

# Wellington Regional Climate Change Impact assessment findings

# Climate Change commission first progress report on the National Adaptation Plan

**“The evidence is that it costs more to delay action, it is in our own self-interest to better prepare for and be able to respond to, the now certainty that our climate is changing.”**

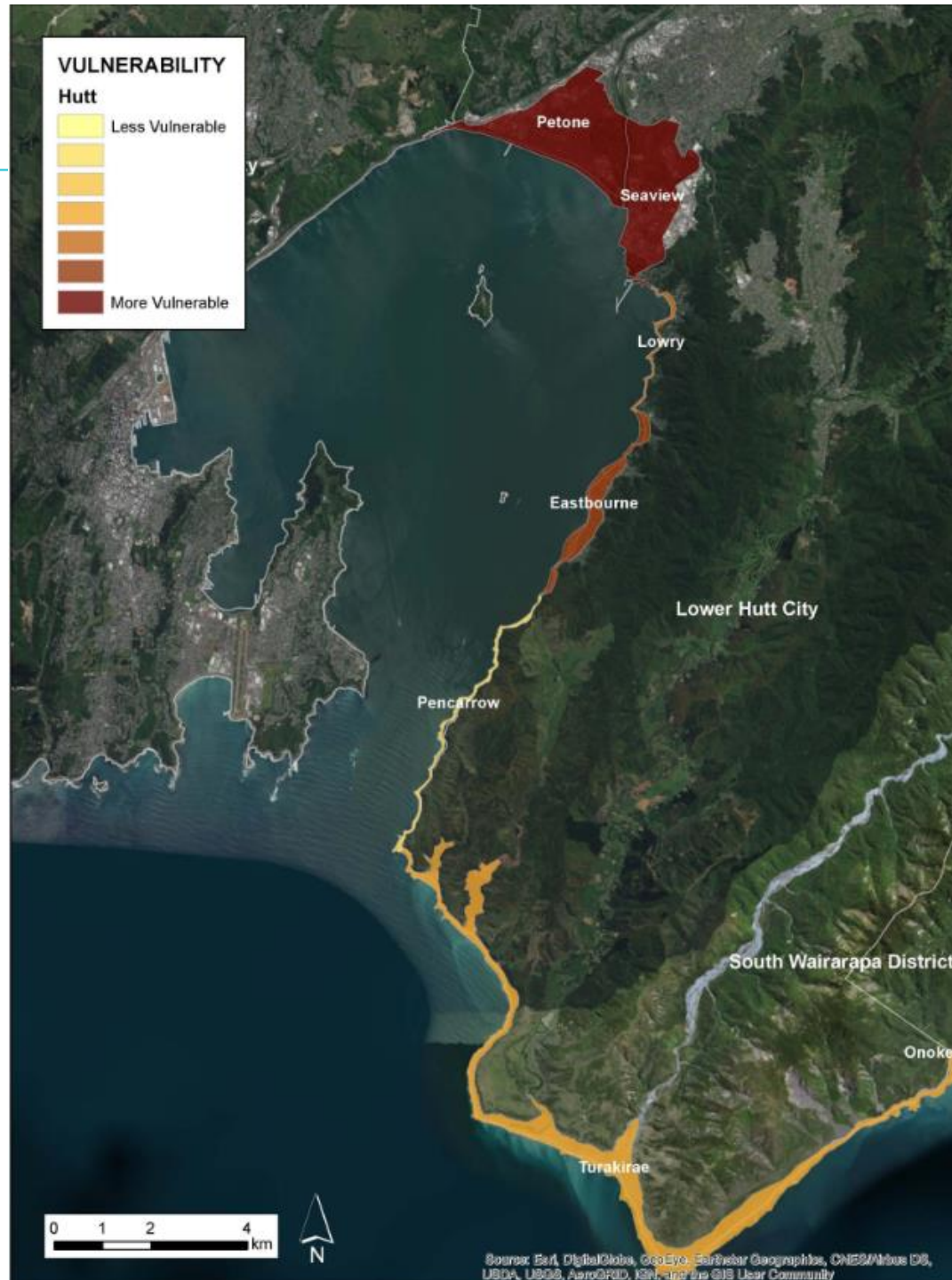
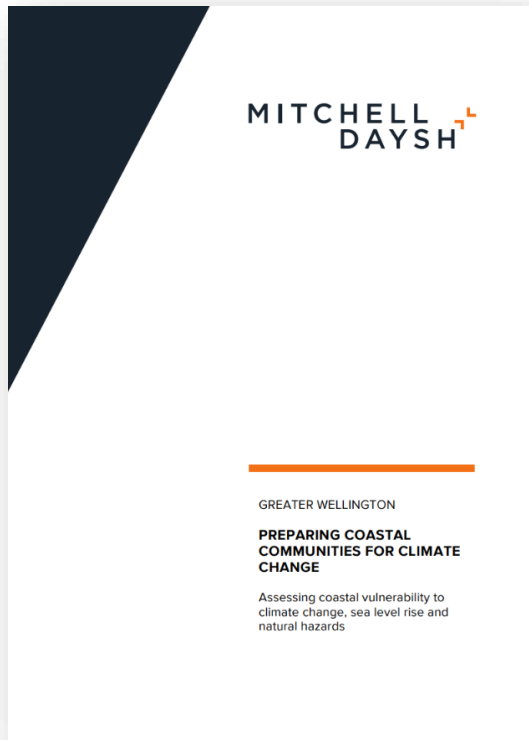
- Rod Carr, Chair of the Climate Change commission.



