain below why it is your preferred option and how this will affect you or other land owners? If there are other options you think we should consider please list them.

Recommended response: Option 2: Cancellation can only take place under circumstances, defined in legislation, which could not have reasonably been foreseen at the time of registration, and where the participant's ability to access the value of carbon sequestration in their permanent post-1989 forests are significantly affected.

30. Do you agree that publicly available maps are the best way to provide more certainty on forest eligibility in the ETS? If you agree could you please list how much information the map should contain (e.g. just land eligibility, unit balances etc). If you disagree could you please provide the reasons why?

Recommended response: Yes

31. Would you be comfortable with your information on the maps being publicly available?

Recommended response: Yes

60. Do you agree with the proposal to require all returns to be net returns? If you disagree could you please provide the reasons why? If there are other options you think we should consider please also list them.

Recommended response: Yes

62. Do you agree with the proposed change to cover cases where cleared land is re-established in forest by both planting and natural regeneration? If you disagree could you please provide the reasons why? If there are other options you think we should consider please also list them.

Context: when forest land is cleared, it is treated as deforested unless it is re-established in forest within the timeframes specified in Section 179 of the Climate Change Response Act. However, these criteria don't cover cases where the land is reforested by a combination of tree planting and natural regeneration. For example, when tree weeds are cleared some land owners undertake restoration planting of native trees within a regenerating landscape. If this follows best ecological practice,

it is likely to use a facilitated regeneration model which relies on the combination of planting and regenerating species. The benefits are that it corrects an unanticipated outcome and provides more flexibility for participants.

Recommended response: Yes

greater WELLINGTON
REGIONAL COUNCIL
Te Pane Matua Taiao

Report	**18.367**
Date	22 August 2018
File	CCAB-10-561
Committee	**Environment**
Author	**Nigel Corry, General Manager, Environment Management** **Wayne O'Donnell, General Manager, Catchment Management** **Luke Troy, General Manager, Strategy**

General Manager's Report to the Environment Committee

1. Purpose

To inform the Environment Committee of Greater Wellington Regional Council (GWRC) activities relating to the Committee's areas of responsibilities.

2. Key/Strategic Issues

2.1 Regional Biodiversity Framework

Workshops for the Regional Biodiversity Framework project are under way with gatherings taking place in Kāpiti, Porirua, Wellington and the Hutt Valley. The discussions have been productive and informative. We are also in touch with the new Wairarapa - Pukaha to Palliser Alliance to align our work and bring Wairarapa voices into this process. We will then facilitate the formation of a working group involving key partners who will work on developing the framework.

2.2 Regional Pest Management Plan

The proposed Regional Pest Management Plan 2019 – 2039 (RPMP) was released for public consultation from June 30th – July 27th. 133 submissions were received on the proposed plan containing a wide variety of viewpoints ranging from strong support to strong opposition and everything in between. Most of the submissions and individual points relate to the management of specific pests. Of all the pests identified in the RPMP, 'pest' cats have been the subject and point of contention more than any other species. While the submissions generally support the inclusion of pest cats in the RPMP, there are submitters who disagree with this inclusion, and even those submitters who do

support the inclusion of pest cats in the RPMP have requested changes to the way the RPMP will govern the management of cats.

The project timeline has extended from the original project plan timeline. It is proposed that the new RPMP will be implemented early 2019 (as opposed to October 2018).

3. Catchment Management

3.1 Biosecurity

3.1.1 Regional Possum and Predator Control Programme (RPPCP)

The 2018/19 RPPCP covers 110,000 ha of possum control and 3,900 ha of mustelid control. To date, control is underway in the Ohariu and Makara projects within Wellington City and Te Whanga and Bideford projects within the Masterton District. Approximately 12,000 hectares have been completed to date.

The latest possum population monitoring results following work from the 2017/18 year confirm that the programme objectives are being successfully achieved.

3.1.2 Pukaha Mt Bruce Rat Control

BioWorks have been requested by DOC to undertake an aerial 1080 baiting control operation within the Scenic Reserve to control ship rats.

BioWorks will manage the aerial application and DOC and volunteers will undertake ground control works surrounding the aviaries and more popular visitor areas. This work is programmed for mid-October onwards.

3.1.3 Rainbow/Plague Skink

A possible plague skink has entered the Wellington Region on goods transported from Northland. The skink was discovered in a store in Paraparaumu by a customer, then taken to a property in Raumati and released. Biosecurity staff are investigating this matter with MPI.

3.1.4 RHDV1 K5 release

Post-release night counts have begun to determine the effectiveness of the RHDV1 K5 release in the Wellington Region. Rabbit carcass samples sent to Landcare have confirmed that the new virus RHDV1 K5 was responsible. Occupiers report varies results ranging from no reduction, to significantly fewer rabbits.

3.1.5 Ngawi Boneseed control

Biosecurity Pest Plant team have been liaising with Yamaha Motors Ltd (Sky division) exploring the option of spraying on the Ngawi coastline cliffs to control Boneseed plants using Unmanned Aerial Vehicles (UAV)

For this specific project we are focussing on two neighbouring areas with a total area of 60ha. The methodology for this invasive weed is spot spraying herbicide. The primary objective is to spray herbicide on mature Boneseed plants which are currently in flower, before they set seed in September/October.

In recent years, Boneseed had been manually controlled using two helicopters with crewman slung from chains/ropes. This is a costly and time consuming method with high risk involved.

RMAX Type IIG spraying rice in Japan

The RMAX and operator

3.1.6 Survey work

The Pest Plant team purchased two DJI Mavic Pro drones capable of survey work. At this point in time, a safety plan and user guide have been created with staff carrying out trial flights to familiarise with the equipment.

The next step will be to use the drones for surveys and consider how useful the information gained is. We plan to use them to survey some of our wetland sites for pest plant species to reduce health and safety issues.

DJI Mavic Pro Drone

A spray drone could be used:

- To follow up helicopter spray work
- Where access is severely limited
- When the amount of spraying required is small scale enough that the use of a helicopter is not justified
- For wilding pine control in KNE's
- For surveys, to determine the extent and location of pest plant infestations
- To monitor pest plant control work.

Other departments could also take advantage of this technology.

3.2 Land Management

3.2.1 Akura Nursery

The nursery had a fantastic 2017/18 financial year. In total 34,509 poplar and willow poles of varying sizes were sold and 280,795 native and exotic seedlings. Again the nursery was not able to meet the demand for poles and it is now a priority to work on increasing the number of poles the nursery can supply, particularly with the One Billion Trees initiative being considered.