# Context

# Regional Vulnerability Assessment

Completed 2019



# Submissions 2022–2023

**HUTT CITY**  
TE AWA KAIRANGI

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03 June 2022

National Adaptation Plan and Managed Retreat Consultation  
Ministry for the Environment  
Manatū Mō Te Taiao  
PO Box 10362  
WELLINGTON 6143  
Email: [adaptation@mfe.govt.nz](mailto:adaptation@mfe.govt.nz)

**Attention: Submission's analysis team**

Submission on the Ministry for the Environment's consultation on Te Mahere Urutaunga ā-Motu: draft National Adaptation Plan and Kia Urutau, and Kia Ora: Kia Āhuarangi Rite a Aotearoa, Adapt and Thrive: Building a Climate-Resilient New Zealand

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## 1. INTRODUCTION

Tēnā koutou

I am writing to you on behalf of the officers of Hutt City Council, hereafter referred to as Hutt City Council<sup>1</sup>. On 28 April 2022, the New Zealand Government released a consultation document on a proposed draft national adaptation plan (NAP) and managed retreat proposal<sup>1</sup>. This document includes issues and options for developing New Zealand's first national adaptation and managed retreat plans to help Aotearoa New Zealand adapt to and minimise the harmful impacts of climate change.

Hutt City Council endorses the government's policy direction and looks forward to the final national adaptation plan by August 2022 as this is a significant step towards building resilience across Aotearoa New Zealand to address the impacts of climate change and protect our communities. Local government urgently needs guidance as [recent data](#) shows that climate

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<sup>1</sup> In light of the time frames for making submissions, it is sometimes not feasible to have formal submissions endorsed by Council or a Council committee.

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01 November 2023

Environment Committee Staff  
Environment Committee Staff  
Parliament Buildings  
Wellington  
[en@parliament.govt.nz](mailto:en@parliament.govt.nz)

**Attention: Parliamentary Select Committee, Parliament, Wellington**

Submission on Komiti Whiriwhiri Take Taiao Parliamentary Environment Committee Inquiry into Climate Adaptation considering options for community-led retreat and adaptation funding

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## INTRODUCTION

Tēnā koutou

This submission is written on behalf of Hutt City Council. The Parliamentary Environment Commission recently launched an inquiry into community-led retreat and climate change adaptation funding. Recommendations from the inquiry aim to support the development of the proposed Climate Change Adaptation Bill next year. Submissions on the inquiry are due to the Select Committee on 1 November.

This piece of work falls under the Ministry for the Environment's (MfE) Action 5.1 in the National Adaptation Plan (NAP) *Pass legislation to support managed retreat*. MfE has released an issues and options paper addressing key adaptation challenges including barriers to Māori participation in adaptation; variable quality of risk assessments and local adaptation planning; no enduring and comprehensive system for retreat; and gaps in our funding approach.

The [Community-led retreat Issues and options](#) seeks feedback on a range of issues to inform the inquiry including:

- The concept of 'community-led retreat'
- How to better support Māori in adaptation and retreat.

# Coastal inundation and sea level rise assessment for the Hutt City District - NIWA

Completed 2023



Figure B-5: Present day 1% AEP inundation level (m NZVD 2016).



Figure B-6: 1% AEP inundation level at 2130 via SSP2-4.5 (m NZVD 2016).



Coastal inundation and sea level rise assessment for the Hutt City District

*Prepared for Hutt City Council*

*June 2023*

# Progress on adaptation across the motu and at council

National actions <b>Adaptation</b>	<ul style="list-style-type: none"><li>• 2019 Climate Change Commission established</li><li>• 2020 National Climate Change Risk Assessment was published</li><li>• 2022 The first National Adaptation Plan was published</li><li>• 2025 Adaptation Act (is anticipated)</li></ul>
Council actions <b>Adaptation</b>	<ul style="list-style-type: none"><li>• 2019 Regional Vulnerability Assessment</li><li>• 2022 Submission: National Adaptation Plan</li><li>• 2023 Submission: Community-led Retreat Issues and Options</li><li>• 2023 Coastal inundation and sea level rise assessment</li><li>• 2022-2024 Region Climate Change Impact Assessment</li></ul>