2017/18 Akura Nursery plant sales:

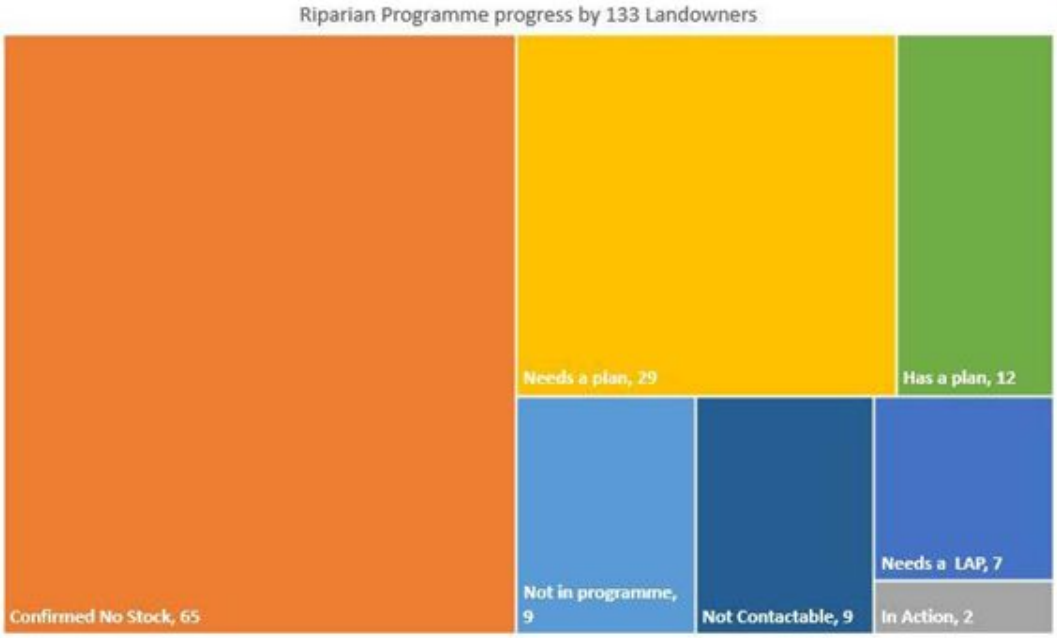
- WRECI Poles 25,340
- Non- WRECI Poles 3,474
- Flood Protection Poles 5,695
- **Total poles 34,509**
- Native seedlings 92,527

- (Eco-sourced natives) 67,584 (a subset of above tally)
- Manuka seedlings 54,623
- Exotic seedlings 133,625
- **Total seedlings** **280,795**

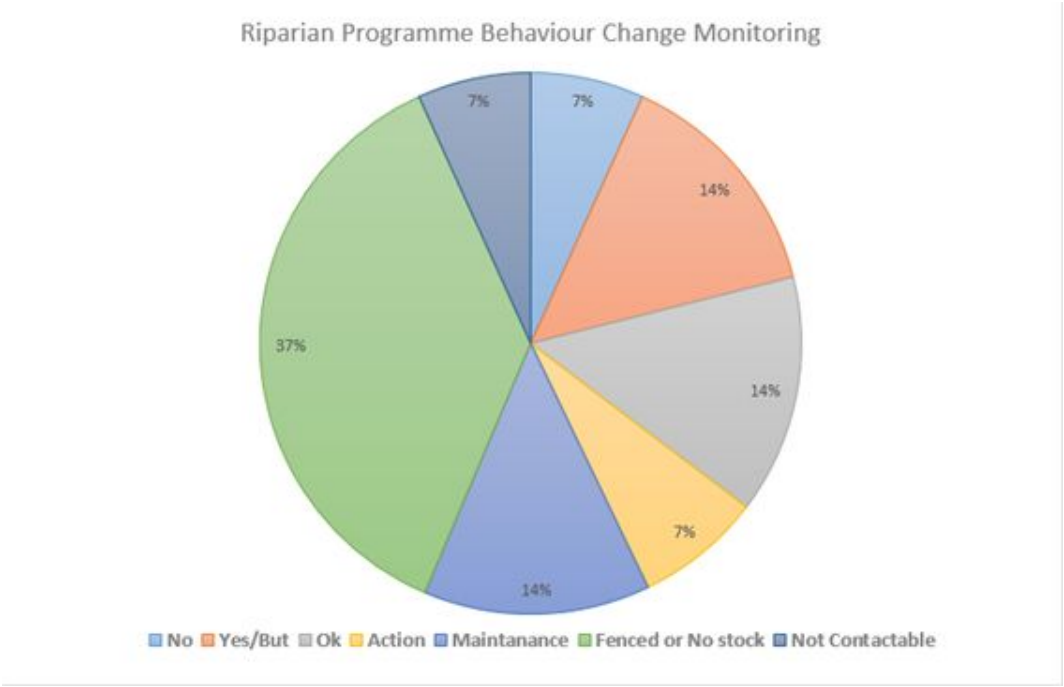
3.2.2 Riparian Programme

A marketing campaign to promote the Riparian programme regionally will commence in September to increase uptake amongst landowners. The focus will broaden to incorporate all landowners with Category 1 and 2 streams in the region. Other policy revisions to the Riparian Programme are also being developed to improve landowner uptake whilst ensuring delivery of programme objectives.

Work is continuing with Category 1 stream landowners who have entered the programme to exclude stock. A breakdown of the status of the landowners with Category 1 sites is provided below. In addition the behaviour change monitoring results of these landowners is provided. The emphasis over the next few months is to progress plan preparation and implementation of existing plans.



*LAP = Livestock Access Plan



3.2.3 WRECI Programme

On the back of the One Billion Trees programme, the Ministry of Primary Industries (MPI) announced a substantial increase to the Hill Country Erosion fund, with an additional funding boost for 2018/19 as well as an increase for the next four year contract period for 2019-2023. The Wellington Region Erosion Control Initiative (WRECI) programme bid for an additional funding boost for 2018/19 was successful and we are currently in the process of preparing a contract. The bid increased the programme from $1.43M to $1.92M, a breakdown of the $497K additional funding is provided below.

Item	Funding
WRECI expansion: tree planting numbers increase from 70,000 to 130,000	$300K
Doubling the rate of Akura stool replacement from 5Ha/year to 10Ha/year (producing more willow/poplar)	$22K
Staff resource 1FTE (fully funded by MPI)	$100K
Planning resource to 1) prepare October HCE application, and 2) help with regional 1B trees planning non-HCE related.	$65K
Community catchment facilitation	$10K

The Land Management Department is now preparing the funding bid for 2019-2023 which is due to be presented to MPI at the end of October. It is anticipated that this bid will see a continuation of the items that received funding above. The success of this application will be notified in December 2018.

3.3 Flood Protection

3.3.1 Asset Management and Operations

(a) Western Operations

Staff have been occupied with willow and native planting programmes and we have supported a number of community planting days on both the Hutt and Otaki Rivers. These activities have attracted good public participation and positive comments from everyone involved.

A large piece of a Bren-gun carrier was removed from the Otaki River channel following a recent flood. A number of these carriers were placed along the bank edge for river protection works after the Second World War.

Hydroseeding bare areas along the Hutt River following willow planting

The remains of a SWW Bren – Gun Carrier used for Otaki River edge protection

(b) Wairarapa Operations

Winter maintenance this year included a section of the Ruamahanga reach alongside the Gladstone sports complex. The team also worked with the sport complex community to enhance native planting in the area. Our GW Community Engagement team visited the site and have turned this collaborative exercise into a short online video as part of GW's 2018 Marketing Campaign "Our Region: Resilience in our community".

The Operations team is again working closely with our Environmental-Science team prior to this year's shorebirds nesting season. Based on historic sightings a number of gravel beaches have been identified as favourable areas for riverbed nesting. One beach, a favourable spot for the black billed gulls to nest has been setup with a number of pigeon decoys to encourage the gulls to use that cleared section. Hopes are high that this year the gulls will spot the decoys and join their new found friends to nest.

Pigeon Decoys find new lease of life as Black Billed Gulls **Photo Credit J Mcveagh**

3.3.2 Understanding flood risk

(a) Te Kāuru Floodplain Management Plan

Consultation on Volumes 1 and 2 of the FMP is well underway. At the time of writing, most coffee group meetings with rural landowners had been held along with two weekends spent at the Carterton and Masterton weekend markets. The project has been publicised in local newspapers, radio interviews and online via our website and social media. Written, emailed and telephoned feedback has also been received. Clear themes have been emerging in the responses and the project team is already considering how we can change the FMP to reflect feedback around topics such as:

- Weed management
- Thresholds for erosion intervention
- Details of buffer establishment and maintenance, and
- Appropriate use of native vegetation.

The Waipoua Officers Working Group has recommended flood maps for endorsement by the Waipoua Masterton Urban Area Project Group, and for them to use in developing options for the Masterton urban area. These maps are recommended subject to checking whether some recently re-discovered information on the 1947 flood has an impact on the hydrological analysis.

(b) Waiohine Floodplain Management Plan

The Project Team held successful drop-in days in late July with the Greytown community. Six options for structural protection of the town were presented and community feedback favoured three of these options. Guided by this feedback, the Project Team has recommended these three options to the Steering Group and is now working towards recommending a single preferred option. The three options are all relatively similar (in comparison to the three

options that have been set aside) and all three involve a stopbank close to the town along North Street. The questions that separate the three options are:

1. Should an upstream stopbank be located close to the town near Udy St/Kuratawhiti St, or should it be located close to the river as a short extension of the existing Saywells stopbank near the railway bridge?

2. Is a stopbank retreat, river channel widening and associated protection works at Fullers Bend required?

The Project Team is also working on what the long-term river management should be seeking to achieve in managing risks. We have received a draft report on long-term trends in the river morphology from consultants Tonkin and Taylor. We will be discussing this topic with them, and also with some experts from Massey University.

(c) Mangatarere Flood Hazard Assessment

Following publicity and a community drop-in session earlier this year about the Mangaterere Flood Study Area, planning is underway to start the detailed flood hazard assessment next month. Work to date has included preparation for channel cross-section surveys to be carried out this summer, and development of initial scope, timeline and a process for community input. Our next step will be to discuss these with the community to get their input on how the process should be run and what questions it needs to answer.

3.3.3 FMP Implementation

The primary activity in this area has been with developing the programme for the next stage of Riverlink. Work has involved two primary areas. Firstly we have sought expressions of interest from consultants to prepare the statutory approvals for the project. Secondly we have progressed to appointing contractors to undertake the geotechnical investigations for the GWRC, HCC and NZTA components of work. These investigations will be used to inform the detailed design phase.

3.4 Biodiversity

3.4.1 Key Native Ecosystem (KNE) Programme

- Staff attended the Ngā Hapū ō Ōtaki/GWRC operational catchment meeting as several KNE sites are in their rohe. KNE plans will be developed for Ōtaki Coast and Lake Waiorongomai KNE sites this financial year

- Staff assisted with the translocation of kākahi from Parangarahu Lakes KNE site and from Wairarapa Moana to Zealandia, a new step in the sanctuary's restoration and wetlands focus

- Staff met with Wellington Water to develop a Service Level Agreement for the biodiversity management activities carried out in the drinking water catchments of the Hutt Water Collection Area and Wainuiomata/Orongorongo KNE sites

3.4.2 Wetland Programme

- Staff gave a presentation on the PNRP rules for wetlands and the Wetland/Riparian Programmes to relevant Wellington City Council, Department of Conservation (Masterton Office) and GWRC Flood Protection Eastern and Western Operations teams

- Staff presented to the PNRP hearings panel summarising the work that GWRC is doing to help landowners meet the wetland rules of the PNRP

- 40 landowners with wetlands (scheduled and non-scheduled) are now signed up to the Wetland Programme (a total of 56 wetlands as some have more than one on their property). 27 of these wetland sites have approved Wetland Restoration Management Plans

3.4.3 Biodiversity Advice

- 3km of tree Lucerne was removed along State Highway 2 by NZTA to prevent it attracting kererū that were flying low across the road and often being killed by cars. Staff helped to coordinate this work and fronted a media request regarding GWRC's involvement. This matter had previously received TV 1 news coverage.

- Staff presented to the Proposed Natural Resources Plan (PNRP) hearings panel in support of the mitigation hierarchy and offsetting provisions of the PNRP. Our presentation helped to clarify the direction of the PNRP with respect to mitigation and offsetting and also assisted with GWRC's response to submissions in these areas

- The guidance document *Biodiversity Offsetting under the Resource Management Act*, lead in-part by Biodiversity staff, was released in September. This guidance is available on the LGNZ website alongside other biodiversity-specific guidance from regional councils. Workshops for the guidance are scheduled to commence later this spring

- Staff provided comments for inclusion in a regional councils' Biodiversity Working Group submission on a draft version of the National Policy Statement (NPS) for Indigenous Biodiversity. Comments were directed at ensuring that the NPS accurately reflected existing pressures on indigenous biodiversity and how these might be addressed from a council perspective

Figure 1: Children from Ngāti Toa Rangatira releasing grass skinks into Whitireia Park that are being translocated from a development site in Whitby

3.4.4 Collaborative Restoration: Te Awarua-o-Porirua Harbour and Wairarapa Moana Projects

- Applications for the Collaborative Projects Contestable Fund opened in August. The fund provides grants to community groups doing environmental restoration projects in the Te Awarua-o-Porirua Harbour Whaitua and Wairarapa Moana project areas. This year for the first time we are extending the funding area north to encompass Pukerua Bay. Applications will close on 30 September and successful applicants will be notified by 1 November

Figure *2: Porirua school students and Biodiversity staff planting trees along the Kenepuru Stream in Bothamley Park*

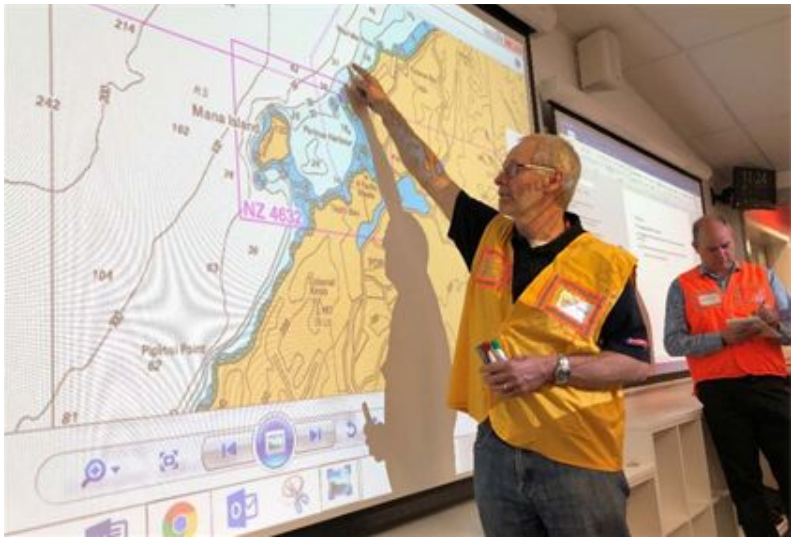
4. Environment Management

4.1 Harbours

We recently held an oil spill tabletop exercise in the Wellington Regional Emergency Management Office (WREMO)/Porirua City Council (PCC) facility. The exercise was monitored by Maritime NZ, staff who were happy with the results. However we have identified some areas for improvement, which we will implement in future exercises.

We have signed a MOU with Wildbase at Massey University to provide advice and assistance for oiled wildlife in the event of a tier two (regional scale) oil spill response. Massey University have an excellent facility permanently set up and our close proximity gives us the option of using their services to treat and rehabilitate oiled wildlife.

We have disposed of the last of our oil spill dispersant after the Environment Protection Agency (EPA) withdrew approval for its use. Maritime NZ hold stockpiles at various locations around the country that may be accessed if required.



Trevor Farmer of Coastguard and Grant Nalder take part in the table top spill response exercise.

We received an update from exploration company OMV regarding their proposed oil exploration work off Taranaki. They keep us informed as the region adjoining to where they are working.