# WRCCIA

Exploring the report

## Wellington Regional Climate Change Impact Assessment

Final Report

Prepared for Wellington City Council and Partner Councils

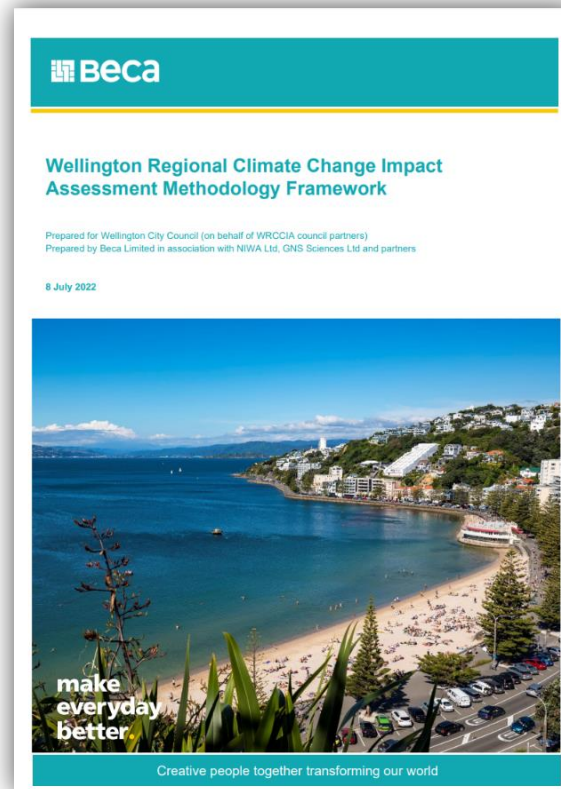
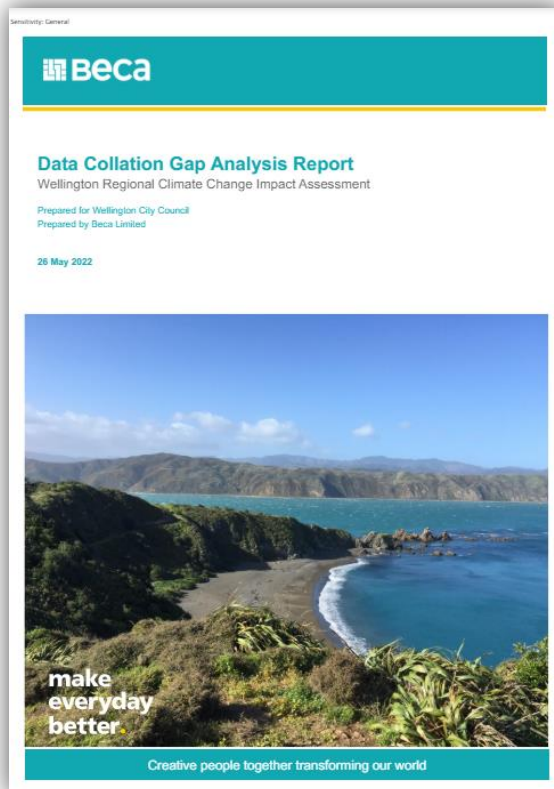
Prepared by Beca Limited in association with NIWA Ltd, GNS Science, Dr Judy Lawrence and Dr Ilan Noy

12 February 2024





# 3 stage approach to Impact assessment



**Goal of the Wellington Regional Climate Change Impact Assessment is to build the region's collective capacity to adapt to climate change impacts in the next 100+ years.**



Figure 5 Overview of the Regional Adaptation Project



# Report overview



## Wellington Regional Climate Change Impact Assessment

Final Report

Prepared for Wellington City Council and Partner Councils  
Prepared by Beca Limited in association with NIWA Ltd, GNS Science, Dr Judy Lawrence and Dr Iian Noy

12 February 2024



Creative people together transforming our world

## Climate change hazards

- All climate change variables available for Greater Wellington Region (not just SLR or coastal issues)

## Topics included

5 domains: infrastructure, natural environment, people, economy, governance

- 36 sub-topics

## Climate change timeframes & scenarios

- Present, mid-century, end of the century
- High & low emissions scenarios






## Risks & Impacts

- Direct & indirect physical risks & impacts (6 different types)