Harbours' work boat SeaCare is out of the water for maintenance and repair work at the Seaview marina. Most of the work was completed last week while it was indoors.

We have received a comprehensive independent review of our Wellington Harbour Navigational Risk Assessment. This has been some time in the making and the recommendations and suggestions will be considered by us and our partner CentrePort. A more detailed report will be prepared and should be available for the October meeting.

We have attended several workshops with Maritime NZ focusing on the education and enforcement campaigns over this coming summer. As well as our usual messages about lifejackets and speed, we are promoting the use of marine VHF radios. We are subsiding some radio training and including a visit to our Signal Station as part of this. We have our Safer Boating banners ready to go and these fit in with the messages promoted by Maritime NZ and other councils throughout the country. In conjunction with local boating shops, we are helping to

promote and run safety checks on boats, as well as looking for opportunities to engage with the boating population to educate on safety. The first of these safety days will be a "Prep, Check, Know" day in conjunction with Boat City at Kapiti on September 22nd. These initiatives are supported by fuel tax funding through Maritime NZ.

We have had two safety incidents on the harbour. The more serious involving an eight person rowing skiff breaking in half after encountering a vessel's wake. Apart from being cold and shocked, no one was injured. We are following this up to see if this was caused by unusual circumstances or if there is likely to be a repeat and if so how to avoid this circumstance occurring again. In another report to Harbours, a racing yacht impeded an inward bound ferry. This information was passed to the relevant yacht club that promptly followed it up with the skipper concerned.

The first cruise ship of the season is the *Radiance of the Seas* due on 2 October followed by the first visit of the *Majestic Princess* on 3 October. This season will see an over 30% increase in ship visits as well as two ships in port on at least 20 days. The Harbourmaster has been involved in discussions about how this demand on wharf space can be managed.

4.2 Environmental Regulation

4.2.1 Regional bore security investigation

We have completed site inspections of bores within water supply protection areas on the Kapiti Coast with Griffiths Drilling. Griffiths Drilling are preparing a report detailing the remedial works required for each bore inspected on the Kapiti Coast then GWRC officers will be following up with landowners to ensure these works are completed. The Wairarapa bore investigation is continuing, with site visits scheduled over the next month. This will determine which bores require a physical inspection by a specialist drilling contractor.

Environmental Regulation and Science staff are running a workshop with the drillers who operate within the region in early September. The purpose of the workshop is to discuss the outcomes of the Havelock North Inquiry, the importance of bore security, changes to the rules relating to bores in the PNRP and recent changes to GW's resource consent information requirements and conditions for bore permits.

4.2.2 Silverstream Landfill odours

We have met with Hutt City Council (HCC), Pioneer and their consultant to better understand their current day operations against their consents. Pioneer are in the process of applying for a new consent so we are taking this opportunity to tie the consent conditions of the energy generation plant (transferring landfill gas into electricity) to the operation of the landfill to reflect how linked these operations are in real life. Both organisations have identified additional actions they will progress to build more resilience in their systems and look for opportunities for improvement.

4.2.3 Porirua Wastewater Collaborative Pilot Project

The Porirua Wastewater Collaborative Pilot Project (PPP) is continuing its focus on finalising the engagement and communications material for a 'soft' launch out to the public for feedback. This will be via social media and direct to community groups initially, with an acknowledgment that all PPP parties involved will be adaptive and ready to respond to however the public wishes to interact with us.

Wellington Water and their technical experts are preparing a number of assessments on the short-list of options for the network and plant outfall, and GW officers are providing feedback where relevant. The public feedback and technical reports will feed into a Multi-Criteria Analysis (MCA) workshop set down for January 2019. The MCA workshop will involve all the PPP parties and technical experts to decide on a preferred option to carry through to the detailed design, assessment and consenting phase.

4.2.4 Featherston Wastewater Treatment Plant re-consenting

South Wairarapa District Council's (SWDC) applications to re-consent Featherston wastewater discharges were notified in May, and a total of 159 submissions were received of which 152 were opposed.

The GW project team have now identified more clearly a range of key technical land and water discharge matters, and Regional Plan policy direction issues which need to be resolved.

GW and SWDC have now agreed to delay the pre-hearing timetable in order to direct work between our respective technical experts geared towards understanding and resolving these issues to the best of our abilities (work between experts has now commenced). The Consent Hearing Panel has issued directions covering this process and a revised timetable, and both Councils have jointly issued background material for submitters and a media release noting the reasons for the process deferral.

The hearing itself is now set down to commence on 18 March 2019. A further verbal update can be provided at the nearest Environment Committee Meeting to the hearings.

4.2.5 Roads of National Significance (RoNS) Projects

Transmission Gully (TG) and Porirua Link Roads (PLR): A revised approach to earthworks open areas management and decision making has been developed by GWRC and will be implemented in the near future in anticipation of another significant 2018/19 earthworks season. Decisions have been made recently on incidents that occurred on site over the past two months for both the TG and PLR projects. Ongoing discussions are occurring regarding ecological mitigation and legal protection of this to ensure appropriate outcomes are achieved. A number of consents are being processed and changes to the Environmental Management Plan are being received at a steady rate.

Peka Peka to Otaki: Works are mainly occurring around Bridges 2 and 3 in Otaki, Otaki River bridge piles, local roads, temporary stream diversions and earthworks south of Mary Crest. The site is being audited by GWRC weekly. Agreement in principle has been achieved with NZTA regarding the method of

legal protection of mitigation within the designation boundary. Consent applications are being prepared by the project for various works.

4.2.6 Consenting on the horizon

The Environmental Regulation team have been involved in the pre-application phase of several large consents that will be processed by GWRC in the near future:

(a) Hutt City Council will be applying for the ***Eastern Bays Shared Pathway*** – 4.4km walking and cycling route between Point Howard and Days Bay involving new and upgraded seawalls and rock revetment. This application is likely to be publically notified.

(b) ***Lincolnshire Farm*** Limited has lodged an application jointly to WCC and GWRC for bulk earthworks to allow the development of a 400 lot subdivision linking Woodridge to Grenada.

(c) Consent has been granted for geotechnical bores associated with preliminary investigations for the ***Riverlink*** project.

4.3 Environmental Science

4.3.1 Collaborative Modelling Project contributes to success of Ruamāhanga WIP

Natasha Tomic has been part of the Ruamāhanga Whaitua project team, managing the collaborative modelling project (CMP) as part of the Ruamāhanga Whaitua process since 2013. Her hard work, dedication and perseverance has contributed to the Ruamāhanga Whaitua Committee's trust in technical information and their critical thinking when considering the vast amounts of technical information. Her work with Ngā Hapu Kaitiaki o Wairarapa also contributed to the successful delivery and approval of the Ruamāhanga Whaitua Implementation Programme (WIP) by the Whaitua committee and Council.

The Ruamāhanga Whaitua Implementation Programme 2018.

Cover by Jen Olson '*Drift-Migrate-Navigate – Tuna tryptich*'

4.3.2 New Climate Tools

We're starting to get some exciting new climate tools, aimed at seasonal prediction.

(a) Climate change mapping tool

A new improved online climate change mapping tool, with inbuilt explanations, is now available for internal and external use (https://mapping1.gw.govt.nz/gw/ClimateChange/). This is a state-of-the-art online plotter, containing the latest NIWA modelling for our region based on the six best international climate models. Users can also find the local predicted range at their specific locations by zooming in and touching with the cursor. All Intergovernmental Panel on Climate Change (IPCC) scenarios, for all climate variables and seasons for both mi-century and late century are available.

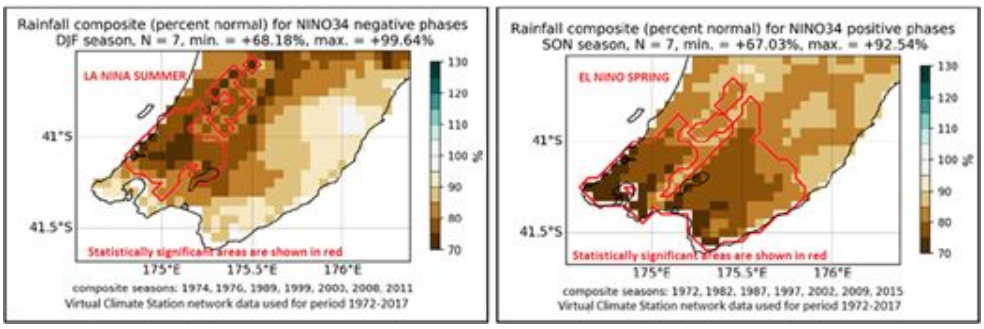
(b) Coastal inundation tool

This is a joint effort between ESci and EPol to provide a coastal inundation tool for the region. This tool will help increase awareness of what the region may look like when considering sea level rise, and hence it will be extremely important for stakeholders. We are also joining forces with other regional councils who have expertise in this area (Waikato Regional Council and Bay of Plenty Regional Council) in order to produce a unified tool. Watch this space.

4.3.3 Latest Climate Report

The latest climate report on climate drivers and impacts is out. The report tells us which climate influences can contribute to drought or flood, heat or cold, windy or less windy weather conditions throughout the region. The hydrology component shows that most ‘drivers’, once active, will generally contribute to drier seasons, that is, both El Nino and La Nina may bring drought in summer and spring.

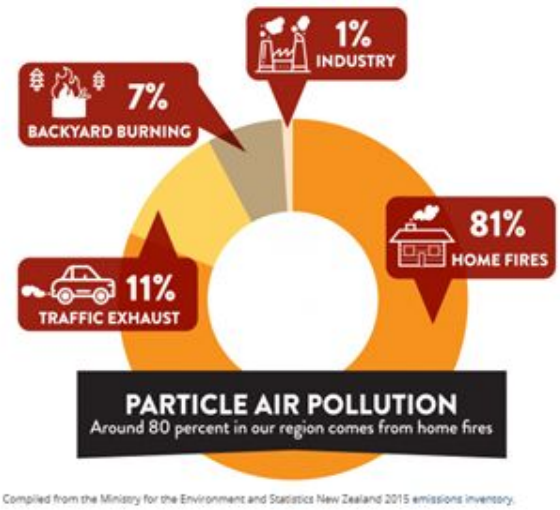
The figures below show how the El Nino spring and the La Nina summer rainfall look like based on data for 1972-2017. Rainfall reduction of up to 30% is seen in many areas, but only the areas within the red line (which are statistically significant) can be interpreted as prone to dry spells. This report gives us more confidence in the predictions we make. We have already had good feedback from external stakeholders such as farmers and GNS. Talks and workshops with stakeholders are being organised in the Wairarapa later in the year to explain the capabilities of this tool. The report can be viewed at http://www.gw.govt.nz/seasonal-climate-and-water-resource-summaries-2/.



4.3.4 Better Burning Initiative

Tamsin Mitchell and Darren Li have been measuring the impact of home fires on air quality in the greater Wellington region for some time. Some parts of the region experience high levels of $PM_{2.5}$ (fine particle pollution) from wood smoke over the winter months. A *Better Burning* campaign (http://www.gw.govt.nz/better-burning/) was launched recently in partnership with Carterton and Masterton Districts Councils, and NZ Home Heating Association, to address this issue. Over the next year, the campaign will target Masterton and Carterton communities (which are two of the most affected areas) to raise awareness of the following messages:

- *Less smoke, more fire* – energy lost through smoke means less heat from your fire
- *Treated timber is not worth the risk* – burning treated timber can release poisonous substances such as arsenic
- *Dry wood, best value* – dry wood gives off less smoke and more heat.



4.3.5 Recreational water quality monitoring programme upgrade

The Marine and Freshwater team are assessing options to reshape the region's Recreational Water Quality Monitoring Programme, following recent advice

and drawing on international examples of best practice. It has become clear that health risk information based on weekly surveillance monitoring is more often incorrect than correct; an approach that is not 'fit for purpose'. With the support of our partners at Regional Public Health, Wellington Water and local territorial authorities, as well as our Customer Engagement team, we are looking to reshape the programme to one that provides timely risk based messages while we use the available resources more effectively and efficiently to identify causes of poor water quality at popular swimming sites. Watch this space and we will bring you more information about the new programme as we get closer to summer.

4.3.6 Advancing citizen science support tools

Sheryl Miller has been working with NIWA, Nelson City Council, Auckland Council and Northland Regional Council on how to support community volunteers carry out freshwater monitoring. An Envirolink grant was recently secured to 'advance support tools for freshwater citizen science'. A series of short (~2 min) instructional videos will be produced focussing on the Stream Health Monitoring and Assessment Kit (SHMAK). Enhancements to a database and mobile phone app for community volunteers to upload their water quality monitoring data are also planned. The videos, database and mobile app will be available to everyone. It is envisaged that these support tools will be launched at the New Zealand Freshwater Sciences Society Conference in December.

4.3.7 Parks – Protect. Connect. Restore.

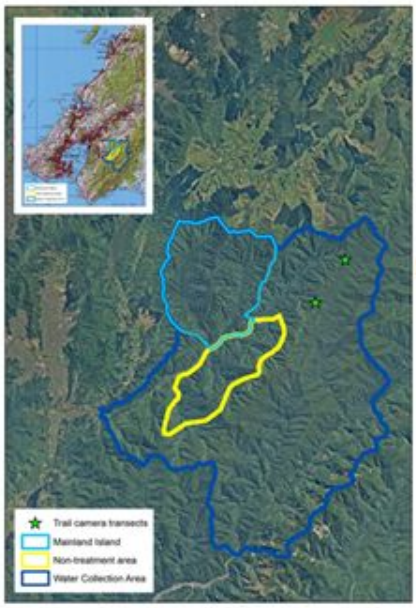
Alex Pezza and Mark Heath talked climate and aquatic health to the Whareroa collaboration group at Queen Elizabeth Park recently. Key messages included:

- Parks are a natural solution to climate changes – they naturally sequester CO_2 from the atmosphere, and offer greater resilience due to green corridors
- Don't drain wetlands - wetlands act as a carbon sink but may emit CO_2 if they're drained.
- Clean, pristine water and a healthy biodiversity help the park become more resilient against climate change
- Whareroa Stream has overall poor water quality and ecosystem health, however, healthy populations of indigenous fish are supported in the lower reaches of the stream
- Draining of wetlands in New Zealand is negatively impacting water quality and ecosystem health

4.3.8 Camera trapping Mainland Island

The Land, Ecology and Climate team has been doing some camera trapping in Wainuiomata focussing on the Mainland Island. Mainland Island is located within one of the Wellington Region's water collection areas, and is closed to the public.

The Mainland Island is a pest free sanctuary without fencing allowing animals, such as pigs, to call it home. The intention is to learn more about pig activity and movement in the Mainland Island to assist Biosecurity in their control activities. Pigs have been disrupting the bait stations, intended to kill pests such as possums, to access the cereal pellets. While pigs are hunted on the Island, their numbers remain high, so an understanding of their movements from surrounding areas allows for more targeted control. Not many pigs were recorded, but almost every camera photographed possums. A planned aerial 1080 operation should address this lapse in behaviour.