## Data availability

- Best available data was used

# 5 domains

 <b>Oranga Whenua</b>	<b>Natural Environment</b>	<p>All aspects of the natural environment that support the full range of our indigenous species, he kura taiao (living treasures), indigenous &amp; taonga species, and the ecosystems in terrestrial, freshwater and marine environments.</p>
 <b>Oranga Tangata</b>	<b>Human</b>	<p>People's skills, knowledge, and physical and mental health (human); the norms, rules, and institutions of society (social); and the knowledge, heritage, beliefs, arts, morals, laws, and customs that infuse society, including culturally significant buildings and structures (cultural).</p>
 <b>Taiohanga</b>	<b>Built Environment</b>	<p>The set and configuration of physical infrastructure, transport, and buildings sectors including housing, public amenity, water, wastewater, stormwater, energy, transport, communications, waste and coastal defences.</p>
 <b>Whairawa</b>	<b>Economy</b>	<p>The set and arrangement of inter-related production, distribution, trade, and consumption that allocate scarce resources.</p>
 <b>Kāwanatanga</b>	<b>Governance</b>	<p>The governance architecture and processes in and between governments, and economic and social institutions. Institutions hold the rules and norms that shape interactions and decisions, and the agents that act within their frameworks.</p>



# RCP scenarios

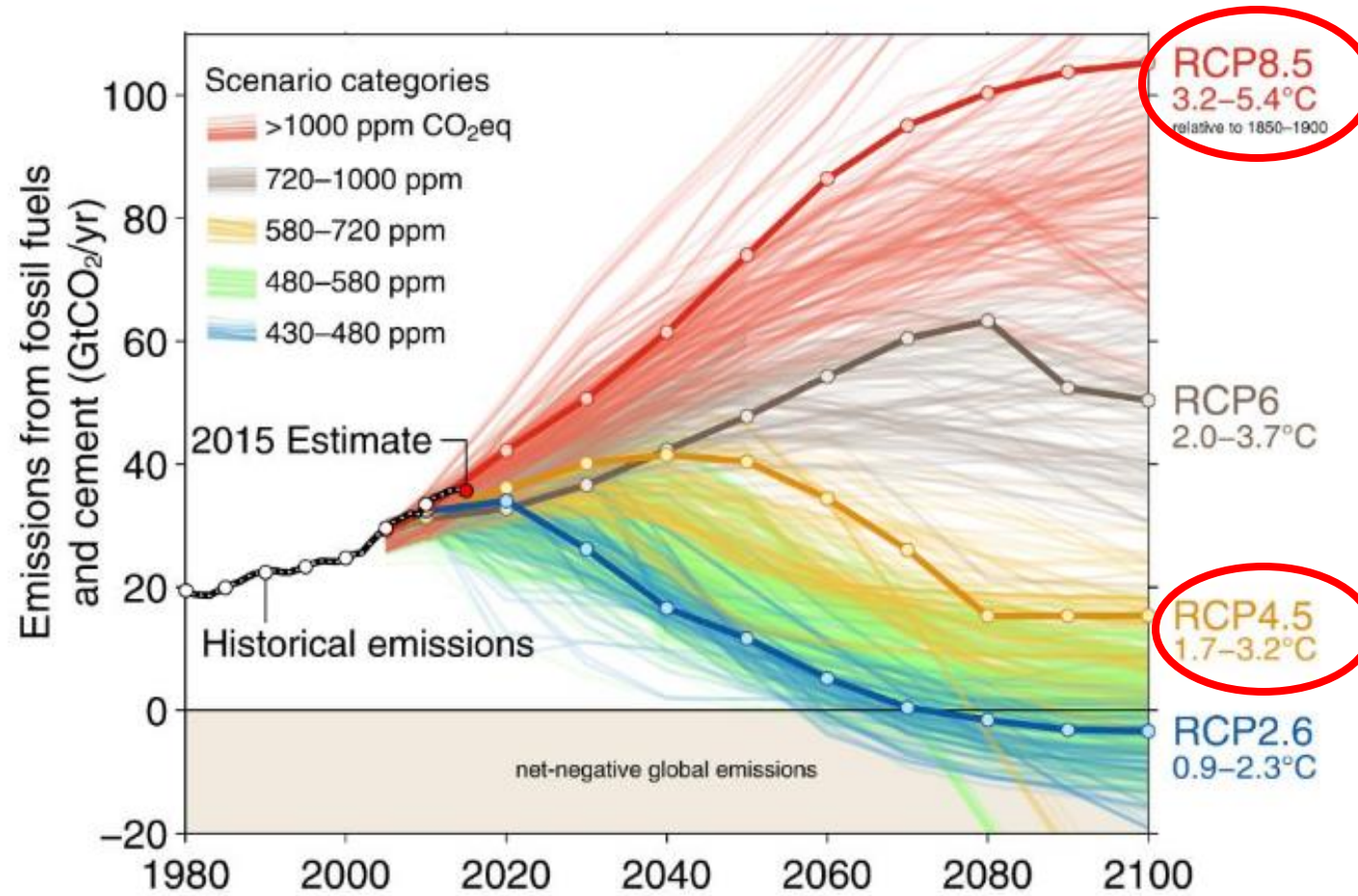


Figure 5: RCP Scenarios Showing Annual Emissions per Year

# Risks and Opportunities for the region

Table 1: Number of Risks and Opportunities Identified by Domain / Type Across the Region