Pigs on Wainuiomata Mainland Island (map, light blue) are the current focus of camera trapping, but it seems someone else likes the spotlight (right).

4.3.9 LAWA data refresh

Land Air Water Aotearoa (LAWA), a collaborative website for sharing environmental data and information, is currently undergoing its annual fresh water data refresh. This includes reviewing our river water quality and macroinvertebrate data, lakes water quality and recreational monitoring datasets. One of the changes this year is that LAWA will be showing trend information for Macroinvertebrate Community Index (MCI). Mark Heath, Evan Harrison and Alton Perrie have peer-reviewing other council's river, macroinvertebrate and lake's data, respectively. The annual fresh water data refresh is due to be completed for World Rivers Day, 23rd September.

4.3.10 NZ River Awards

Judging is underway for the River Story Award section of the Cawthron Foundation 2018 New Zealand River Awards. The River Story Award is awarded to the individual or community with the most interesting and compelling story about working to improve the health of a river, or rivers generally. Eight stories have been chosen as finalists including our own fantastic collaboration between GWRC, NIWA and community volunteers in Upper Hutt. It is believed this is the first monitoring by a community group in NZ of a range of measures relevant to recreational water quality (aka 'swimmability'). Our Aquatic Ecosystem and Quality team were heavily involved in this project, undertaking monitoring alongside the community group for comparison. Also nominated, but not making the final eight, were Friends of Waiwhetu for their citizen science work. They continue to build on almost 40 years of work to rehabilitate a highly polluted urban stream.

4.4 Environmental Policy

4.4.1 Ruamāhanga WIP finalised and now moving to Te Upoko Taiao

The final Ruamāhanga WIP was presented to Council on 16 August 2018 Council received the WIP and referred the regulatory proposals within the WIP to Te Upoko Taiao for incorporation into the regional plan. It was also agreed that GWRC would develop the non-regulatory proposals within the WIP in conjunction with relevant external organisations.

An initial assessment of the recommendations in the Ruamāhanga WIP has been completed. The WIP recommendations identified as directly relevant to the variation/plan change have been outlined in a recent paper to Te Upoko Taiao. Due to the integrated nature of the recommendations it is highly likely that other recommendations will also be considered as the variation/plan change is developed.

The non-regulatory components of the WIP are informing the way we implement on the ground and what our future may look like (as being developed through the Whaitua Implementation Design Team).

4.4.2 Whaitua progress update

(a) Wellington Harbour and Hutt Valley Whaitua Committee

Mana whenua have recommended a new name for the Committee, being "Whaitua Te Whanganui-a-Tara Committee". This name will be put to the Council meeting of 25 September 2018 for adoption.

36 applications were received for community membership on the Committee. Interviews will begin the week of 24 September. Nominations for appointment to the Committee will be submitted to the Council meeting of 31 October 2018 for consideration. It is expected that two Committee meetings will be held before the end of the year including a field trip.

(b) Te Awarua-o-Porirua Whaitua Committee now in WIP writing phase

Te Awarua-o-Porirua Whaitua Committee has completed setting draft objectives for streams and the Porirua Harbour and is now developing policy to meet the objectives. Ngati Toa are making progress with their parallel plan. The intention is to provide Te Upoko Taiao-Natural Resources Plan Committee and Greater Wellington councillors with an update in late October and a draft Whaitua Implementation Programme in mid-November.

4.4.3 Proposed Natural Resources Plan implementation challenges

The rules in the pNRP have had legal effect since the pNRP was publicly notified on 31 July 2015. With three years of bedding in, and possibly as a result of the increased profile of the pNRP rules through the hearing process, some challenges with implementation are being faced.

Some of the rules in the pNRP do represent a step change for both our organisation and for natural resource users. The scale of input required from

our own organisation is different from the operative plans meaning a shift in the way we approach plan implementation has been required.

There are a number of permitted activities which have changed from the operative plans and need a behavioural change to achieve the intended outcome, these activities include:

- Outdoor burning
- Cultivation
- Break-feeding
- Stock access
- Drain maintenance
- Swing moorings
- Driving on beaches.

There have also been a number of significant policy shifts in consented activities:

- Wetlands and indigenous biodiversity
- Stream reclamation
- Discharges direct to water (National Policy Statement Freshwater Management policy drivers):
  - Stormwater
  - Wastewater
- Discharges within community drinking water supply areas
- Water allocation
- Seawalls/hazard mitigation structures
- Significant areas policy approach (protection and biodiversity offsetting).

The topics that require the most input from across the organisation to implement effectively are:

- Driving on beaches
- Wetlands, including stock access, and
- Stream reclamation related to urban development.

Significant Natural Areas are also proving to be challenging for our territorial authority partners. Identification and protection of significant areas of indigenous biodiversity is required by the Wellington Regional Policy Statement. We are continuing to work with the city and district councils on implementing this important policy.

4.4.4 Regional Council input into city and district planning

GWRC's interest arises from the Council's responsibilities for regional planning and the integrated management of natural and physical resources in the Wellington Region.

The below table summarises the Regional Council input into the statutory resource management processes of territorial authorities in the region for the period from 26 July to 5 September 2018.

5. City and District Council plan changes and resource consents

Territorial Authority	Status of Document	Name of Document	Main topics commented on	Action
Wellington City Council	Proposed plan change	Proposed District Plan Change 83 – Kiwi Point Quarry	Effects of proposed quarry extension for gravel extraction activities on biodiversity	Hearing has been postponed due to missed land owner notification.
Wellington City Council	Proposed plan change	Proposed District Plan Change- Alterations to Heritage Buildings	Addition of three buildings to the list	Assessing the need for pre notification feedback as requested.
Hutt City Council	Proposed plan change	Proposed district plan change 43 Residential and mixed use	Maintenance of water quality and quantity, transport integration and urban design principally	No further submissions were needed.
Upper Hutt City Council	Proposed plan change	Proposed plan change 42 Mangaroa and Pinehaven Flood Hazard Extents	Flood hazard and policy provisions	Mediation date proposed for October.
Porirua City Council	Preparation for Draft District Plan	District Plan Review	Alignment with policy and operational matters	Draft of objectives and policies to be released in October for feedback.
Kapiti Coast District Council	Decision version	Proposed District Plan Decisions version 2017	Joined as S274 party to appeals on matters in submission	Mediation continues.

5.1 Parks

5.1.1 Parks Planning

After the public consultation conclusion, internal workshops have been organised through October to explore issues and opportunities raised by the community during consultation in more detail. A workshop with councillors is planned in December.

5.1.2 Across the network:

Inspections – a large programme of asset condition inspections is being worked through by rangers and contractors. The types of assets range from vehicle bridges, to historic bunkers, bridges, tracks, roads, signs, buildings and fences. Repairs and regular maintenance have been scheduled, and in some cases closures have been implemented.

5.1.3 Pakuratahi Forest

Tunnel Gully Toilet construction – initial planning work has been completed to identify a suitable site and associated services for a new two-unit accessible flush toilet building for the popular Upper Gums picnic area carpark at Tunnel Gully. The design will be in keeping with the other toilet building designs used in Pakuratahi Forest, and will be built by the our Construction team and local sub-contractors. The need for this building was highlighted through visitor satisfaction surveys alongside growing use of this area due to the Remutaka Cycle Trail, and the need to ensure public health and freshwater values are protected. Construction work is scheduled to begin in summer.

Bridge work - The historic rail-bridge on the Station Drive section of the Remutaka Cycleway 'Martins #1' is being upgraded. The existing timber bridge (which holds no specific heritage value) is to be replaced using pre-cast concrete. The new bridge will be carefully placed on the Victorian era wing-walled masonry stonework, bringing this structure up to current safety standards, and should outlast this generation of visitors to this heritage destination.

NTrailZ mountain bike trails - Local volunteers continue to work away every Sunday on building the new Times Tables track near Station Drive, averaging around 50hours per month over winter.

5.1.4 East Harbour Regional Park

(a) Baring Head Bridge

The contract for the replacement bridge is being let. Works are scheduled to begin on site over the next quarter.

(b) Kāeaea Track

The new track is open to the public. The final touches are being done – with mitigation planting and signage still to be installed.

All hands to the pump – metalling the newly opened Kāeaea Track.

(c) Kakahi Translocation from Paraungarahu to Zealandia

GW, Taranaki Whanui, MIRO and Zealandia staff were at the Lakes in July to collect the freshwater mussels and continue the annual planting programme together. Two weeks later the mussels were placed into the upper dam at Zealandia.

5.1.5 Queen Elizabeth Park

(a) Track maintenance

A boggy and rutted section of the Whareroa Stream track has been patched up and repaired. The fresh coat of metal should see this track through for another 10 years or so. Further work is planned from the Farm Race through to Te Ara O Whareroa junction in the lead up to summer.

The Wainui Stream track has been re-metalled and now provides an excellent quality walking/bike access link between Te Ara O Whareroa and Wellington Road.

(b) Building design awards

The new meeting room complex 'Ramaroa' was credited with two regional Architectural Designers New Zealand awards – in the Commercial Interior and Commercial/Industrial Architectural Design Award categories. Ramaroa was designed by Ben Gilpin of Gil-plans Architecture. Councillor Prue Lamason and Parks Manager Amanda Cox were on hand to celebrate after the ceremony with Ben. The judges credited the warmth and strength of Ramoroa's interior, and its role in giving the occupant a sense of being embedded in the place. This is a credit to all involved in this project for taking a step outside the box. Even more exciting is that this win means Ramaroa will be representing our region at the national awards in October.

Ramaroa and the award ceremony (recipient Ben Gilpin with Prue Lamason and Amanda Cox)

(c) Restoration Plantings

The restoration planting programme was completed in mid-August with 30,000 plants going in the ground, the largest annual programme undertaken on the park. 2019 plant stock is beginning to arrive into the nursery to be grown on for next year's plantings.

A large, long-standing sand blow out in the southern section of the park has been planted out with Tree Lucerne to help stabilise the site before it is under planted with native species in later years. This area was part of the mortar range from the US Marines occupation of the park

Sand blowout area fenced and planted

(d) Mounting Blocks

Members of the equestrian community have requested mounting blocks to get on and off horses at two locations. Two sets of mounting blocks have now been installed as a trial to see if these meet the need. As we get feedback on the success or not of these we will modify the design if required.

Mounting blocks

(e) Stream Retirement

Work continues on the riparian retirement within the Whareroa Stream catchment. As fencing is completed weed control and planning for restoration plantings will follow.

A section of retirement fencing in the North Whareroa stream

(f) Unexploded Munitions

A discarded hand grenade was found by a member of the public while metal detecting in the park. Once exposed they removed it to a nearby fence post and rang police. This activated the bomb squad to attend. By the time they arrived it was dark, so cordons were set up overnight with police remaining onsite. The bomb squad returned at daylight the following morning and with the help of a remote controlled robot moved the grenade to a safe place where it was detonated.

Bomb squad robot

(g) New park seat

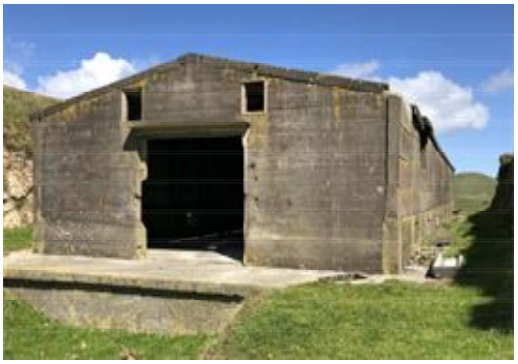
Some time ago we were approached by a family wishing to install a seat in the park. A site was confirmed and the seat installed taking in sweeping coastal views

New park seat, Mana Island in the distance

5.1.6 Belmont Regional Park

(a) Bunkers inspections and safety work

Engineers have assisted with solutions for structural repairs of several aging munitions bunkers in Belmont. A number of the 'Macallan' Bunkers (photo below) were found to be structurally unsound and have been cordoned off until longer term solutions are found.



(b) Entrance area carparks and garden spruce up

A meaningful milestone has been chalked up with the ranging team who are pleased to be able to turn their attention away from large upgrades to the smaller but equally important entrance areas – particularly at Belmont Regional Park. The before-and-after photos below indicate how things have been improved.

Carpark make-over before-and-after – Belmont Regional Park

(c) Munitions Discovery

Some children on a visit to the park with their grandparents discovered an old anti-aircraft shell beside one of the munitions bunkers. They took this home and cleaned it up with the intent of taking it to school for show and tell. The children's parents thought otherwise and called the police. The shell was

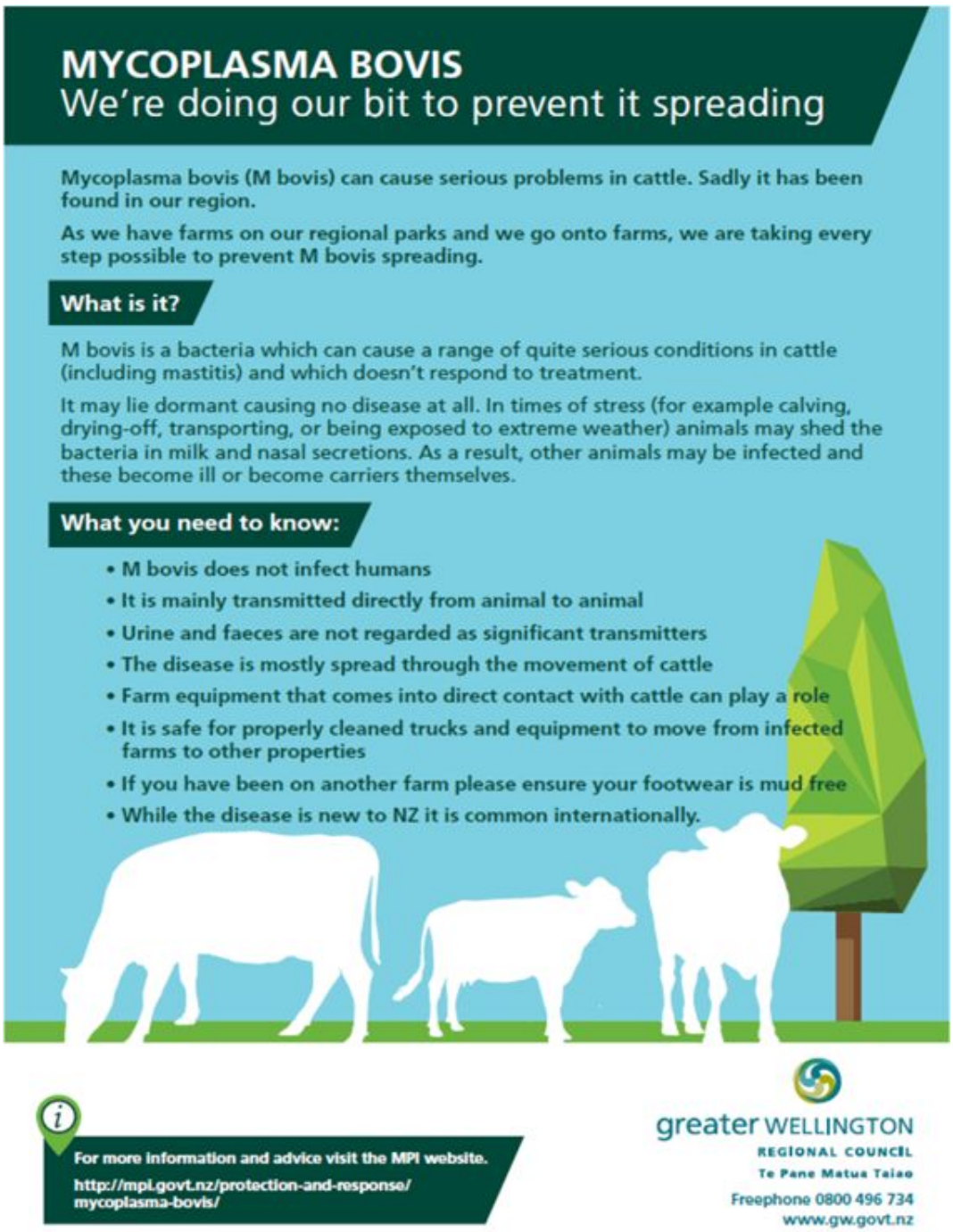
removed by the bomb squad and destroyed. A site inspection was undertaken around where the shell was found and the site cleared. As there are disposal sites in Belmont, we carried out a wider ranging survey and discovered more shells and ordnance. Some items deemed a higher risk were destroyed on site with the remainder removed. As these sites are away from public tracks, the risk to public is very low.