Value Domain	Number of Risks	Number of Opportunities
Natural Environment	73	2
Human	69	4
Built Environment	128	
Economy	93	5
Governance	6	
Transition	5	1
<b>Total</b>	<b>363</b>	<b>12</b>

## General risk framework

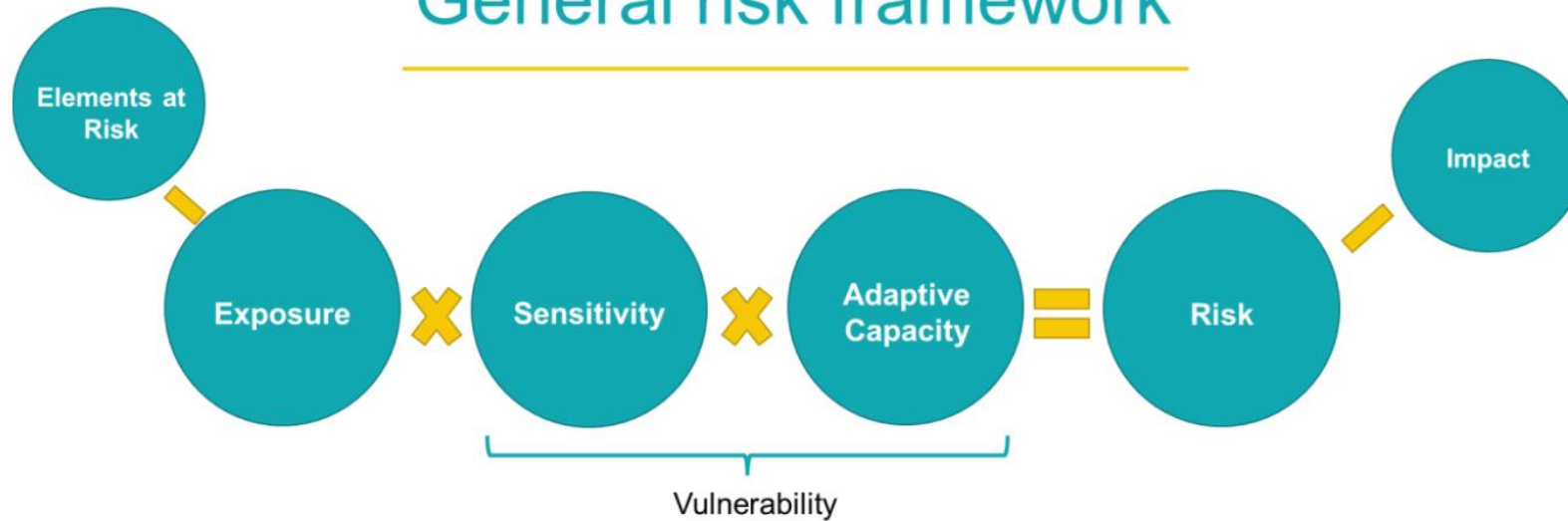


Figure 2: Risk Assessment Framework. Adapted from MfE’s Guide to Local Climate Change Risk Assessments (2021)

Risks	Risk Rating			Impact Rating
	Present	Long 2100 RCP4.5	Long 2100 RCP8.5	
Risk to buildings and facilities (public and private) due to coastal erosion: cliffs and beaches	High	Extreme	Extreme	Catastrophic

# Built Environment – Top 5 Risks out of 128

Table 2: Top Five Risks Identified - Built Environment Domain

Risks	Risk Rating			Impact Rating
	Present	Long 2100 RCP4.5	Long 2100 RCP8.5	
Risk to buildings and facilities (public and private) due to coastal erosion: cliffs and beaches	High	Extreme	Extreme	Catastrophic
Risk to transport (road and rail) landslides and soil erosion	High	Extreme	Extreme	Major
Risk to buildings and facilities (public and private) due to coastal and estuarine flooding	Moderate	High	High	Catastrophic
Risk to buildings and facilities (public and private) due to increasing landslides and soil erosion	Moderate	High	High	Catastrophic
Risk to flood and coastal defences due to river and pluvial flooding	Moderate	High	High	Major





# Human – Top 5 Risks out of 69

Table 33: Five Key Risk Identified - Human Domain

Risks	Risk Rating			Impact Rating
	Present	Long 2100 RCP4.5	Long 2100 RCP8.5	
Risk to social cohesion due to coastal and estuarine flooding	Moderate	Extreme	Extreme	Catastrophic
Risk to cultural heritage due to sea-level rise and salinity stresses on brackish and aquifer systems and coastal lowland rivers	Moderate	Extreme	Extreme	Catastrophic
Risk to existing inequities due to river and pluvial flooding	Low	High	Extreme	Catastrophic
Risk to existing inequities due to coastal and estuarine flooding	Moderate	Extreme	Extreme	Major
Risk to existing inequities due to increasing coastal erosion: cliffs and beaches	Moderate	Extreme	Extreme	Major

# Natural Environment o Top 5 Risks out of 73

Table 44: Five Key Risks Identified - Natural Environment Domain

Risks	Risk Rating			Impact Score
	Present	2100 RCP4.5	2100 RCP8.5	
Risk to freshwater ecosystems, services and processes due to higher mean water temperatures	Moderate	Extreme	Extreme	Catastrophic
Risk to freshwater ecosystems, services and processes due to river and pluvial flooding	Extreme	Extreme	Extreme	Major
Risk to terrestrial and forest ecosystems, services and processes due to reducing snow and ice cover	Moderate	Extreme	Extreme	Major
Risk to freshwater ecosystems, services and processes due to increasing landslides and soil erosion	Moderate	Extreme	Extreme	Major
Risk to coastal and marine ecosystems, services and processes due to sea-level rise and salinity stresses on brackish and aquifer systems and coastal lowland rivers	Moderate	Extreme	Extreme	Major



# Economic – Top 5 Risks out of 93

Table 55: Five Key Risks Identified – Economic Domain

Risks	Risk Rating			Impact Rating*
	Present	Long 2100 RCP4.5	Long 2100 RCP8.5	
Risk to tourism and hospitality due to international influences from climate change and greenhouse gas mitigation preferences	Low	Extreme	Extreme	Moderate
Risk to public services due to international influences from climate change and greenhouse gas mitigation preferences	Low	High	High	Major
Risk to forestry economic sector due to increasing fire–weather conditions: harsher, prolonged season	Moderate	High	High	Moderate
Risk to insurance coverage and credit provision due to increasing fire–weather conditions: harsher, prolonged season	Low	High	High	Moderate
Risk to insurance coverage and credit provision due to increased storminess and extreme winds	Low	High	High	Moderate



# Governance Risk – 6

Table 6: Governance Risks

Risk ID	Risks	Rating
Gov. Risk 1	The inability of the institutional arrangements to be applied to the increasing complexity of climate change impacts, including their cascading and compounding effects	Extreme
Gov. Risk 3	Weak central / local government relationship driven by conflicting priorities from central government including political change, lack of continuity of political leadership, numerous points of adaptation entry for local government and central government creating barriers to adaptation action	Major
Gov. Risk 4	Failure of coordination between local government agencies and with central government due to a short-term focus on local jurisdictional interests and the 3-year electoral cycle	Major
Gov. Risk 2	Inadequate council partnership and engagement mechanisms with iwi, hapū and iwi / Māori	Major
Gov. Risk 6	Ongoing uncertainty, slow adaptation and potential maladaptation and litigation arising from slow implementation of the resource management law reform	Major