We have met with NZDF and discussed how these dump sites can be managed long term. We will revisit the sites in the spring as access conditions improve to check for any other items of interest and put plans in place for long term management. We will also develop some interpretation panels to raise awareness of the bunker history, the decommissioning of them and what to do should anything be observed.

Munitions collected from Belmont

(d) Mycoplasma Bovis signage

To help parks visitors better understand the risks associated with M Bovis, we have developed some information signs to be installed at entrances to farmed areas on our parks.



5.1.7 Battle Hill

The team has planned out a replacement programme for a number of old culverts at Battle Hill that is scheduled for implementation this summer.

(a) Riding for the Disabled

Work on the arena construction project continues to make good progress despite some periods of wet weather. Completion of the building is scheduled for October with fit out to follow. Official opening is planned for February 2019.

RDA arena progress

5.1.8 Kaitoke Regional Park

(a) Pakuratahi Forks Swingbridge replacement

An engineer is being contracted to design a replacement structure. The existing bridge is narrow with a load limit of 10 people and is an obstacle for people with disabilities, and for parents pushing buggies. The new bridge will address capacity limitations that constrain the use of this site and make it suitable for a wider range of visitors (including those with higher mobility needs). The construction work is scheduled to avoid the busy summer holiday period and will begin early autumn.

Recent storms and flooding generated a large new slip just upstream of the Pakuratahi Truss Bridge and undermined a 40m bank of Farm Creek (at the main KRP campground). Planning and consent work is currently underway for stream bank protection work.

Te Marua Enhancement

Plans are well underway to enhance the visitor experience and improve the environment at Te Marua. A significant amount of weed eradication, planting and maintenance has been undertaken over the last 12 months. Parks staff have planted several hundred trees and Plateau School will be returning again in September to put more in the ground.

5.2 Forestry

5.2.1 Metro Forests

Harvesting has been steady through the summer, autumn and winter months. Port closures, trucking issues and winter weather all had their effect on harvesting operations. PF Olsen's have used 1 of their 6 allocated weekend trucking days to reduce over-crowding log stacks on skid sites.

The arrival of Cable Harvesting Logging (CHL) provided a much needed boost to production, with specialised equipment (tethered digger) CHL have been able to move through the Cooks Main Loop block in a short period of time reducing the need for men on the ground performing hazardous tasks such as releasing wind-throw trees and tree felling.

Harvesting operations throughout the early winter season have been carried out in areas where potential adverse impacts could be managed and therefore minimised.

The National Environmental Standard (NES) (1 July 2018) is now operative and GWRC is working closely between departments to fulfil our role as PCBU/Landowner and ensure PF Olsen's are compliant with the NES.

Harvesting figure for Metro Forest (January-June)

- Constructed 1.5km of harvesting standard roads.
- Constructed 6 skid sites
- 35 hectares of land harvested
- 25,173 tonnes of logs transported to market

5.2.2 Maymorn Forest

CHL started 1 July harvesting in Maymorn forest and are currently on target to be completed by December. Weather conditions have been a hindrance to roading efforts with the use of corduroys needed to stabilise roads.

Maymorn Forest is a highly used recreational hub with the historic Rail Trail running through it. This operation will be a good opportunity for GWRC and PFO to work together to deliver high environmental/track and road outcomes pre/post harvesting using the NES standards and the Forest Right Agreement.

Harvesting in Maymorn with Tunnel Gully gums picnic area in background

5.2.3 Wairarapa Forests

(a) Stoney Creek (January to June)

- Constructed 3.1km of harvesting standard road including the link between Range Road and the forest boundary.
- Constructed 6 skid sites.
- Hauler and ground base harvested trees from 42.1 hectares of land
- Transported 21,330 tonnes of logs to market.

6. Climate Change Update

The Wellington Region Climate Change Working Group (WRCCWG) met on 3 September, hosted by Hutt City Council at the Dowse. The group heard presentations from Tim Grafton, the CEO of the Insurance Council of New Zealand and from Ollie Belton, of Carbon Forest Services. The group also heard about the progress of the subcommittee working on a community-led coastal adaptation planning programme for the region and about LGNZ stocktake of councils' climate change mitigation activities.

Representatives of the coastal adaptation subcommittee presented to the Mayoral Forum on 23 August and received the mayors' support for their approach. The initial piece of work, a climate change vulnerability assessment for the region, is being undertaken at present, supported by Greater Wellington, Kapiti Coast District Council, Hutt City Council and Porirua City Council. This will inform the next stage of the work. All councils in the region have been asked to consider a paper seeking support in principle for the programme by the 31st October 2018 (note that the Environment Committee endorsed this paper at their meeting of 9 August 2018). Wellington City Council is already trialling community-led adaptation planning with the Makara Beach community.

A regional work programme on climate change mitigation was presented to the WRCCWG, which now has their backing. There are three projects. The 2050 emissions calculator, a public engagement tool on mitigation activities and policies, will be undertaken this financial year. Greater Wellington is leading this project. Also an Electric Vehicle Support Strategy will be produced this financial year, supported by the councils and network companies Electra and Wellington Electricity. Wellington Electricity is the lead agency for this piece of work. It is intended that all councils and network companies would adopt the strategy following its completion. The third project is to update the greenhouse gas inventory for the region. This project is being deferred until the 2019-20 financial year.

Dr Alex Pezza held a workshop on climate change impacts with representatives of the Parks Team on 14 August. The amount of change, uncertainty and the implications for parks planning and management were discussed. Refer to section 4.3.6.

7. Consideration of climate change

The matters requiring decision in this report have been considered by officers in accordance with the process set out in the Greater Wellington Climate Change Consideration Guide.

8. The decision-making process and significance

No decision is being sought in this report.

8.1 Engagement

Engagement on this matter is not necessary.

9. Recommendations

That the Environment Committee:

1. ***Receives** the report.*

2. ***Notes** the content of the report.*

Report approved by:	Report approved by:	Report approved by
Nigel Corry General Manager Environment Management	**Wayne O'Donnell** General Manager, Catchment Management	**Luke Troy** General Manager, Strategy