## Baring Head monitoring station measurements

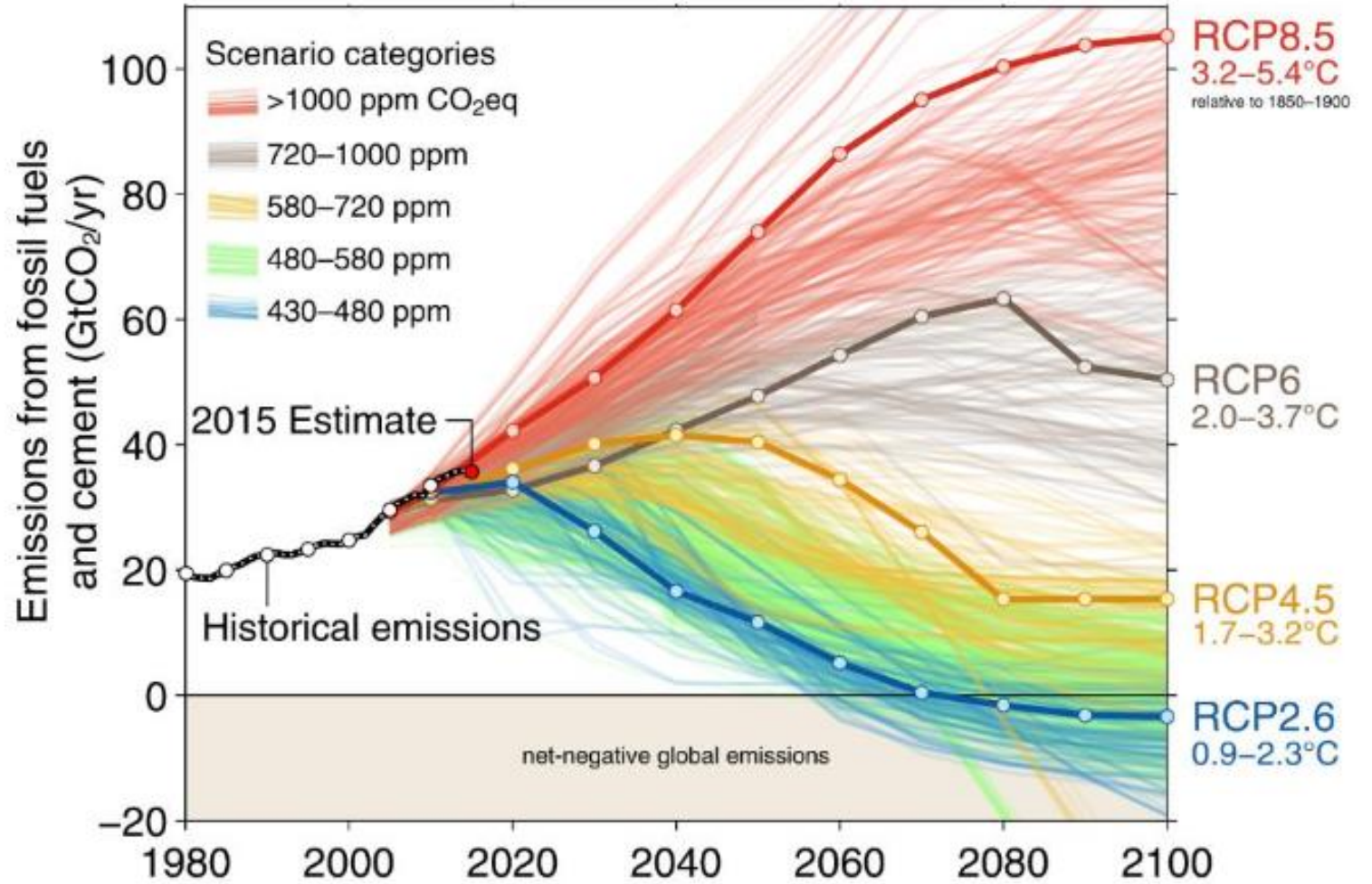
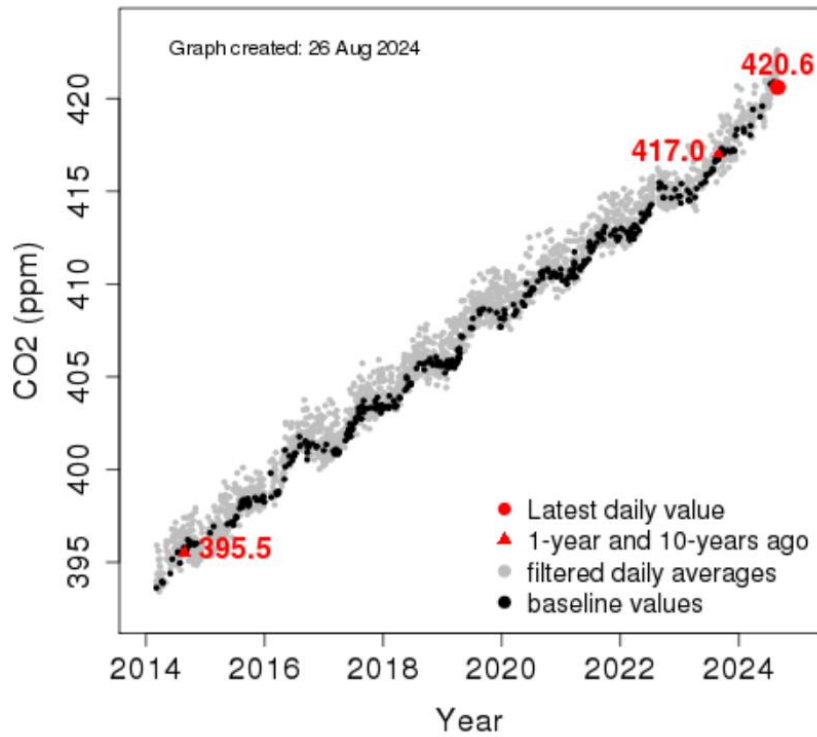


Figure 5: RCP Scenarios Showing Annual Emissions per Year

# RCP 4.5 (1% AEP + 0.9m SLR)



## b. Key Areas of Impact

A large number of buildings are at risk of coastal flooding impacts under present and future 1% AEP coastal storm events. A 1% AEP event occurring at the end of the century under RCP4.5 (+0.9m SLR as projected) will impact these areas the most:

Table 3627: Number and Example locations of buildings impacted by 1% AEP coastal flood levels across districts

District	Number of Buildings at risk	Details
Lower Hutt	4,690	Predominately in Petone area
Wellington City	219	Harbour side bays, primarily mixed use or commercial and including the Wellington Railway Station.
Porirua	172	Paremata, Plimmerton and Paekākāriki, primarily residential with some recreational facilities.
Masterton	125	Riversale Beach, primarily residential.
South Wairarapa	39	Aorangi Forest and Kahutara (via flooding of Ruamāhanga River and Lake Wairarapa).
Carterton	3	Rural zoned buildings.

# Regional scenario at RCP 8.5

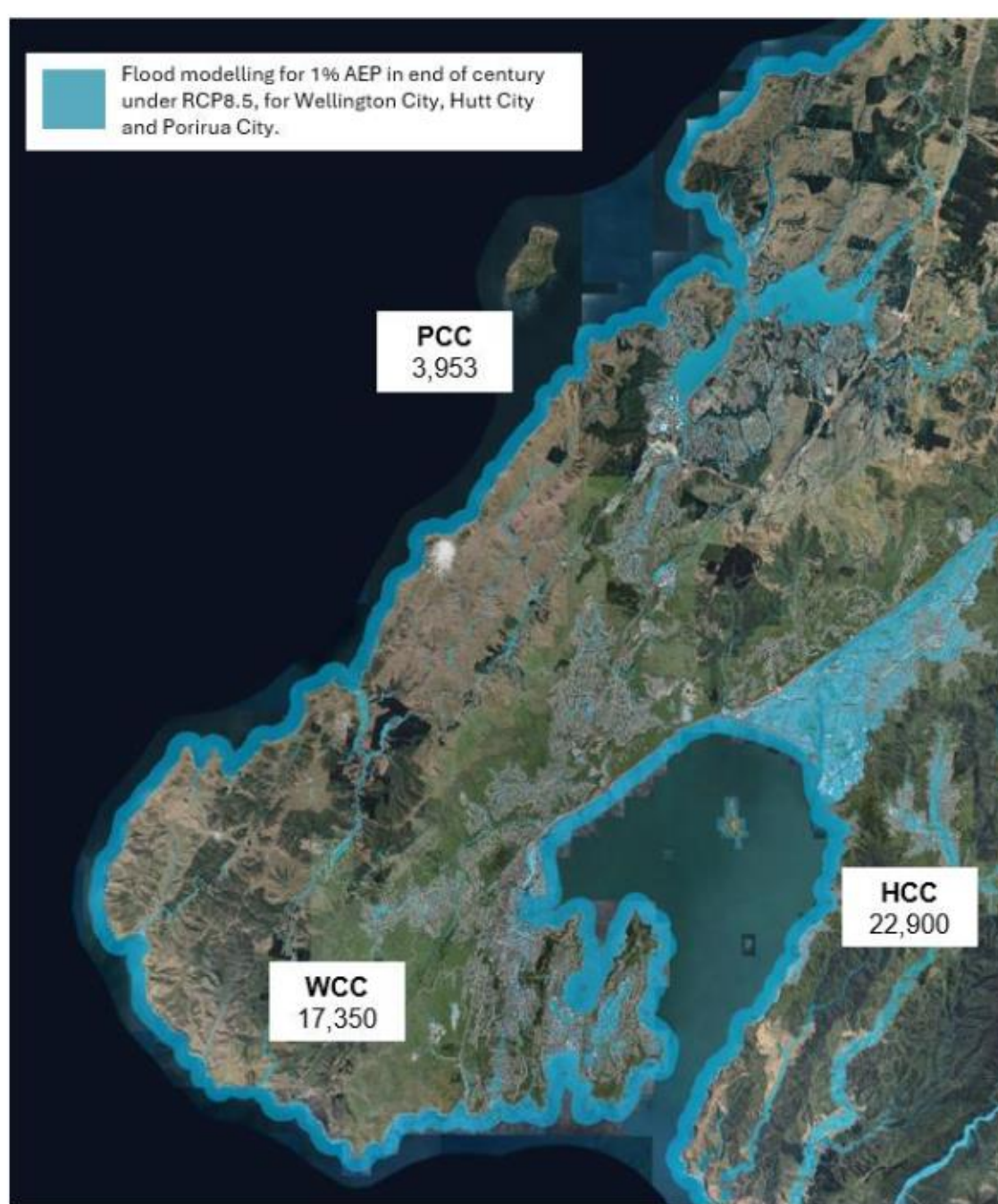


Figure 14: Pluvial Flood Modelling for 1% AEP in End of Century Under RCP8.5 and the number of buildings impacted in Wellington, Hutt City and Porirua (GWRC Regional Flood Exposure Model Viewer)



# Summary report for decision makers

A summary report for decision maker is currently under development.

Anticipated to be complete within 3 month.

Condense key information into less than 20 pages (from 200)



**“In many ways, the report told us what we already know – the region must plan for the impacts of increasing climate hazards and invest in adaptation. However, this is the first time this information has been brought together from a regional perspective, highlighting the interconnected nature of climate risks and what cannot be done at local level”**

# Pātai